GIS REGISTRY
Cover Sheet

July, 2008
(RR 5367)

Source Property Information

CLOSURE DATE: Feb 12, 2009

BRRTS #: 02-60-529018

FID #: 460032430

ACTIVITY NAME: Former C Reiss Coal Co Property #2

DATCP #:

PROPERTY ADDRESS: 820 Indiana Ave.

COMM #:

MUNICIPALITY: Sheboygan

PARCEL ID #: See attached

***WTM COORDINATES:**

X: 704053 Y: 365959

** Coordinates are in WTM83, NAD83 (1991)*

WTM COORDINATES REPRESENT:

○ Approximate Center Of Contaminant Source

◉ Approximate Source Parcel Center

Please check as appropriate: (BRRTS Action Code)

Contaminated Media:

☐ Groundwater Contamination > ES *(236)*

- ☐ Contamination in ROW
- ☐ Off-Source Contamination

*(**note:** for list of off-source properties see "Impacted Off-Source Property")*

☒ Soil Contamination > *RCL or **SSRCL *(232)*

- ☐ Contamination in ROW
- ☐ Off-Source Contamination

*(**note:** for list of off-source properties see "Impacted Off-Source Property")*

Land Use Controls:

☐ Soil: maintain industrial zoning *(220)*

*(**note:** soil contamination concentrations between residential and industrial levels)*

☐ Structural Impediment *(224)*

☐ Site Specific Condition *(228)*

☒ Cover or Barrier *(222)*

*(**note:** maintenance plan for groundwater or direct contact)*

☐ Vapor Mitigation *(226)*

☐ Maintain Liability Exemption *(230)*

*(**note:** local government or economic development corporation)*

Monitoring wells properly abandoned? *(234)*

○ Yes ◉ No ○ N/A

** Residual Contaminant Level*
***Site Specific Residual Contaminant Level*

GIS Registry Checklist

This Adobe Fillable form is intended to provide a list of information that is required for evaluation for case closure. It is to be used in conjunction with Form 4400-202, Case Closure Request. The closure of a case means that the Department has determined that no further response is required at that time based on the information that has been submitted to the Department.

NOTICE: Completion of this form is mandatory for applications for case closure pursuant to ch. 292, Wis. Stats. and ch. NR 726, Wis. Adm. Code, including cases closed under ch. NR 746 and ch. NR 726. The Department will not consider, or act upon your application, unless all applicable sections are completed on this form and the closure fee and any other applicable fees, required under ch. NR 749, Wis. Adm. Code, Table 1 are included. It is not the Department's intention to use any personally identifiable information from this form for any purpose other than reviewing closure requests and determining the need for additional response action. The Department may provide this information to requesters as required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

BRRTS #: 06-60-202664 PARCEL ID #: See attached page for list of parcel identification numbers

ACTIVITY NAME: Former C. Reiss Coal Co. / Sheboygan Lakefront WTM COORDINATES: X: See Y: page

CLOSURE DOCUMENTS (the Department adds these items to the final GIS packet for posting on the Registry)

- [X] **Closure Letter**
- [X] **Maintenance Plan** (*if activity is closed with a land use limitation or condition (land use control) under s. 292.12, Wis. Stats.*)
- [ ] **Conditional Closure Letter**
- [X] **Certificate of Completion (COC)** for VPLE sites

SOURCE LEGAL DOCUMENTS

- [X] **Deed:** The most recent deed as well as legal descriptions, for the **Source Property** (where the contamination originated). Deeds for other, off-source (off-site) properties are located in the **Notification** section.
  Note: *If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.*
- [ ] **Certified Survey Map:** A copy of the certified survey map or the relevant section of the recorded plat map *for those properties where the legal description in the most recent deed refers to a certified survey map or a recorded plat map.* (lots on subdivided or platted property (e.g. lot 2 of xyz subdivision)).

  Figure #: **Title:**
- [X] **Signed Statement:** A statement signed by the Responsible Party (RP), which states that he or she believes that the attached legal description accurately describes the correct contaminated property.

MAPS (meeting the visual aid requirements of s. NR 716.15(2)(h))

Maps must be no larger than 8.5 x 14 inches unless the map is submitted electronically.

- [X] **Location Map:** A map outlining all properties within the contaminated site boundaries on a U.S.G.S. topographic map or plat map in sufficient detail to permit easy location of all parcels. If groundwater standards are exceeded, include the location of all potable wells within 1200 feet of the site.
  Note: *Due to security reasons municipal wells are not identified on GIS Packet maps. However, the locations of these municipal wells must be identified on Case Closure Request maps.*

  Figure #: 1 **Title: Site Location Map**
- [X] **Detailed Site Map:** A map that shows all relevant features (buildings, roads, individual property boundaries, contaminant sources, utility lines, monitoring wells and potable wells) within the contaminated area. This map is to show the location of all contaminated public streets, and highway and railroad rights-of-way in relation to the source property and in relation to the boundaries of groundwater contamination exceeding a ch. NR 140 Enforcement Standard (ES), and/or in relation to the boundaries of soil contamination exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Levels (SSRCL) as determined under s. NR 720.09, 720.11 and 720.19.

  Figure #: **Title: See attached page**
- [X] **Soil Contamination Contour Map:** For sites closing with residual soil contamination, <u>this map is to show the location of all contaminated soil and a single contour</u> showing the horizontal extent of each area of contiguous residual soil contamination that exceeds a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL)as determined under s. NR 720.09, 720.11 and 720.19.

  Figure #: **Title: See attached page**

BRRTS #: 06-60-202664 ACTIVITY NAME: Former C. Reiss Coal Co. / Sheboygan Lakefront

MAPS (continued)

☒ **Geologic Cross-Section Map:** A map showing the source location and vertical extent of residual soil contamination exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL). If groundwater contamination exceeds a ch. NR 140 Enforcement Standard (ES) when closure is requested, show the source location and vertical extent, water table and piezometric elevations, and locations and elevations of geologic units, bedrock and confining units, if any.

Figure #: 3 **Title: Geologic Cross Location Map [for Property #2]**

Figure #: 4 **Title: Geologic Cross Sections A-A' and B-B' [for Property #2]**

☒ **Groundwater Isoconcentration Map:** For sites closing with residual groundwater contamination, this map shows the horizontal extent of all groundwater contamination exceeding a ch. NR140 Preventive Action Limit (PAL) and an Enforcement Standard (ES). Indicate the direction and date of groundwater flow, based on the most recent sampling data.
Note: *This is intended to show the total area of contaminated groundwater.*

Figure #: **Title: See attached page**

☒ **Groundwater Flow Direction Map:** A map that represents groundwater movement at the site. If the flow direction varies by more then 20° over the history of the site, submit 2 groundwater flow maps showing the maximum variation in flow direction.

Figure #: 3 **Title: Groundwater Contour Map (July 19 & 20, 2005) [for Property #1]**

Figure #: 2 **Title: Groundwater Contour Map (12-28-06) [for Property #2]**

TABLES (meeting the requirements of s. NR 716.15(2)(h)(3))

Tables must be no larger than 8.5 x 14 inches unless the table is submitted electronically. Tables must not contain shading and/or cross-hatching. The use of **BOLD** or *ITALICS* is acceptable.

☒ **Soil Analytical Table:** A table showing remaining soil contamination with analytical results and collection dates.
Note: This is one table of results for the contaminants of concern. Contaminants of concern are those that were found during the site investigation, that remain after remediation. It may be necessary to create a new table to meet this requirement.

Table #: **Title: See attached page**

☒ **Groundwater Analytical Table:** Table(s) that show the most recent analytical results and collection dates, for all monitoring wells and any potable wells for which samples have been collected.

Table #: **Title: See attached page**

☒ **Water Level Elevations:** Table(s) that show the previous four (at minimum) water level elevation measurements/dates from all monitoring wells. If present, free product is to be noted on the table.

Table #: **Title: See attached page**

IMPROPERLY ABANDONED MONITORING WELLS

For each monitoring well not properly abandoned according to requirements of s. NR 141.25 include the following documents.
Note: *If the site is being listed on the GIS Registry for only an improperly abandoned monitoring well you will only need to submit the documents in this section for the GIS Registry Packet.*

☐ **Not Applicable**

☒ **Site Location Map:** A map showing all surveyed monitoring wells with specific identification of the monitoring wells which have not been properly abandoned.
Note: *If the applicable monitoring wells are distinctly identified on the Detailed Site Map this Site Location Map is not needed.*

Figure #: **Title:**

☒ **Well Construction Report:** Form 4440-113A for the applicable monitoring wells.

☐ **Deed:** The most recent deed as well as legal descriptions for each property where a monitoring well was not properly abandoned.

☐ **Notification Letter:** Copy of the notification letter to the affected property owner(s).

BRRTS #: 06-60-202664 ACTIVITY NAME: Former C. Reiss Coal Co. / Sheboygan Lakefront

NOTIFICATIONS

Source Property

☐ **Letter To Current Source Property Owner:** If the source property is owned by someone other than the person who is applying for case closure, include a copy of the letter notifying the current owner of the source property that case closure has been requested.

☐ **Return Receipt/Signature Confirmation:** Written proof of date on which confirmation was received for notifying current source property owner.

Off-Source Property

Group the following information per individual property and label each group according to alphabetic listing on the "Impacted Off-Source Property" attachment.

☐ **Letter To "Off-Source" Property Owners:** Copies of all letters sent by the Responsible Party (RP) to owners of properties with groundwater exceeding an Enforcement Standard (ES), and to owners of properties that will be affected by a land use control under s. 292.12, Wis. Stats.
Note: *Letters sent to off-source properties regarding residual contamination must contain standard provisions in Appendix A of ch. NR 726.*

Number of "Off-Source" Letters:

☐ **Return Receipt/Signature Confirmation:** Written proof of date on which confirmation was received for notifying any off-source property owner.

☐ **Deed of "Off-Source" Property:** The most recent deed(s) as well as legal descriptions, for all affected deeded **off-source property(ies).** This does not apply to right-of-ways.
Note: *If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.*

☒ **Letter To "Governmental Unit/Right-Of-Way" Owners:** Copies of all letters sent by the Responsible Party (RP) to a city, village, municipality, state agency or any other entity responsible for maintenance of a public street, highway, or railroad right-of-way, within or partially within the contaminated area, for contamination exceeding a groundwater Enforcement Standard (ES) and/or soil exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL).

Number of "Governmental Unit/Right-Of-Way Owner" Letters: 1

PARCEL IDENTIFICATION NUMBERS

59281-300200
59281-300210
59281-300220
59281-300020
59281-300090
59281-300100
59281-321300
59281-321310
59281-505730
59281-505740
59281-505750

WTM COORDINATES

Property #1: 704586 , 366269
Property #2: 704053, 365959

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Gloria L. McCutcheon, Regional Director

Southeast Region Headquarters
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, Wisconsin 53212-3128
FAX 414-263-8606
Telephone 414-263-8500
TTY Access via relay - 711

February 12, 2009

Ms. Paulette Enders
Redevelopment Authority of the City of Sheboygan
807 Center Avenue
Sheboygan, WI 53081

SUBJECT: Final Case Closure with Land Use Limitations or Conditions
Former C. Reiss Coal Co./Sheboygan Lakefront Property, Property #1, 1011 S. 8th St. and Property #2, 820 Indiana Ave., Sheboygan, WI
WDNR BRRTS Activity #: 02-60-000470 (Property #1) and 02-60-529018 (Property #2) FID#460032430

Dear Ms. Enders:

On January 8, 2009, a request for closure of the above referenced cases was presented to the Wisconsin Department of Natural Resources (the Department) Southeast Region Closure Committee. This committee reviews environmental remediation cases for compliance with state laws and standards to maintain consistency in the closure of these cases.

Based on the correspondence and data provided, it appears that your case meets the requirements of ch. NR 726, Wisconsin Administrative Code. The Department considers this case closed and no further investigation or remediation is required at this time.

GIS Registry

The conditions of case closure set out below in this letter require that your site be listed on the Remediation and Redevelopment Program's GIS Registry. The specific reasons are summarized below:

- Residual soil contamination exists that must be properly managed should it be excavated or removed
- Pavement, an engineered cover or a soil barrier must be maintained over contaminated soil and the state must approve any changes to this barrier
- The seawall that borders the Sheboygan River on Property #1 must be maintained
- Groundwater contamination is present above Chapter NR 140 enforcement standards
- One or more monitoring wells were not located and must be properly abandoned if found

Information that was submitted with your closure request application will be included on the GIS Registry. To review the sites on the GIS Registry web page, visit the RR Sites Map page at http://dnr.wi.gov/org/aw/rr/gis/index.htm. If your property is listed on the GIS Registry because of remaining contamination and you intend to construct or reconstruct a well, you will need prior Department approval in accordance with s. NR 812.09(4)(w), Wis. Adm. Code. To obtain approval,

Form 3300-254 needs to be completed and submitted to the DNR Drinking and Groundwater program's regional water supply specialist. This form can be obtained on-line at http://dnr.wi.gov/org/water/dwg/3300254.pdf or at the web address listed above for the GIS Registry.

Closure Conditions

Please be aware that pursuant to s. 292.12 Wisconsin Statutes, compliance with the requirements of this letter is a responsibility to which the Redevelopment Authority of the City of Sheboygan and any subsequent property owners must adhere. If these requirements are not followed or if additional information regarding site conditions indicates that contamination on or from the site poses a threat to public health, safety, welfare, or the environment, the Department may take enforcement action under s. 292.11 Wisconsin Statutes to ensure compliance with the specified requirements, limitations or other conditions related to the property or this case may be reopened pursuant to s. NR 726.09, Wis. Adm. Code. It is the Department's intent to conduct inspections in the future to ensure that the conditions included in this letter including compliance with referenced maintenance plans are met.

Cover or Barrier

Pursuant to s. 292.12(2)(a), Wis. Stats., the engineered barrier consisting of asphalt and concrete pavements, building floor slabs and a soil cover system that currently exists in the locations shown on the attached map shall be maintained in compliance with the **attached maintenance plan** in order to minimize the infiltration of water and prevent additional groundwater contamination that would violate the groundwater quality standards in ch. NR 140, Wis. Adm. Code, and to prevent direct contact with residual soil contamination that might otherwise pose a threat to human health. If soil in the specific locations described above is excavated in the future, the property owner at the time of excavation must sample and analyze the excavated soil to determine if residual contamination remains. If sampling confirms that contamination is present, the property owner at the time of excavation will need to determine whether the material would be considered solid or hazardous waste and ensure that any storage, treatment or disposal is in compliance with applicable statutes and rules. In addition, all current and future owners and occupants of the property need to be aware that excavation of the contaminated soil may pose an inhalation or other direct contact hazard and as a result special precautions may need to be taken during excavation activities to prevent a health threat to humans.

The attached maintenance plan and inspection log shall be maintained by the City of Sheboygan, kept up-to-date and, and the inspection log need only be submitted to the Department upon request.

Prohibited Activities

The following activities are prohibited on any portion of the property where [pavement, a building foundation, soil cover, engineered cap or other barrier] is required as shown on the attached map, unless prior written approval has been obtained from the Wisconsin Department of Natural Resources: 1) removal of the existing barrier; 2) replacement with another barrier; 3) excavating or grading of the land surface; 4) filling on capped or paved areas; 5) plowing for agricultural cultivation; or 6) construction or placement of a building or other structure.

Seawall

The seawall that currently exists along the property boundary with the Sheboygan River as shown on the attached map shall be maintained in compliance with the **attached maintenance plan** in order to serve as a physical barrier to limit river water influx into the site, groundwater discharge from the site and erosion of contaminated soil from the site. The attached maintenance plan and inspection log are to be maintained by the City of Sheboygan, kept up-to-date, and the inspection log need only be submitted to the Department upon request.

Remaining Residual Groundwater Contamination

Groundwater impacted by volatile organic compounds contamination greater than enforcement standards set forth in ch. NR140, Wis. Adm. Code, is present on the contaminated property. For more detailed information regarding the locations where groundwater samples have been collected (i.e., monitoring well locations) and the associated contaminant concentrations, refer to the Remediation and Redevelopment Program's GIS Registry at the RR Sites Map page at http://dnr.wi.gov/org/aw/rr/gis/index.htm.

Monitoring Wells that could not be properly abandoned

Your consultant, Sigma Environmental Services notified the Department that monitoring well(s) MW-109, MW-112, MW-113, MW-116, MW-203, MW-303 located on Property #1 and monitoring wells MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 located on Property #2 could not be properly abandoned because they had been lost due to being paved over, covered or removed during site development activities. Your consultant has made a reasonable effort to locate the lost wells to determine whether they properly abandoned but has been unsuccessful in those efforts. You need to understand that in the future you may be held liable for any problems associated with monitoring wells if they create a conduit for contaminants to enter groundwater. If in the future any of the lost groundwater monitoring wells are found, the then current owner of the subject property will be required to notify the Department and to properly abandon the wells in compliance with the requirements in ch. NR 141, Wis. Adm. Code, and to submit the required documentation of that abandonment to the Department.

Because these lost monitoring wells were not properly abandoned, your site will be listed on the DNR Remediation and Redevelopment GIS Registry.

Chapter NR 140, Wis. Adm. Code Exemption

Recent groundwater monitoring data at this site indicates exceedances of one or more of the ch. NR 140, Wis. Adm. Code, public welfare enforcement standards for iron, manganese, chloride and sulfate at monitoring wells MW-7, MW-108R, MW-9R, MW-110A, MW-111R, MW-112R, MW-113R, MW-114, MW-115, PZ-115A, MW-116R, PZ-116A, MW-117, MW-203R, MW-301-R, MW-302, MW-303, MW-304, MW-305, MW-306 on Property #1 and MW-1, MW-2, MW-3R, MW-5R, MW-6R and MW-7R on Property #2. The Department may grant an exemption for a substance of public welfare concern, or nitrate, pursuant to s. NR 140.28(2)(a), Wis. Adm. Code, if actions have been taken to achieve the lowest possible concentration for that substance which is technically and economically feasible and the existing or anticipated increase in the concentration of that substance does not present a threat to public health or welfare.

Based on the information you provided, the Department believes that the above criteria have been or will be met. Therefore, pursuant to s. NR 140.28(2)(a), Wis. Adm. Code, an exemption to the enforcement standards is granted for iron, manganese, chloride and sulfate at the above-referenced wells. This letter serves as your exemption.

The Department appreciates your efforts to restore the environment at this site. If you have any questions regarding this closure decision or anything outlined in this letter, please contact Nancy Ryan at (920) 892-8756 ext. 3025.

Sincerely,

Frances M. Koonce

Frances M. Koonce
Southeast Region Remediation & Redevelopment Sub-team Team Supervisor

cc: SER site file ✓
Adam Roder, Sigma Environmental Services
Bill Phelps, WDNR, DG/2

ENGINEERED BARRIER MAINTENANCE PLAN
FORMER C. REISS COAL COMPANY PROPERTIES #1 AND #2
HARBOR CENTRE SOUTH PIER DISTRICT
1011 S. 8TH STREET & 820 INIDANA AVENUE, SHEGOYGAN, WISCONSIN 53081
VPLE BRRTS #06-60-202664
FEBRUARY 2009

Property #1 and Property #2 have been developed under direction of the Redevelopment Authority of the City of Sheboygan. Property #1 has been improved with asphalt and concrete pavements, sidewalks, multiple buildings with concrete floor slabs, and a soil cover system in green space areas to limit exposure to residual contamination in underlying soil and limit precipitation infiltration in the central area of the site. Property #2 has also been improved with asphalt and concrete pavements, sidewalks, one a building with a concrete floor slab, and a soil cover system in green space areas to limit exposure to residual contamination in underlying soil. An overview of these surface cover systems is provided below:

- Roadways consist of 8 inches of concrete pavement installed over approximately 10 inches of gravel base course.
- Parking lots consist of a minimum of 3 inches of asphalt pavement installed over approximately 9 inches of gravel base course.
- Sidewalks consist of approximately 4 inches of concrete pavement installed over several inches of gravel base course.
- Building floor slabs consist of approximately 6 inches of concrete installed over at least 9 inches of gravel base course.
- The soil cover system consists of 1.5 feet of clean imported soil covered with 6 inches of vegetated topsoil. In most cases the 1.5 feet zone of clean soil consists of silty clay or clay. In the central area of Property #1 as shown in **Figure 1**, the 1.5-foot thick zone of clean soil increases to 2 feet in order to limit precipitation infiltration; this zone of soil is compacted clay that meets the grain size specifications set forth in Wisconsin Administrative Code, Chapter NR 504.06(2)(a)1 for landfill liners. This 2-foot thick layer of compacted clay is also covered with 6 inches of vegetated topsoil.

These site improvements that serve as engineered barriers are depicted on **Figure 1** ("Engineered Barrier Map for Property #1") and **Figure 2** ("Engineered Barrier Map for Property #2") and cannot be disturbed without prior approval from the Wisconsin Department of Natural Resources (WDNR).

While construction is complete at Property #2 as of the date of this document, it is expected that additional construction will occur on Property #1. Any future alterations to the engineered barrier system on Property #1 must be pre-approved by the WDNR and follow the conditions set forth in this Engineered Barrier Maintenance Plan. The normal operation of the engineered barriers will serve as a physical barrier between site soils and typical, non-invasive users of the site and limit precipitation infiltration into the subsurface. The engineered barriers will function as intended unless disturbed.

Disturbance Management

The City of Sheboygan and any subsequent property owner will take the following steps to assure that uncontrolled disturbances of the engineered barrier do not occur:

- The WDNR's case closure documents and Geographic Information System (GIS) Registry will establish any future land use, development, and management restrictions for the site. This Engineered Barrier Maintenance Plan will be incorporated into the case closure documents and/or GIS Registry, which will together identify the environmental impacts, the nature of the engineered barriers, and the requirements regarding the management of impacted soils.

- A copy of this Engineered Barrier Maintenance Plan will be available from the City of Sheboygan (and any subsequent property owner) to all interested parties.

- A copy of this Engineered Barrier Maintenance Plan will be provided to all utility companies seeking easements for the purpose of installing utilities at the site.

- A copy of this Engineered Barrier Maintenance Plan will be provided to all contractors and repair workers, including utility and landscaping services, for construction and repair activities that may disturb the subsurface soil.

Inspections of Engineered Barriers

Inspections will be performed by the City of Sheboygan or its agents to assure that the engineered barriers are functioning as planned:

- Inspections of the engineered barriers will be performed on an approximately annual basis for all accessible areas. Inspections should be completed when the ground surface is readily visible and free of visual impediments (e.g., snow, parking lots completely filled with parked vehicles, etc.).

- As necessary, the engineered barriers will be repaired to maintain integrity. Repairs may include, but are not limited to, the following:

    - Patching, sealing, or replacing asphalt and concrete pavements where it has cracked or otherwise broken to expose underlying soil;

    - Patching, sealing, or replacing concrete floor slabs within buildings where it has cracked or otherwise broken to expose underlying soil; and

    - Filling low spots in greenspace areas with clean topsoil and stabilizing the area with vegetation to match the surrounding ground cover.

- An inspection log will be maintained to record any disturbances of the engineered barriers and the steps that have been taken to maintain the integrity of the engineered barriers. The inspection log will be made available for inspection by representatives of the WDNR upon reasonable prior request. The on-site inspection log will be maintained by the City of Sheboygan and any subsequent property owner as long as inspection and maintenance of the engineered barriers are

required. An example inspection log page is included with this Engineered Barrier Maintenance Plan.

Planned Breaches of Engineered Barriers

In the event an engineered barrier is breached, the following precautions shall be taken:

- The excavation zone and any soils excavated will be secured from public access until the engineered barrier is restored.

- The City of Sheboygan (or subsequent property owner) will make soil data available to workers who will penetrate the engineered barrier to allow for appropriate health and safety planning.

- All material excavated from beneath an engineered barrier will be returned to the excavation prior to the restoration of the engineered barrier. While on-site, the excavated soil will be placed on an impervious surface (e.g., asphalt pavement, concrete pavement, or plastic) and covered with plastic. Excess soil that cannot be returned to the excavation will be sampled and disposed of at a licensed landfill facility in accordance with applicable solid and/or hazardous waste rules and regulations.

- The engineered barrier will be restored in accordance with the "Material Handling & Engineered Barrier Plan..." dated May 19, 2003 (as approved by the Wisconsin Department of Natural Resources on May 21, 2003) and as summarized within this Engineered Barrier Maintenance Plan to meet original conditions as soon as possible.

- Details of the engineered barrier breach, the handling of excavated soils, individuals responsible for the work, and the restoration of the engineered barrier shall be recorded in the engineered barrier maintenance log.

Protocol for Management of Buried Underground Piping

Some of the underground piping associated with former bulk petroleum aboveground storage tanks (ASTs) has been abandoned in-place at Property #1. The former ASTs and piping locations as determined from the best available drawings are depicted on Figure 3 ("Former AST & Potential Underground Piping Map").

The environmental issues associated with the remnant underground piping may include the possibility of asbestos wrap around the piping and the potential for residual petroleum hydrocarbon liquid remaining within the piping. In order to maintain environmental and human safety if the underground piping from the former bulk petroleum AST system is encountered during future excavation work, the following protocol shall be implemented:

- Municipal, state, and/or federal rules and regulations regarding proper asbestos abatement and disposal shall be followed during all activities that disturb the piping. Municipal, state, and/or federal rules and regulations regarding proper petroleum hydrocarbon product management and disposal shall be followed during all activities that disturb the piping.

- A qualified environmental professional shall be retained to conduct and monitor the activities.

- Any residual free liquids within the piping shall be contained in storage containers of sufficient size and composition such that the liquid may be temporarily stored within the container; the liquid shall then be disposed at a licensed treatment/disposal facility.

- Once all available free liquids from within the piping have been adequately removed, the end(s) of the piping shall be sealed with 3,000 psi concrete such that a plug at least one foot in thickness seals the end(s) of the piping.

- The excavation shall be backfilled with the excavated soil if suitable for compaction and post-excavation land uses and the engineered barrier shall be reconstructed as described above in the "Planned Breaches of Engineered Barriers" section.

- The excavated portion of piping shall be disposed of at a landfill facility that is licensed to accept asbestos-containing waste.

Amendments

The Engineered Barrier Maintenance Plan may be amended or withdrawn upon written approval from the WDNR or its successor agency.

Contact Information

- For responsible party and owner information contact:
  Redevelopment Authority of the City of Sheboygan
  c/o Department of City Development
  807 Center Avenue
  Sheboygan, WI 53081
  Telephone: (920) 459-3379
  Contact: Ms. Paulette Enders, Director of Planning and Development

- For environmental consultant information contact:
  Sigma Environmental Services, Inc.
  1300 West Canal Street
  Milwaukee, WI 53233
  Telephone: (414) 643-4200
  Contact: Mr. Adam Roder, P.E.

- For Wisconsin Department of Natural Resources information contact:
  Wisconsin Department of Natural Resources
  Plymouth Service Center
  11555 Pilgrim Parkway
  Plymouth, WI 53073
  Telephone: (920) 892-8756 x 3025
  Contact: Ms. Nancy Ryan

ENGINEERED BARRIER INSPECTION LOG
FORMER C. REISS COAL COMPANY PROPERTIES #1 AND #2
HARBOR CENTRE SOUTH PIER DISTRICT
1011 S. 8TH STREET & 820 INIDANA AVENUE, SHEGOYGAN, WISCONSIN 53081
VPLE BRRTS #06-60-202664

Inspection Date	Inspector	Condition of Cap	Recommendations	Have recommendations from previous inspection been implemented?

City of Sheboygan
spirit on the lake

SHEBOYGAN RIVER

STA. 0+00 (FOR START OF SEAWALL INSPECTIONS)

CONCRETE TRAIL

EXPOSED REVETMENT

ASPHALT TRAIL

LAKE MICHIGAN

SHORELINE (VARIES)

APPROXIMATE LIMIT OF SOIL FROM FORMER BERMS (AS PLACED IN MARCH 2003) WITH IMPERMEABLE ENGINEERED BARRIERS

BURIED REVETMENT

EXTENT OF SOIL COVER SYSTEM, PAVEMENT, AND BUILDING FLOOR SLAB ENGINEERED BARRIERS

LEGEND

⊙,⊙ = FORMER MONITORING WELLS

⊙,⊙ = FORMER PIEZOMETER LOCATIONS

N

0 150 ft.

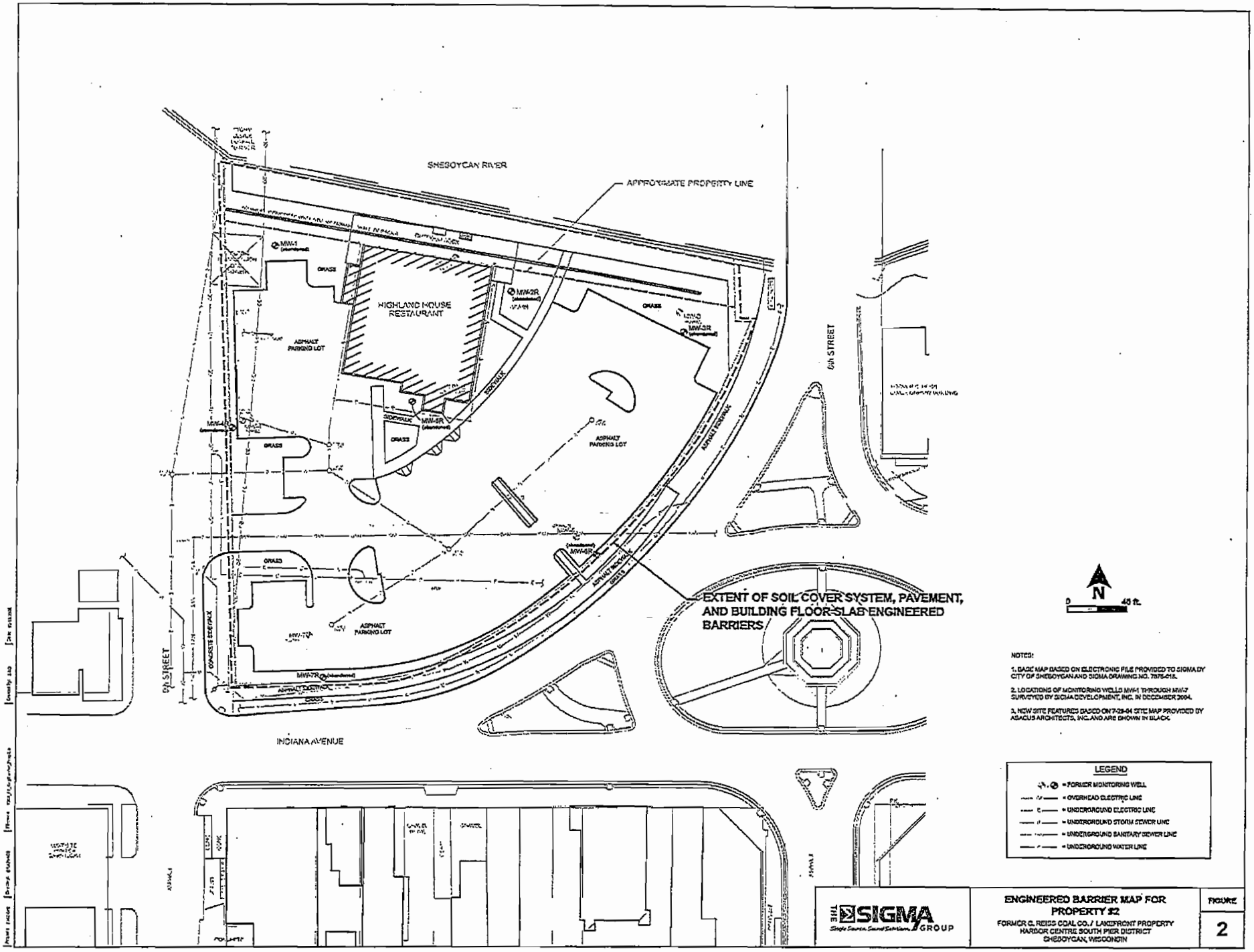
NOTE: BASEMAP IS SIGMA DRAWING NO. 7302-046

THE SIGMA GROUP

ENGINEERED BARRIER MAP FOR PROPERTY #1

FORMER C. REISS COAL CO. / LAKEFRONT PROPERTY
HARBOR CENTRE SOUTH PIER DISTRICT
SHEBOYGAN, WISCONSIN

FIGURE 1



NOTES:

1. BASE MAP BASED ON ELECTRONIC FILE PROVIDED TO SIGMA BY CITY OF SHEBOYGAN AND SIGMA DRAWING NO. 7976-01B.

2. LOCATIONS OF MONITORING WELLS MW-1 THROUGH MW-7 SURVEYED BY SIGMA DEVELOPMENT, INC. IN DECEMBER 2004.

3. NEW SITE FEATURES BASED ON 7-29-04 SITE MAP PROVIDED BY ABACUS ARCHITECTS, INC. AND ARE SHOWN IN BLACK.

LEGEND

- = FORMER MONITORING WELL
- = OVERHEAD ELECTRIC LINE
- = UNDERGROUND ELECTRIC LINE
- = UNDERGROUND STORM SEWER LINE
- = UNDERGROUND SANITARY SEWER LINE
- = UNDERGROUND WATER LINE

THE SIGMA GROUP
Single Source. Sound Solution.

ENGINEERED BARRIER MAP FOR PROPERTY #2

FORMER C. REISS COAL CO. / LAKEFRONT PROPERTY
HARBOR CENTRE SOUTH PIER DISTRICT
SHEBOYGAN, WISCONSIN

FIGURE
2

City of Sheboygan
spirit on the lake

SHEBOYGAN RIVER

SHEBOYGAN RIVER

LAKE MICHIGAN

MW-301R
MW-301
MW-108R
MW-107
MW-305
MW-302
MW-113R
MW-113
MW-11R
MW-12
PZ-113A
MW-115
MW-114
PZ-116A
MW-116R
MW-109R
MW-204
MW-203
MW-306
MW-203R
MW-106

LEGEND

⊗ = FORMER MONITORING WELL

⊙ = FORMER PIEZOMETER LOCATION

—— = POTENTIAL PIPE LOCATION

N

0 150 ft.

NOTE: BASEMAP IS SIGMA DRAWING NO. 7302-046, NO. 7302-030 AND NO. 7302-039.

THE SIGMA GROUP
Single Source. Sound Solutions.

FORMER AST & POTENTIAL UNDERGROUND PIPING MAP

FORMER C. REISS COAL CO. / LAKEFRONT PROPERTY
HARBOR CENTRE SOUTH PIER DISTRICT
SHEBOYGAN, WISCONSIN

FIGURE 3

SEAWALL MAINTENANCE PLAN
FORMER C. REISS COAL COMPANY PROPERTY #1
HARBOR CENTRE SOUTH PIER DISTRICT
1011 S. 8TH STREET, SHEGOYGAN, WISCONSIN 53081
VPLE BRRTS #06-60-202664
OCTOBER 2008

The northern and western edges of Property #1 border the Sheboygan River. Between March and October 2003, a new seawall (steel sheet piles with a concrete cap and integrated promenade walkway) was installed along the entire length of Property #1. The new seawall was installed just outboard of the previous wood pile and steel sheet pile seawalls, beginning at the base of South Pier and extending west past the 8th Street bridge. The void between the new steel sheet piles and existing retaining structure was filled with low-strength slurry. In addition to providing the structural stability needed to develop Property #1 adjacent to the Sheboygan River, the interlocking sheet piles used to construct the seawall provide a physical barrier to limit river water influx into the site and groundwater discharge (particularly chloride) from the site.

Seawall Management

The City of Sheboygan and any subsequent property owner will take the following steps to assure that uncontrolled disturbances of the seawall do not occur:

- The Wisconsin Department of Natural Resources' (WDNR's) case closure documents and Geographic Information System (GIS) Registry will establish any future land use, development, and management restrictions for the site. This Seawall Maintenance Plan will be incorporated into the case closure documents and/or GIS Registry, which will together identify the environmental impacts and the requirements regarding the management of the seawall relative to the environmental impacts.

- A copy of this Seawall Maintenance Plan will be available from the City of Sheboygan (and any subsequent property owner) to all interested parties.

- A copy of this Seawall Maintenance Plan will be provided to all contractors and repair workers for construction and/or repair activities that may disturb the seawall.

Inspections of Seawall

Inspections will be performed by the City of Sheboygan or its agents to assure that the seawall is functioning as planned. Observations should be referenced by station numbers, with an origin at the base of South Pier (i.e., Sta. 0+00) and continuing to the 8th Street bridge.

- Visual inspections of the seawall above the river's water line, concrete cap, and promenade walkway will be performed on an annual basis for all accessible areas. Areas of inspection may include, but are not limited to: ultrasonic thickness measurements of the steel sheet piles near the water line, and identifying missing bolts in the seawall; rust, dents, or other holes in the seawall; cracks in concrete components; and subsidence of the promenade walkway or other soil areas inland

of the seawall. Inspections should be completed when the ground surface and seawall is readily visible and free of visual impediments (e.g., snow, ice, etc.).

- Underwater inspections of the seawall below the river's water line will be performed after any river dredging operations adjacent to the site or if visual inspections show evidence of potentially more significant problems that require an underwater inspection. At a minimum, an underwater inspection will be performed every five (5) years. Areas of inspection may include, but are not limited to: depth measurements to river sediments, tapping the face of the sheet piles with a hammer to estimate the "soundness" of the steel, and any visual observations allowed by water clarity.

- As necessary, the seawall will be repaired to maintain integrity. Repairs may include, but are not limited to, the following:

    - Grouting open holes in the sheet piles or joints between sheet piles;

    - Repairing or replacing any loose wood fenders;

    - Repairing sections of steel sheet piles; and

    - Repairing concrete components of the cap and/or promenade walkway that experience deterioration or subsidence.

- An inspection log of the visual inspections will be maintained to record any disturbances to the seawall and the steps that have been taken to maintain the integrity of the seawall. A brief report should also be generated for each underwater inspection that documents the locations of observations, inspection and test results, and recommendations for repairs. The inspection log and underwater inspection reports will be made available for review by representatives of the WDNR upon reasonable prior request. The documentation will be maintained as long as inspection and maintenance of the seawall are required for environmental purposes. An example inspection log page is included with this Seawall Maintenance Plan.

<u>Amendments</u>
The Seawall Maintenance Plan may be amended or withdrawn upon written approval from the WDNR or its successor agency.

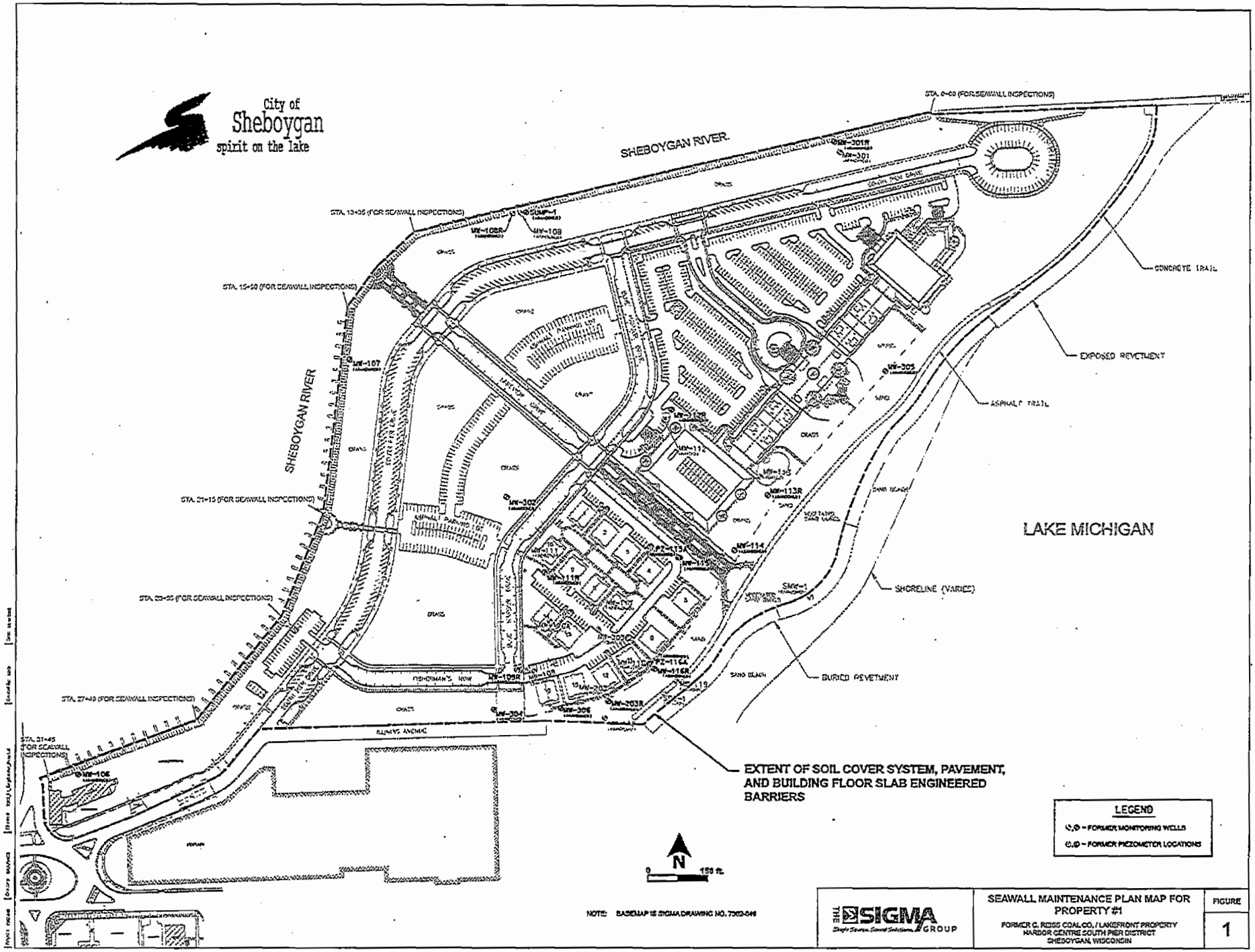
<u>Contact Information</u>
- For responsible party and owner information contact:
    Redevelopment Authority of the City of Sheboygan
    c/o Department of City Development
    807 Center Avenue
    Sheboygan, WI 53081
    Telephone: (920) 459-3379
    Contact: Ms. Paulette Enders, Director of Planning and Development

- For environmental consultant information contact:
  Sigma Environmental Services, Inc.
  1300 West Canal Street
  Milwaukee, WI 53233
  Telephone: (414) 643-4200
  Contact: Mr. Adam Roder, P.E.

- For Wisconsin Department of Natural Resources information contact:
  Wisconsin Department of Natural Resources
  Plymouth Service Center
  11555 Pilgrim Parkway
  Plymouth, WI 53073
  Telephone: (920) 892-8756 x 3025
  Contact: Ms. Nancy Ryan

SEAWALL INSPECTION LOG
FORMER C. REISS COAL COMPANY PROPERTY #1
HARBOR CENTRE SOUTH PIER DISTRICT
1011 S. 8TH STREET, SHEGOYGAN, WISCONSIN 53081
VPLE BRRTS #06-60-202664

Inspection Date	Inspector	Condition of Seawall	Recommendations	Have recommendations from previous inspection been implemented?


City of
Sheboygan
spirit on the lake
SHEBOYGAN RIVER
SHEBOYGAN RIVER
STA. 0+00 (FOR SEAWALL INSPECTIONS)
STA. 13+35 (FOR SEAWALL INSPECTIONS)
STA. 15+50 (FOR SEAWALL INSPECTIONS)
STA. 21+15 (FOR SEAWALL INSPECTIONS)
STA. 23+35 (FOR SEAWALL INSPECTIONS)
STA. 27+40 (FOR SEAWALL INSPECTIONS)
STA. 31+45 (FOR SEAWALL INSPECTIONS)
CONCRETE TRAIL
EXPOSED REVETMENT
ASPHALT TRAIL
LAKE MICHIGAN
SHORELINE (VARIES)
BURIED REVETMENT
EXTENT OF SOIL COVER SYSTEM, PAVEMENT, AND BUILDING FLOOR SLAB ENGINEERED BARRIERS
LEGEND
⊙,⊙ – FORMER MONITORING WELLS
⊙,⊙ – FORMER PIEZOMETER LOCATIONS
N
0
150 ft.
NOTE: BASEMAP IS SIGMA DRAWING NO. 7362-048
THE SIGMA GROUP
SEAWALL MAINTENANCE PLAN MAP FOR PROPERTY #1
FORMER C. REISS COAL CO. / LAKEFRONT PROPERTY
HARBOR CENTRE SOUTH PIER DISTRICT
SHEBOYGAN, WISCONSIN
FIGURE
1

Former C. Reiss coal Co Property #2

Parcel Identification Numbers

59281-505730
59281-505740
59281-505750

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN
DEPT. OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Gloria L. McCutcheon, Regional Director

Southeast Region Headquarters
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee, Wisconsin 53212-3128
FAX 414-263-8606
Telephone 414-263-8500
TTY Access via relay - 711

February 11, 2010

Ms. Paulette Enders
Redevelopment Authority of the City of Sheboygan
807 Center Avenue
Sheboygan, WI 53081

Subject: A *Certificate of Completion* for the Environmental Investigation and Cleanup of Property Owned by the Redevelopment Authority of the City of Sheboygan referred to as the former C. Reiss Coal Co./Sheboygan Lakefront property located at 1011 South 8th St. and 820 Indiana Avenue, Sheboygan, Wisconsin

Dear Ms. Enders:

The Department of Natural Resources ("the Department") has received your request for issuance of a *Certificate of Completion* for the environmental investigation and cleanup of property owned by the Redevelopment Authority of the City of Sheboygan located at 1011 South 8th St. and 820 Indiana Avenue, Sheboygan, Wisconsin, referred to in this letter as "the Property". You have requested that the Department determine whether the Redevelopment Authority of the City of Sheboygan has met the requirements under s. 292.15(2), Wis. Stats., for issuance of a *Certificate of Completion.*

The Property is an irregular-shaped parcel of real property encompassing approximately 43 acres identified by Sheboygan County parcel identification numbers 59281-300200, 59281-300210, 59281-300220, 59281-300020, 59281-300090, 59281-300100, 59281-300300, 59281-300310, 59281-505730, 59281-505740 and 59281-505750.

As you are aware, s. 292.15, Wis. Stats., authorizes the Department to issue a *Certificate of Completion* to a voluntary party that conducts an approved environmental investigation of a property and restores the environment to the extent practicable and minimizes the harmful effects with respect to hazardous substance discharges on or originating from the property. Based on the information received by the department, the Department has determined that the investigation and cleanup of the Property is complete and that all the conditions in s. 292.15(2), Wis. Stats., have been met. Attached is the *Certificate of Completion* for this Property.

The Department appreciates the work undertaken by the Redevelopment Authority of the City of Sheboygan to investigate and cleanup contamination associated with the Property. The exemption provided by the *Certificate of Completion* applies to any successor or assignee of the Redevelopment Authority of the City of Sheboygan if the successor or assignee complies with the appropriate conditions, pursuant to s. 292.15(3), Wis. Adm. Code. If you have any questions or concerns regarding this letter or the *Certificate of Completion*, please call me at (414) 263-8533.

Sincerely,

Nancy D. Ryan

Nancy D. Ryan, Hydrogeologist
Remediation and Redevelopment

Attachment: *Certificate of Completion*

cc: SER site file
Land Recycling Program

State of Wisconsin
Department of Natural Resources

CERTIFICATE OF COMPLETION OF RESPONSE ACTIONS UNDER SECTION 292.15(2)(ae), WIS. STATS.

Whereas, **the Redevelopment Authority of the City of Sheboygan** has applied for an exemption from liability under s. 292.15, Wis. Stats., for the property located at **1011 South 8th Street and 820 Indiana Avenue, Sheboygan**, which is commonly referred to as the former C. Reiss Coal Co./Sheboygan Lakefront property further described in the legal description found on Attachment A ("the Property");

Whereas, an environmental investigation of the Property has been conducted and the Wisconsin Department of Natural Resources ("WDNR") has determined that environmental contamination exists at the Property;

Whereas, **the Redevelopment Authority of the City of Sheboygan** has submitted to the WDNR certain investigation reports and a remedial action plan for the Property which comply with the requirements set forth in chs. NR 700-754, Wis. Adm. Code, consisting of the documents and reports listed in Attachment B;

Whereas, in accordance with s. 292.15(2)(ae), Wis. Stats., the WDNR has determined that an environmental investigation has been conducted which adequately identified and evaluated the nature and extent of the hazardous substance discharges on the Property and WDNR has approved of the site investigation and remedial action plan for the Property;

Whereas, **the Redevelopment Authority of the City of Sheboygan** has paid to WDNR the appropriate insurance fee and has submitted a complete insurance application form to obtain coverage under the state's master insurance contract in accordance with s. 292.15(2)(ae)3m., Wis. Stats., and ch. NR 754, Wis. Adm. Code, based on their desire to use natural attenuation to remediate groundwater contamination that exceeds ch. NR 140, Wis. Adm. Code, groundwater quality enforcement standards;

Whereas, the Property with soil contamination that exceeds residual contaminant levels ("RCLs") under ch. NR 720, Wis. Adm. Code and groundwater contamination that exceeds a ch. NR 140 enforcement standard, will be included on the department's geographic information system registry of closed remediation sites and the voluntary party has submitted all the information to the WDNR necessary to be included on this registry pursuant to s. NR 726.05(3)(a)4., Wis. Adm. Code;

Whereas, on February 12, 2009, WDNR issued a case closure letter for the Property (Attachment C). The closure determination was based on a land use plan of mixed use development, that did not include single family residential use. The WDNR closure letter requires maintenance of engineered controls in order to minimize infiltration of water for the purpose of preventing further degradation of groundwater quality that would violate groundwater quality standards in ch. NR 140, Wis. Adm. Code, and to prevent direct contact with residual soil contamination that might otherwise pose a threat to public health, safety or welfare. The case closure letter described the following requirements to which current and future owners of the Property shall adhere to:

Cover or Barrier

Pursuant to s. 292.12(2)(a), Wis. Stats., the engineered barrier consisting of asphalt and concrete pavements, building floor slabs and a soil cover system that currently exists in the locations shown on the attached map shall be maintained in compliance with the attached maintenance plan (attached to the closure letter in attachment C) in order to minimize the infiltration of water and prevent additional groundwater contamination that would violate the groundwater quality standards in ch. NR 140, Wis. Adm. Code, and to prevent direct contact with residual soil contamination that might otherwise pose a threat to human health. If soil in the specific locations described above is excavated in the future, the Property owner at the time of excavation must sample and analyze the excavated soil to determine if residual contamination remains. If sampling confirms that contamination is present, the Property owner at the time of excavation will need to determine whether the material would be considered solid or hazardous waste and ensure that any transportation, storage, treatment or disposal is in compliance with applicable statutes and rules. In addition, all current and future owners and occupants of the Property need to be aware that excavation of the contaminated soil may pose an inhalation or other direct contact hazard and as a result special precautions may need to be taken during excavation activities to prevent a health threat to humans.

The attached maintenance plan and inspection log shall be maintained by the City of Sheboygan, kept up-to-date and, and the inspection log need only be submitted to the Department upon request.

Prohibited Activities

The following activities are prohibited on any portion of the Property where pavement, a building foundation, soil cover, engineered cap or other barrier is required as shown on the attached map, unless prior written approval has been obtained from the WDNR: 1) removal of the existing barrier; 2) replacement with another barrier; 3) excavating or grading of the land surface; 4) filling on capped or paved areas; 5) plowing for agricultural cultivation; or 6) construction or placement of a building or other structure.

Seawall

The seawall that currently exists along the Property boundary with the Sheboygan River as shown on the attached map shall be maintained in compliance with the **attached maintenance plan** (attached to closure letter in Attachment C) in order to serve as a physical barrier to limit river water influx into the site, groundwater discharge from the site and erosion of contaminated soil from the site. The attached maintenance plan and inspection log are to be maintained by the City of Sheboygan, kept up-to-date, and the inspection log need only be submitted to the Department upon request.

Remaining Residual Groundwater Contamination

Groundwater impacted by volatile organic compounds contamination greater than enforcement standards set forth in ch. NR140, Wis. Adm. Code, is present on the Property. For more detailed information regarding the locations where groundwater samples have been collected (i.e., monitoring well locations) and the associated contaminant concentrations, refer to the Remediation and Redevelopment Program's GIS Registry at the RR Sites Map page at http://dnr.wi.gov/org/aw/rr/gis/index.htm.

Monitoring Wells that could not be properly abandoned

Sigma Environmental Services notified the Department that Monitoring well(s) MW-109, MW-112, MW-113, MW-116, MW-203, MW-303 located on Property #1 and monitoring wells MW-2, MW-3, MW-4, MW-5, MW-6, MW-7 located on Property #2 could not be properly abandoned because they had been lost due to being paved over, covered or removed during site development activities. Your consultant has made a reasonable effort to locate the lost wells to determine whether they properly abandoned but has been unsuccessful in those efforts. The owner of this Property is responsible under s. 292.11, Stats for any discharges of hazardous substances that are caused if those monitoring wells create a conduit for contaminants to enter groundwater. This Certificate of Completion does not provide a liability exemption from any hazardous substance discharge that occurs after the approval of the site investigation. If in the future any of the lost groundwater monitoring wells are found, the owner of the Property shall notify the WDNR, shall properly abandon the wells in compliance with the requirements in ch. NR 141, Wis. Adm. Code, and submit the required documentation of that abandonment to the WDNR.

Whereas, on Feb 12. 2009, the WDNR granted an exemption under NR 140.28(2)(a) for having iron, manganese, chloride and sulfate in groundwater above ch. NR 141, Wis. Adm. Code public welfare enforcements standards;

Whereas, if the requirements of case closure are not followed, or if the Property is used for single family housing without the prior approval of the WDNR, the WDNR may take actions under ss. 292.11 or 292.12, Wis. Stats., to ensure compliance with the specified requirements, and the person who owns or controls the Property may no longer qualify for the liability protections under s. 292.15, Wis. Stats.;

Whereas, the WDNR determined that response actions necessary to restore the environment to the extent practicable with respect to the discharges and minimize the harmful effects from the discharges to the air, land, and waters of the state were completed, except with respect to groundwater contaminated with trichloroethene above ch. NR 140, Wis. Adm. Code, enforcement standard that WDNR has determined will be brought into compliance through natural attenuation, in accordance with rules promulgated by WDNR.

Therefore, based upon the information that has been submitted to the WDNR, the WDNR hereby certifies that the response actions set forth in the WDNR approved remedial action plan for the Property and any other necessary response actions have been completed, except with respect to trichloroethene contaminated groundwater above ch. NR 140, Wis. Adm. Code, enforcement standards that WDNR has determined will be brought into compliance through natural attenuation, in accordance with rules promulgated by WDNR.

Upon issuance of this Certificate, **the Redevelopment Authority of the City of Sheboygan** and the persons qualified for protection under s. 292.15(3), Wis. Stats., are exempt from the provisions of ss. 289.05(1), (2), (3) and (4), 289.42(1), 289.67, 291.25(1) to (5), 291.29, 291.37, 292.11(3), (4), and (7)(b) and (c) and 292.31(8), Wis. Stats., with respect to the existence of hazardous substances on or originating from the Property, the release of which occurred prior to the date the department approved the environmental investigation required under s. 292.15(2)(ae)1., Wis. Stats. However, **the Redevelopment Authority of the City of Sheboygan** and a person otherwise qualified for protection under s. 292.15(3), Wis. Stats., who owns or controls the Property would no longer qualify for this liability exemption if that person fails to maintain or monitor the Property as required by the conditions in this Certificate, the February 12, 2009 case closure letter and maintenance plan [Attachment C], s. 292.12, Wis. Stats., and administrative rules promulgated by the WDNR. Any releases of a hazardous substance to or from the Property that occur after the date that the environmental investigation was approved will be the responsibility of the current Property owner and any other person who possesses or controls that discharge and any person who caused the discharge.

If natural attenuation fails, the insurance coverage under s. 292.15(2)(ae)3m., Wis. Stats., may be used to cover the costs of complying with s. 292.11(2), Wis. Stats., with respect to groundwater quality.

The protection from liability provided under s. 292.15(2), Wis. Stats., does not apply to any person who has obtained a Certificate of Completion by fraud or misrepresentation, or by the knowing failure to disclose material information or under circumstances in which **the Redevelopment Authority of the City of Sheboygan** knew or should have known about more discharges of hazardous substances than was revealed by the investigation approved by the WDNR.

Nothing in this Certificate or in s. 292.15, Wis. Stats., affects the authority of the WDNR to exercise any powers or duties under applicable laws other than ss. 289.05(1), (2), (3) and (4),

289.42(1), 289.67, 291.25(1) to (5), 291.29, 291.37, 292.11(3), (4), and (7)(b) and (c) and 292.31(8), Wis. Stats., with respect to any release or threatened release of contaminants at the Property, or the right of the WDNR to seek relief available against any person who is not entitled to protection from liability under s. 292.15, Wis. Stats., with respect to such release or threatened release.

SIGNED AND CERTIFIED this 3rd day of February, 2010.

Matthew Frank, Secretary
Wisconsin Department of Natural Resources

ATTACHMENT A
LEGAL PROPERTY DESCRIPTION
Former C. Reiss Coal Co./Sheboygan Lakefront Property

See Attached Exhibit "1" and "1-A"

ATTACHMENT B
INVESTIGATION AND REMEDIAL ACTION PLAN REPORTS
Former C. Reiss Coal Co./Sheboygan Lakefront Property

1. Phase II Subsurface Contaminant Assessment, C. Reiss Coal Facility. April 13, 1992. STS.

2. Volumes 1 and 2, Phase III Contamination Assessment and Remedial Action Plan – Koch Carbon Inc. C. Reiss Coal Co. Facility, Sheboygan, WI. STS Consultants. April 1993.

3. Environmental Site Assessment. C. Reiss Coal Co.-Sheboygan Lakefront Property. May 1998. Rust Environment & Infrastructure.

4. Site Investigation Report, The C. Reiss Coal Company-Sheboygan Lakefront Property. April 1999. EarthTech, Inc.

5. Remedial Action Plan. Sheboygan Lakefront Property. August 2000. EarthTech, Inc.

6. Remedial Action Plan. Sheboygan Lakefront Property, Sheboygan, WI. Vol. 1 and 2. June 2001. EarthTech, Inc.

7. Soil, Surface Water, and Groundwater Investigation Reports. The C. Reiss Coal Company-Sheboygan Lakefront Property. Vol. 1 and 2. October 2001. EarthTech, Inc.

8. Former C. Reiss Coal-Sheboygan Lakefront Property. Revisions to Soil Excavation areas in Remedial Action Plan. May 29, 2002. Sigma Environmental Services.

9. Berm Soil Management Plan, Former C. Reiss Coal & Bulge Properties, Sheboygan, WI. September 27, 2002. Sigma Environmental Services.

10. Material Handling and Engineered Barrier Plan. Former C. Reiss Coal Co. Property-Harbor Centre South Pier Remediation and Redevelopment Project, Sheboygan, WI. May 19, 2003. Sigma Environmental Services.

11. Remedial Action Completion Report. Excavation of Impacted Soil Areas and Berm Soil Management Activities. Sheboygan Harbor Centre South Pier Project. December 15, 2003. Sigma Environmental Services.

12. Engineered Barriers and Post-Remediation Groundwater Monitoring Update Report. Sheboygan Harbor Centre South Pier District, Sheboygan, WI. March 11, 2005. Sigma Environmental Services.

13. Phase II Subsurface Investigation Report, NW Corner of 8th St. and Indiana Ave., Sheboygan. October 7, 2003. Sigma Environmental Services.

14. Report of a Phase I Environmental Site assessment. NW Corner of 8th St. and Indiana Ave., Sheboygan. March 18, 2004. Sigma Environmental Services.

15. Subsurface Investigation Report and Conceptual Remedial Action Plan, Former C. Reiss Coal Property #2, NW Corner of 8th St. and Indiana Ave., Sheboygan. June 9, 2005. Sigma Environmental Services.

16. Post-Remediation Groundwater Monitoring Update. Sheboygan Harbor Centre South Pier District, Sheboygan, WI. September 28, 2005. Sigma Environmental Services.

17. Site Investigation Groundwater monitoring update. Former C. Reiss Coal Property #2, NW Corner of 8th St. and Indiana Ave., Sheboygan. April 6, 2006. Sigma Environmental Services.

18. Direct Contact Remedial Action Plan for Administration Building area, Former C. Reiss Coal Property – Property #1. July 6, 2006. Sigma Environmental Services.

19. Remedial Action Plan, Former C. Reiss Coal Property #2, NW corner of 8th St. and Indiana Ave., Sheboygan. August 2006. Sigma Group.

20. Project Status and Groundwater Monitoring Update. Former C. Reiss Coal Company Property #2. Northwest Corner of 8th St. and Indiana Ave., Sheboygan, WI. January 29, 2007. The Sigma Group.

21. Request for Case Closure for Former C. Reiss Coal Co./Sheboygan Lakefront Property #1 – 1011 S. 8th St., Sheboygan, WI. Property #2 – 820 Indiana Ave., Sheboygan, WI. November 17, 2008. Sigma Group

ATTACHMENT C
Closure letter with Barrier and Seawall Maintenance Plans
Former C. Reiss Coal Co./Sheboygan Lakefront Property

See attached February 12, 2009 Case Closure letter

1698798

SHEBOYGAN COUNTY, WI
RECORDED ON

07/29/2003 09:46AM

DARLENE J. NAVIS
REGISTER OF DEEDS

RECORDING FEE: 35.00
TRANSFER FEE:

STAFF ID 2
TRANS # 26217

OF PAGES: 13

FEE
77.25(3)
EXEMPT

Document Number

AMENDED LIMITED WARRANTY DEED

Document Title

Recording Area

Name and Return Address
City Attorney
807 Center Ave.
Sheboygan, WI 53081-4414

59281-300200, 300210, 300220,
300020, 300090, 300100, 321300,
321310, 505730, 505740 and 505750

Parcel Identification Number (PIN)

This information must be completed by submitter: document title, name & return address, and PIN (if required). Other information such as the granting clause, legal description, etc. may be placed on this first page of the document or may be placed on additional pages of the document. Note: Use of this cover page adds one page to your document and $2.00 to the recording fee. Wisconsin Statutes, §9.17. WRDA 2/96

SCF-3122

AMENDED LIMITED WARRANTY DEED

The C. Reiss Coal Company, a Wisconsin corporation, having an address of P.O. Box 688, Sheboygan, Wisconsin 53082-0688, (hereinafter referred to as "Grantor"), in consideration of the sum of Ten Dollars ($10.00) and other good, valuable, and sufficient consideration, the receipt of which is hereby acknowledged, does hereby grant, bargain, sell, and convey to The Redevelopment Authority of the City of Sheboygan, Wisconsin, a municipal corporation (hereinafter referred to as "Grantee"), all right, title and interest of the Grantor in and to the real estate and appurtenant improvements, described as follows (hereinafter "the Property"):

Tax Parcel Nos. 300200, 300210, 300220, 300020, 300090, 300100, 321300, 321310, 505730, 505740, and 505750

See Exhibit "1" attached hereto and made a part hereof by reference;

SUBJECT, however, to all covenants, rights of way, easements, restrictions, and reservations of record, and further subject to Covenants #1, #2, #3, and #4 attached hereto as Exhibit 2 and made a part hereof by reference, and being further subject to all taxes and assessments, general and special, not now due and payable.

Grantor, for itself, its successors and assigns, does hereby covenant and represent to the Grantee, its successors and assigns, that the Grantor has not made, done, executed, or suffered any act or thing whereby the title to the Property has been encumbered in any manner whatsoever except as stated herein, and that Grantor will warrant and defend title to the Property against all persons lawfully claiming to derive title by, through, or under the Grantor, but not otherwise.

Further, Grantor does hereby place the following covenants and restrictions on the Property and by recording this Limited Warranty Deed, Grantee, for itself, its successors and assigns, agrees that the benefits and burdens of such covenants and restrictions shall attach to the Property and run with the land in perpetuity until released or discharged in writing and filed of record by Grantor, its successors or assigns:

See Exhibit "2" hereto attached and made a part hereof by reference.

Dated this 14th day of July, 2003.

Grantor:

THE C. REISS COAL COMPANY

By: William Reiss Jr.
Name: William Reiss Jr
Title: President

This Amended Limited Warranty Deed is executed to clarify paragraph C. on page 969 of Limited Warranty Deed Recorded at Volume 1890 Pages 960-971 of the Records of the Register of Deeds of Sheyboygan County, Wisconsin.

STATE OF WISCONSIN
) ss:
COUNTY OF SHEBOYGAN)

BE IT REMEMBERED that on this 14th day of JULY, 2003, before me, the undersigned, a Notary Public in and for the County and State aforesaid, personally came WILLIAM REISS, JR, who is personally known and who acknowledged himself to be a duly authorized representative of The C. Reiss Coal Company, a Wisconsin corporation, and that being duly authorized to do so, he executed the foregoing instrument on behalf of The C. Reiss Coal Company.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my official seal on the day and year last above written.

My Appointment Expires:

7/1/07

Gertrude A. Rufnick
Notary Public

EXHIBIT "1"

Legal Description of the Premises

Parcel 1:

Lots One (1), Two (2), Three (3), Four (4), Five (5) and Six (6) of Block Two Hundred Thirty-nine (239), of the Original Plat of the City of Sheboygan, Wisconsin.

Also, that part of vacated South Seven Street between the South line of the Sheboygan River and the North line of East Water Street, which lies adjacent to Lot One (1), Block Two Hundred Thirty-nine (239), of the Original Plat of the City of Sheboygan.

Tax Key Number: 300220

Parcel 2:

All of Lots Seven (7), Eight (8), Nine (9) and Ten (10), of Block Two Hundred Thirty-nine (239) of the Original Plat of the City of Sheboygan, Wisconsin.

Tax Key Number: 300210

Parcel 3:

Lots Eleven (11) and Twelve (12), of Block Two Hundred Thirty-nine (239), of the Original Plat of the City of Sheboygan, Wisconsin. Excepting that portion taken by the City of Sheboygan for street purposes as described in an Award of Damages, dated January 17, 1995, recorded in the Office of the Register of Deeds for Sheboygan County, Wisconsin, in Volume 1378 of Records, at Pages 535/6, as document #1420646, as follows: Commencing at the southwest corner of Block 239 and said Lot 12; thence N01°36'20" W along the east right-of-way line of South 8th Street and the west line of Lot 12 a distance of 18.13 feet; thence N88°35'44"E 48.31 feet to the northerly right-of-way line of Water Street; thence along said right-of-way S67°59'49"W 51.54 feet to the point of commencement.

Tax Key Number: 300200

Parcel 4:

Parts of Lots 3, 4, 5, and 6, all in Block 241 of the Original Plat of Sheboygan, located in the City of Sheboygan, Sheboygan County, Wisconsin, and being more particularly described as:

Commencing at the original SW corner of said Block 241; thence N01°-36'-20" W, along the east right-of-way line of S. 9th Street, 5.43 feet to the Point of Beginning of this description; thence continuing N01°-36-20" W, along said east right-of-way, 61.47 feet to the NW corner of said Block 241, and the south right-of-way line of East Water Street; thence S89°-29'-40" E, along the south right-of-way line of East Water Street, 213.19 feet to a point on the arc of a curve

to the right, having its radius point bearing northwesterly, 403.50 feet; thence southwesterly 89.06 feet along the arc of said curve, the long chord of which bears S58°-42'-49" W, 88.88 feet to a point of compound curvature, the radius point of the following curve bearing northwesterly, 118.50 feet; thence southwesterly 48.45 feet along the arc of said curve, the long chord of which bears S76°-44'-58" W, 48.11 feet to the end of said curve; thence S88°-27'-44" W, 88.71 feet to the Point of Beginning and the end of this description.

Tax Key Number: 505730 and 505740

Parcel 5:

Part of Lots 1 and 2, and all of Lots 3, 4, 5, and 6, all in Block 242 of the Original Plat of Sheboygan, located in the City of Sheboygan, Sheboygan County, Wisconsin, and being more particularly described as:

Beginning at the SW corner of said Block 242; thence N01°-36'-20" W, along the east right-of-way line of S 9th Street, 210 feet, more or less, to the southerly normal high water mark of the Sheboygan River, said point also being the NW corner of said Block 242; thence southeasterly, along said normal high water mark of the Sheboygan River, 349.39 feet to a point which is 18.00 feet west of the east line of said Block 242; thence S01°-36'-20" E, 46 feet, more or less, to a point which is 18.00 feet west of the east line of said Block 242, and 108.18 feet north of the south line of said Block 242; thence S89°-29'-25" E, 10.26 feet to a point on the arc of a curve to the right, having its radius point bearing northwesterly, 403.50 feet; thence southwesterly 122.21 feet along the arc of said curve, the long chord of which bears S27°-52'-49" W, 121.74 feet to the south line of said Block 242 and the north right-of-way line of East Water Street; thence N89°-29'-40" W, along said south line of Block 242, 293.31 feet to the Point of Beginning and the end of this description.

Tax Key Number: 505750

Parcel 6:

All of Block 207, all of Block 208, all of Block 209, all of Block 235, all of Block 236, all of Lots 1 through 10, Block 239, part of vacated East Water Street, part of vacated Maryland Avenue, part of vacated New Jersey Avenue, part of vacated S. 5th Street, part of vacated S. 6th Street, all in the Original Plat of Sheboygan, and also part of Government Lot 6 of Section 23, and part of unplatted lands located in the NEl/4 of Section 26, all in Tl5N, R23E, City of Sheboygan, Sheboygan County, Wisconsin, and being more particularly described as:

Commencing at the SW corner of said Block 239; thence N01°-36'-20" W, along the east right-of-way line of S. 8th Street and the west line of said Block 239, 18.13 feet to the Point of Beginning of this description; thence continuing N01°-36'-20" W, along the west line of said Block 239, 129 feet, more or less, to the normal high water mark of the Sheboygan River and the NW corner of said Block 239; thence northeasterly, 3183 feet, more or less, along the normal high water mark of the Sheboygan River; thence S09°-20'-55" E, 5 feet more or less, to a point which is N50°-57'-56" E, 2911.97 feet from said SW corner of Block 239; thence S09°-20'-55"

E, 426.26 feet; thence S41°-10'-33" W, 751.41 feet; thence S31°-08°-20" W, 98.52 feet; thence S34°-37'-55" W, 329.79 feet; thence S43°-31'-12" W, 161.04 feet to the beginning of a curve to the right, having its radius point bearing northwesterly, 131.00 feet; thence southwesterly, 75.01 feet along the arc of said curve, the long chord of which bears S59°-55'-25" W, 73.99 feet to the end of said curve; thence S76°-19'-38" W, 212.56 feet to the north right-of-way line of Illinois Avenue, at a point which is N88°-33'-11" E, 424.16 feet from a 2" diameter iron pipe marking the SE corner of Block 236 of the Original Plat of Sheboygan; thence S88°-33'-11" W, along the north right-of-way line of Illinois Avenue, 703.17 feet to the northwesterly right-of-way line of East Water Street; thence S35°-00'-42" W, along said northwesterly right-of-way line 30.07 feet; thence S49°-25'-48" W, along said northwesterly right-of-way line, 130.94 feet; thence S67°-59'-49" W, along said northwesterly right-of-way line, 376.62 feet; thence S88°-35'-32" w, 48.31 feet to the Point of Beginning and the end of this description.

Tax Key Numbers: 300020, 300090 (Home Security Company), 300100, 321300, and 321310 (Home Security Company)

EXHIBIT "1-A"

EXHIBIT "1-A"

Block 242, Original Plat of the City of Sheboygan except that part of Lots 1 and 2 described as: Commencing at the Southeast Corner of said Lot 1; thence North 89° 29' 25" W. 67.71' along the South line of Lots 1 and 2; thence nearly 122.20' along the arc of a curve to the left having a radius of 403.50'. the Chord of which bears North 27° 53' 00" E 121.73'; thence North 89° 29' 25" W. 10' 26"; thence N 1° 36' 20" W. 45' 00" to the South line of the Sheboygan River; thence South 80° 26' 18" E 18.33' downstream along the shore of the river to the E Line of Lot 1; thence South 1° 36' 20" E 150.30' along the E line of Lot 1 to the point of beginning.

EXHIBIT "2"

RESTRICTIVE COVENANTS

As a material part of the consideration received by Grantor for the grant, bargain, sale and conveyance of the Property to Grantee pursuant to this Limited Warranty Deed, it is understood and agreed that all future development, use, possession and ownership of the Property shall be subject to the following limitations and restrictions, which shall attach to and run with the land:

COVENANT #1:

A. No temporary or permanent water or other well shall be constructed, drilled, dug, bored or otherwise placed upon the Property or any part thereof unless permitted in writing in advance by the Wisconsin Department of Natural Resources ("WDNR"), its successors or assigns (except that a groundwater monitoring well that is installed and maintained in accordance with s. NR 141 shall not require specific approval).

B. No person owning, leasing, renting, letting, using, occupying, accessing or improving the Property shall excavate or grade the final engineered barrier, place fill on the capped area, plow the capped area for agricultural cultivation or construct or install a building or other structure with a foundation that would sit or be placed withing the cap or cover unless prior written approval is obtained from WDNR, its successors or assigns. No person owning, leasing, renting, letting, using, occupying, accessing, or improving the property shall drill, dig, bore or otherwise access the soil lying below the WDNR approved engineered barrier to be placed over the surface of the Property by Grantee and/or its successors and assigns as contemplated under Covenant #2 hereof, it being the intention of the Grantor and Grantee that no person shall ever come into physical contact with the soil lying below the WDNR approved engineered barrier to be placed over the surface of the Property by Grantee; except that it is permissible: a) for any hydrogeologist, scientist or professional engineer to collect samples or conduct remedial activities in accordance with s. NR712 and other applicable health and safety rules, laws, regulations and ordinances; and b) for sewers and utilities to be constructed,

repaired, maintained, replaced and removed, provided that adequate precautions are taken to ensure that no person comes into physical contact with the soil or water lying below the engineered barrier described above; or c) where permitted in writing in advance by WDNR, its successors or assigns.

C. Grantor, its successors or assigns, including their designated representatives, shall, upon reasonable advance written notice, have a continuing right of reasonable access to the Property from time to time for the purpose of conducting, sampling, testing, monitoring, analyzing and/or remediating of the groundwater and/or soil and in order to determine the status of any environmental condition existing on the Property from and after the date of this Limited Warranty Deed. Without limitation of any other covenants and agreements set forth in this Limited Warranty Deed, Grantor, its successors and assigns, shall have a continuing right, but not the obligation, to participate in any future environmental investigation, monitoring, evaluation, analysis, planning and/or remediation affecting the Property or any part thereof.

D. Grantee, its successors and assigns, including their designated representatives, shall have a continuing right of reasonable access to the Property from time to time for the purpose of conducting sampling, testing, monitoring, analyzing and/or remediating of the groundwater and/or the soil and in order to determine the status of any environmental condition existing on the Property from and after the date of this Limited Warranty Deed, including, without limitation, the right of access to the Property for the purposes of remediating any environmental condition affecting the Property or any part thereof.

E. Grantor, including its successors or assigns, the City of Sheboygan, Wisconsin, and the WDNR, including their respective successors and assigns, shall each have a non-exclusive continuing right, but not the obligation, to enforce the limitations and restrictions in paragraph A. of this Covenant #1. Grantee, its successors and assigns, shall have a non-exclusive obligation to enforce this Covenant #1.

COVENANT #2:

A. Grantee, on behalf of itself and its successors and assigns, hereby covenants and agrees that promptly following the date of this Limited Warranty Deed, but in any event prior to any grant, sale, conveyance, lease, use or improvement of the Property for residential purposes, it will cause any and all portions of the surface of the Property zoned for or to be used for residential purposes, and all other portions of the surface of the Property as required in the Remedial Action Plan approved by the WDNR, assigned document no. 460032430, as may be amended from time to time (the "RAP") to be evenly covered with an engineered barrier in compliance with the RAP. The obligation to provide the engineered barrier is an ongoing obligation to place, replace and/or repair such barrier. In the event any portions of the Property originally proposed to be used for non-residential purposes are subsequently proposed to be used for residential purposes, Grantee, its successors and assigns, covenant and agree to place, replace and/or repair the engineered barrier to the condition required by the WDNR. At no time shall soil from below the engineered barrier be permanently placed on top of the engineered barrier.

B. Grantee, on behalf of itself and its successors and assigns, shall inspect, use, repair and maintain the seawall along the northerly and westerly boundaries of the Property as required by the RAP.

C. Notwithstanding the foregoing, that portion of the Property described on Exhibit "1-A" shall not be used for residential purposes. Any other portion of the Property not described on Exhibit "1-A" may be used for residential purposes, provided however, that any use of Property not described on Exhibit "1-A" for single family residential purposes shall require that i) the provisions of paragraph A. immediately above are complied with and ii) such single family residential use be permitted by the WDNR in writing prior to such intended single family residential use.

D. Grantor, its successor and assigns, the City of Sheboygan, Wisconsin, and the WDNR, including their respective successors and assigns, shall each have a non-exclusive continuing right to enforce the limitations and restrictions in paragraph A. of this Covenant #2. Grantee, its successors and assigns, shall have a non-exclusive obligation to enforce the limitations and restrictions in paragraph A. of this Covenant #2.

COVENANT #3:

A. Grantee, its successors and assigns, shall fully and completely comply with, at its sole cost and expense, the RAP, and all amendments thereto.

B. Grantor, its successors and assigns, the City of Sheboygan, Wisconsin and WDNR, including their respective successors and assigns, shall each have a non-exclusive continuing right to enforce this Covenant #3.

COVENANT #4:

Neither Grantee, nor its successors and assigns, shall use the Property for a purpose or purposes which shall compete with a purpose of Grantor's business as it is constituted on the date of this Limited Warranty Deed (purchase, sale, storage and handling of bulk commodities) for a period of twenty-five (25) years from the date of this deed, except that the following purposes shall be permissible during such twenty-five (25) year period: unloading, storing and disposition of road salt for streets and roads within the boundaries of the County of Sheboygan; unloading, storing and disposition of materials for public improvement projects within the boundaries of the City of Sheboygan; unloading, storing and disposition of materials for public improvement projects within the boundaries of the City of Sheboygan.

Any person or entity subject to the restrictions and limitations set forth in Covenants #1, #2, #3 and #4 hereof, who directly or indirectly violates or fails to perform any of such restrictions and limitations shall indemnify, defend and hold Grantor, its successors and assigns, harmless from and against all claims, causes of action, liabilities, damages, costs and expenses (including reasonable attorneys' fees and expenses) arising out of any such failure to comply with the restrictions and limitations set forth in Covenants #1, #2, #3 and #4 hereof. The benefits and burdens of these Covenants shall attach to and run with the land and shall be binding upon Grantee, its successors and assigns, and any other person or entity who at any time may claim any estate or interest in the Property, including, without limitation, any right of ownership, or any right to lease, rent, use, occupy, access or improve the Property or any part thereof.

STATEMENT BY RESPONSIBLE PARTY

The Redevelopment Authority of the City of Sheboygan, the responsible party for the property located at 1011 S. 8th Street and 820 Indiana Avenue, Sheboygan, Wisconsin states that the legal description provided to the Wisconsin Department of Natural Resources in this case closure request and Geographic Information System (GIS) Registry packet for WDNR BRRTS #06-60-202664 is complete and accurate to the best of our knowledge.

Jaulette Enders
Signature of Representative for Responsible Party

11-7-08
Date

MAPS

Detailed Site Map

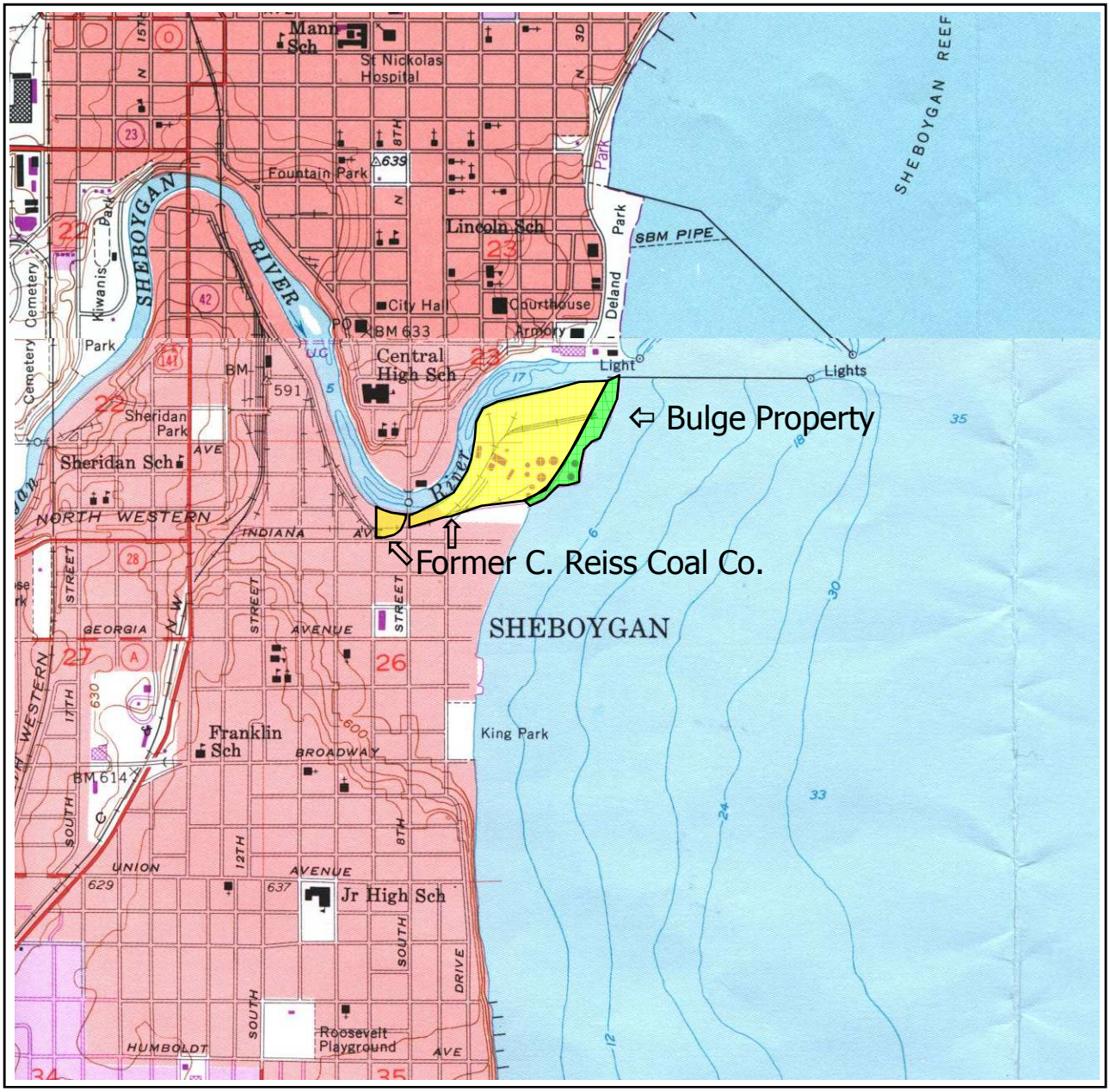
Figure 2 - Site Plan Map [for Property #1]
Figure 2 - Site Plan Map [for Property #2]

Soil Contamination Contour Map

Soil Quality Maps were not prepared by the previous consultant investigating Property #1.
Figure 1 - Site Plan / Soil Boring Location Map [for Property #1]
Figure 3 - Site Conditions Prior to 2003/2004 Redevelopment [shows locations of Excavation Areas 1, 2, and 5 on Property #1]
Figure 2 - Post-Remediation Soil Sample Locations - Excavation Area 1 [for Property #1]
Figure 3 - Post-Remediation Soil Sample Locations - Excavation Area 2 [for Property #1]
Figure 4 - Post-Remediation Soil Sample Locations - Excavation Area 5 [for Property #1]
Figure 4 - Soil Quality Map (VOCs) [for Property #2]
Figure 5 - Soil Quality Map (SVOCs) [for Property #2]
Figure 6 - Soil Quality Map (Metals) [for Property #2]

Groundwater Isoconcentration Map

Figure 4 - Groundwater Quality Map [for Property #1]
Figure 3 - Groundwater Quality Map [for Property #2]



NE ¼ of NW ¼ of Section 26, NE ¼ of Section 26, and SE ¼ of Section 23, T 15 N, R 23 E
Adapted from U.S.G.S. 7.5 minute series, Sheboygan North (1954, revised 1994) and Sheboygan South (1954, photorevised 1973), Wisconsin, quadrangles.

SCALE 1:24 000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

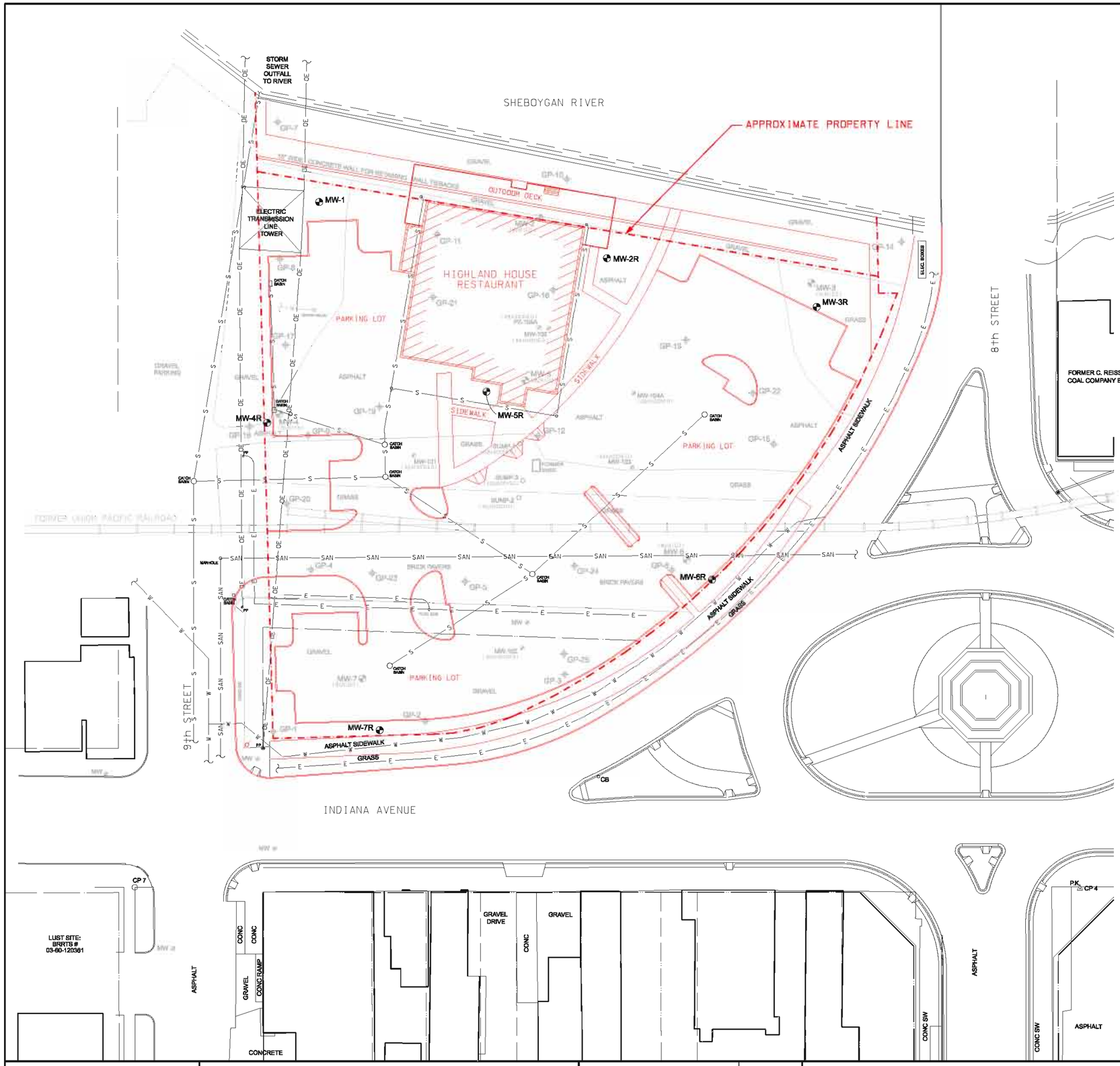
CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

N

Figure 1. Site Location Map
Former C. Reiss Coal Co. / Sheboygan Lakefront
1011 S. 8th Street & 820 Indiana Avenue
Sheboygan, Wisconsin 53081

THE SIGMA GROUP
Single Source. Sound Solutions.

7302 Fig 1 Site Loc Map.ppt



LEGEND

- GP = GEOPROBE SOIL BORING LOCATION
- = ABANDONED SUMP LOCATION
- MW = SIGMA MONITORING WELL LOCATION
- = ABANDONED MONITORING WELL LOCATION
- DE = OVERHEAD ELECTRIC LINE
- E = UNDERGROUND ELECTRIC LINE
- S = UNDERGROUND STORM SEWER LINE
- SAN = UNDERGROUND SANITARY SEWER LINE
- W = UNDERGROUND WATER LINE

NOTES:

1. BASE MAP BASED ON ELECTRONIC FILE PROVIDED TO SIGMA BY CITY OF SHEBOYGAN.
2. LOCATION OF SOIL BORINGS GP-1 THROUGH GP-16 AND UTILITY LOCATIONS BASED ON FIELD MEASUREMENTS TO SITE FEATURES. SOIL BORINGS GP-17 THROUGH GP-25 AND MONITORING WELLS MW-1 THROUGH MW-7 SURVEYED BY SIGMA DEVELOPMENT, INC. IN DECEMBER 2004.
3. NEW SITE FEATURES BASED ON 7-28-04 SITE MAP PROVIDED BY ABACUS ARCHITECTS, INC. AND ARE SHOWN IN RED (EXCEPT FOR NEW ON-SITE STORM SEWER SYSTEM).

SIGMA ENVIRONMENTAL SERVICES INC.
1300 W. CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
1-800-732-4671

SCALE - 1" = 40'- 0" 0' 20' 40' 60' 80'

NO	DATE	REVISIONS	BY	APVD
1	1-26-05	ADDED GEOPROBES & MONITORING WELLS GP-17 - GP-25 & MW-1 - MW-7	BEB	

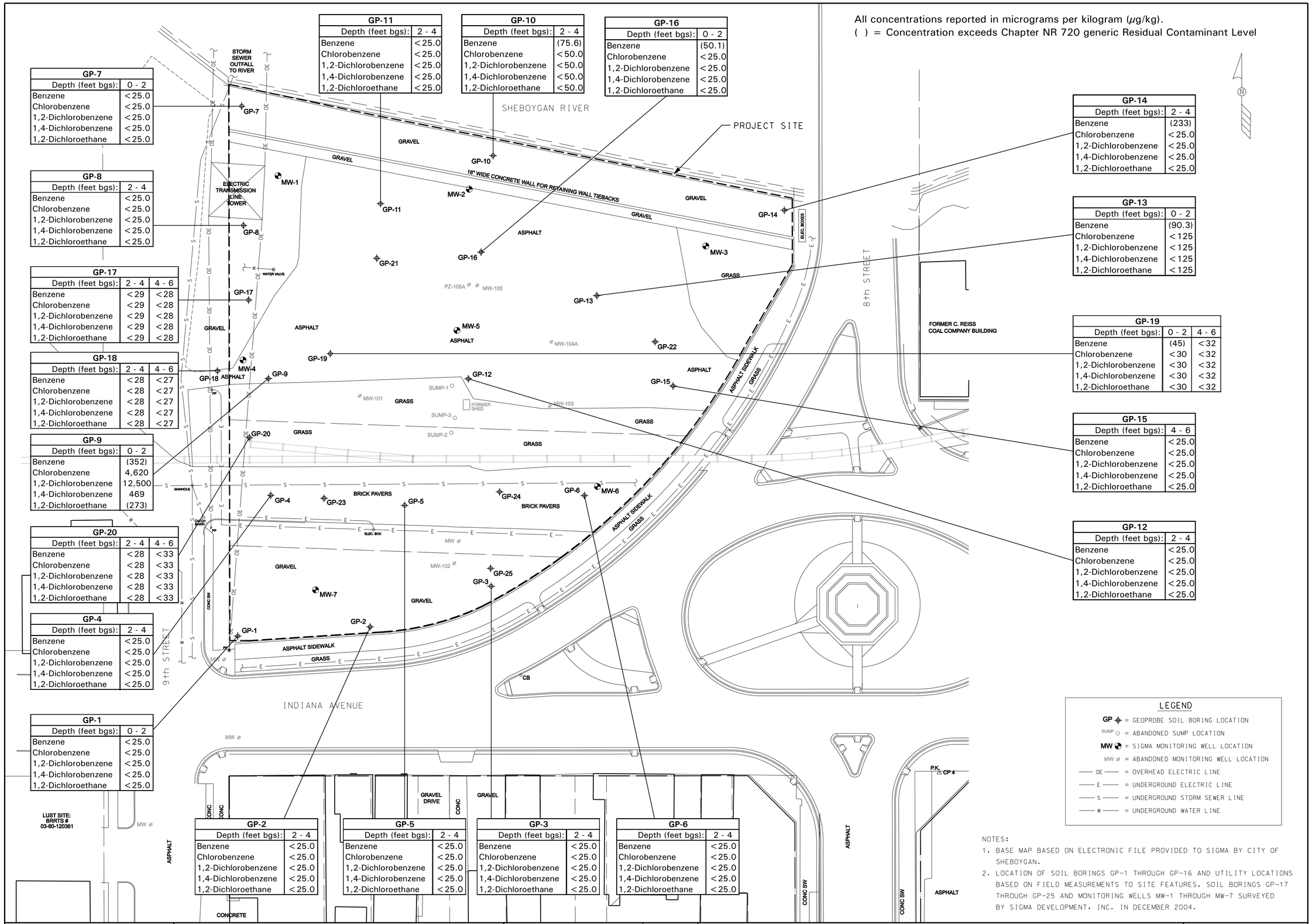
	NAME:	DATE:
DRAWN BY:	BEB	12-29-04
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

CITY OF SHEBOYGAN - ORIGINAL C. REISS COAL PARCEL
NORTHWEST CORNER OF 8th STREET & INDIANA AVENUE, SHEBOYGAN, WI
SITE PLAN MAP

DRAWING NUMBER
7875-018

FIGURE 1

All concentrations reported in micrograms per kilogram (μg/kg).
( ) = Concentration exceeds Chapter NR 720 generic Residual Contaminant Level



GP-7	
Depth (feet bgs):	0 - 2
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-8	
Depth (feet bgs):	2 - 4
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-17		
Depth (feet bgs):	2 - 4	4 - 6
Benzene	<29	<28
Chlorobenzene	<29	<28
1,2-Dichlorobenzene	<29	<28
1,4-Dichlorobenzene	<29	<28
1,2-Dichloroethane	<29	<28

GP-18		
Depth (feet bgs):	2 - 4	4 - 6
Benzene	<28	<27
Chlorobenzene	<28	<27
1,2-Dichlorobenzene	<28	<27
1,4-Dichlorobenzene	<28	<27
1,2-Dichloroethane	<28	<27

GP-9	
Depth (feet bgs):	0 - 2
Benzene	(352)
Chlorobenzene	4,620
1,2-Dichlorobenzene	12,500
1,4-Dichlorobenzene	469
1,2-Dichloroethane	(273)

GP-20		
Depth (feet bgs):	2 - 4	4 - 6
Benzene	<28	<33
Chlorobenzene	<28	<33
1,2-Dichlorobenzene	<28	<33
1,4-Dichlorobenzene	<28	<33
1,2-Dichloroethane	<28	<33

GP-4	
Depth (feet bgs):	2 - 4
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-1	
Depth (feet bgs):	0 - 2
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-11	
Depth (feet bgs):	2 - 4
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-10	
Depth (feet bgs):	2 - 4
Benzene	(75.6)
Chlorobenzene	<50.0
1,2-Dichlorobenzene	<50.0
1,4-Dichlorobenzene	<50.0
1,2-Dichloroethane	<50.0

GP-16	
Depth (feet bgs):	0 - 2
Benzene	(50.1)
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-14	
Depth (feet bgs):	2 - 4
Benzene	(233)
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-13	
Depth (feet bgs):	0 - 2
Benzene	(90.3)
Chlorobenzene	<125
1,2-Dichlorobenzene	<125
1,4-Dichlorobenzene	<125
1,2-Dichloroethane	<125

GP-19		
Depth (feet bgs):	0 - 2	4 - 6
Benzene	(45)	<32
Chlorobenzene	<30	<32
1,2-Dichlorobenzene	<30	<32
1,4-Dichlorobenzene	<30	<32
1,2-Dichloroethane	<30	<32

GP-15	
Depth (feet bgs):	4 - 6
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-12	
Depth (feet bgs):	2 - 4
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-2	
Depth (feet bgs):	2 - 4
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-5	
Depth (feet bgs):	2 - 4
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-3	
Depth (feet bgs):	2 - 4
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

GP-6	
Depth (feet bgs):	2 - 4
Benzene	<25.0
Chlorobenzene	<25.0
1,2-Dichlorobenzene	<25.0
1,4-Dichlorobenzene	<25.0
1,2-Dichloroethane	<25.0

LEGEND

- GP = GEOPROBE SOIL BORING LOCATION
- SUMP = ABANDONED SUMP LOCATION
- MW = SIGMA MONITORING WELL LOCATION
- MW = ABANDONED MONITORING WELL LOCATION
- OE = OVERHEAD ELECTRIC LINE
- E = UNDERGROUND ELECTRIC LINE
- S = UNDERGROUND STORM SEWER LINE
- W = UNDERGROUND WATER LINE

NOTES:
1. BASE MAP BASED ON ELECTRONIC FILE PROVIDED TO SIGMA BY CITY OF SHEBOYGAN.
2. LOCATION OF SOIL BORINGS GP-1 THROUGH GP-16 AND UTILITY LOCATIONS BASED ON FIELD MEASUREMENTS TO SITE FEATURES. SOIL BORINGS GP-17 THROUGH GP-25 AND MONITORING WELLS MW-1 THROUGH MW-7 SURVEYED BY SIGMA DEVELOPMENT, INC. IN DECEMBER 2004.

SIGMA
ENVIRONMENTAL SERVICES INC.
1300 W. CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
1-800-732-4671

SCALE - 1" = 40'- 0" 0' 20' 40' 60' 80'

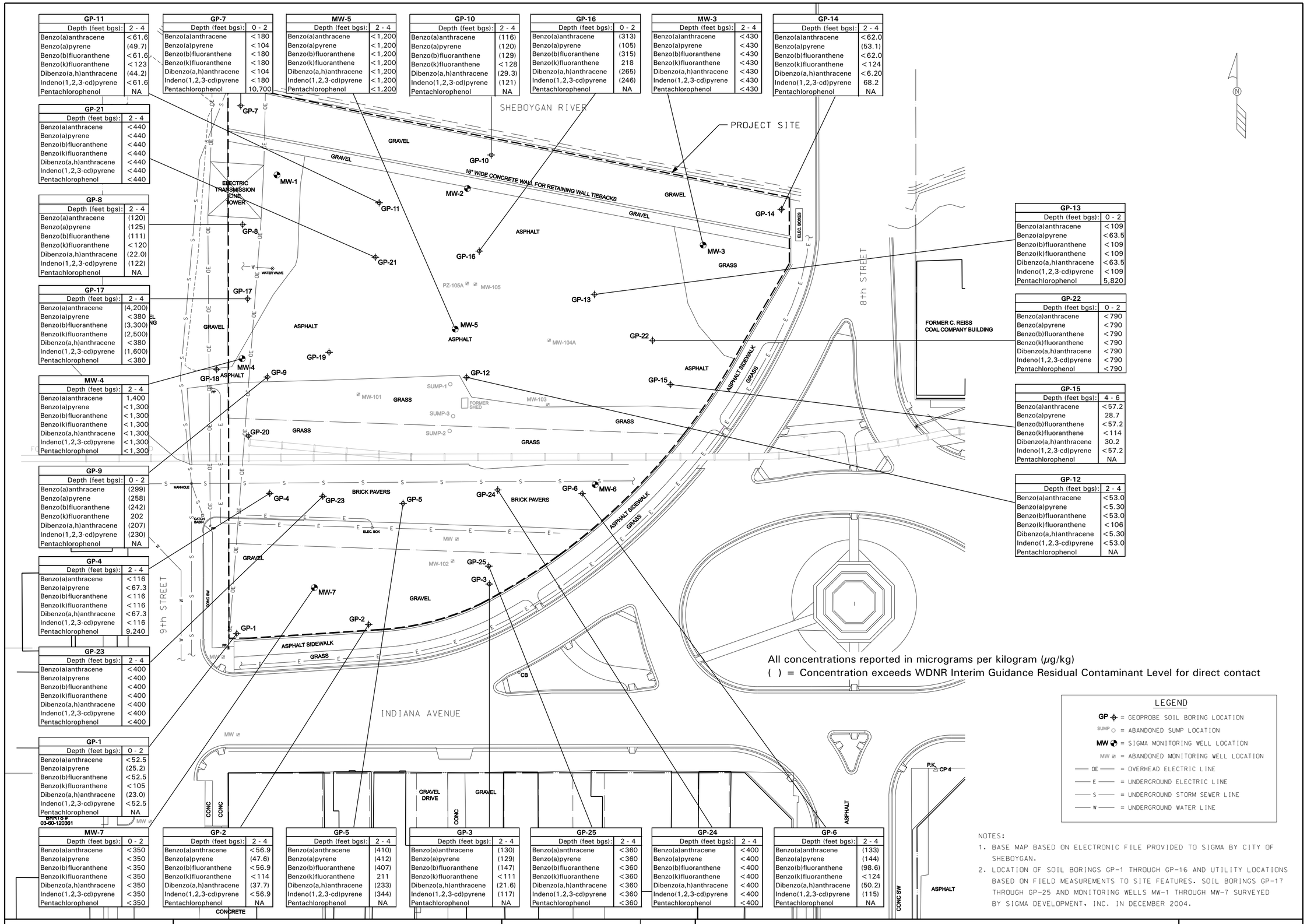
NO	DATE	REVISIONS	BY	APVD
1	1-26-05	ADDED GEOPROBES & MONITORING WELLS GP-17 - GP-25 & MW-1 - MW-7	BEB	

	NAME:	DATE:
DRAWN BY:	BEB	3-3-05
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

CITY OF SHEBOYGAN - ORIGINAL C. REISS COAL PARCEL
NORTHWEST CORNER OF 8th STREET & INDIANA AVENUE, SHEBOYGAN, WI
SOIL QUALITY MAP (VOCs)

DRAWING NUMBER
7875-006

FIGURE 4



GP-11	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<61.6
Benzo(a)pyrene	(49.7)
Benzo(b)fluoranthene	<61.6
Benzo(k)fluoranthene	<123
Dibenzo(a,h)anthracene	(44.2)
Indeno(1,2,3-cd)pyrene	<61.6
Pentachlorophenol	NA

GP-7	
Depth (feet bgs):	0 - 2
Benzo(a)anthracene	<180
Benzo(a)pyrene	<104
Benzo(b)fluoranthene	<180
Benzo(k)fluoranthene	<180
Dibenzo(a,h)anthracene	<104
Indeno(1,2,3-cd)pyrene	<180
Pentachlorophenol	10,700

MW-5	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<1,200
Benzo(a)pyrene	<1,200
Benzo(b)fluoranthene	<1,200
Benzo(k)fluoranthene	<1,200
Dibenzo(a,h)anthracene	<1,200
Indeno(1,2,3-cd)pyrene	<1,200
Pentachlorophenol	<1,200

GP-10	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	(116)
Benzo(a)pyrene	(120)
Benzo(b)fluoranthene	(129)
Benzo(k)fluoranthene	<128
Dibenzo(a,h)anthracene	(29.3)
Indeno(1,2,3-cd)pyrene	(121)
Pentachlorophenol	NA

GP-16	
Depth (feet bgs):	0 - 2
Benzo(a)anthracene	(313)
Benzo(a)pyrene	(105)
Benzo(b)fluoranthene	(315)
Benzo(k)fluoranthene	218
Dibenzo(a,h)anthracene	(265)
Indeno(1,2,3-cd)pyrene	(246)
Pentachlorophenol	NA

MW-3	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<430
Benzo(a)pyrene	<430
Benzo(b)fluoranthene	<430
Benzo(k)fluoranthene	<430
Dibenzo(a,h)anthracene	<430
Indeno(1,2,3-cd)pyrene	<430
Pentachlorophenol	<430

GP-14	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<62.0
Benzo(a)pyrene	(53.1)
Benzo(b)fluoranthene	<62.0
Benzo(k)fluoranthene	<124
Dibenzo(a,h)anthracene	<6.20
Indeno(1,2,3-cd)pyrene	68.2
Pentachlorophenol	NA

GP-21	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<440
Benzo(a)pyrene	<440
Benzo(b)fluoranthene	<440
Benzo(k)fluoranthene	<440
Dibenzo(a,h)anthracene	<440
Indeno(1,2,3-cd)pyrene	<440
Pentachlorophenol	<440

GP-8	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	(120)
Benzo(a)pyrene	(125)
Benzo(b)fluoranthene	(111)
Benzo(k)fluoranthene	<120
Dibenzo(a,h)anthracene	(22.0)
Indeno(1,2,3-cd)pyrene	(122)
Pentachlorophenol	NA

GP-17	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	(4,200)
Benzo(a)pyrene	<380
Benzo(b)fluoranthene	(3,300)
Benzo(k)fluoranthene	(2,500)
Dibenzo(a,h)anthracene	<380
Indeno(1,2,3-cd)pyrene	(1,600)
Pentachlorophenol	<380

MW-4	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	1,400
Benzo(a)pyrene	<1,300
Benzo(b)fluoranthene	<1,300
Benzo(k)fluoranthene	<1,300
Dibenzo(a,h)anthracene	<1,300
Indeno(1,2,3-cd)pyrene	<1,300
Pentachlorophenol	<1,300

GP-9	
Depth (feet bgs):	0 - 2
Benzo(a)anthracene	(299)
Benzo(a)pyrene	(258)
Benzo(b)fluoranthene	(242)
Benzo(k)fluoranthene	202
Dibenzo(a,h)anthracene	(207)
Indeno(1,2,3-cd)pyrene	(230)
Pentachlorophenol	NA

GP-4	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<116
Benzo(a)pyrene	<67.3
Benzo(b)fluoranthene	<116
Benzo(k)fluoranthene	<116
Dibenzo(a,h)anthracene	<67.3
Indeno(1,2,3-cd)pyrene	<116
Pentachlorophenol	9,240

GP-23	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<400
Benzo(a)pyrene	<400
Benzo(b)fluoranthene	<400
Benzo(k)fluoranthene	<400
Dibenzo(a,h)anthracene	<400
Indeno(1,2,3-cd)pyrene	<400
Pentachlorophenol	<400

GP-1	
Depth (feet bgs):	0 - 2
Benzo(a)anthracene	<52.5
Benzo(a)pyrene	(25.2)
Benzo(b)fluoranthene	<52.5
Benzo(k)fluoranthene	<105
Dibenzo(a,h)anthracene	(23.0)
Indeno(1,2,3-cd)pyrene	<52.5
Pentachlorophenol	NA

GP-13	
Depth (feet bgs):	0 - 2
Benzo(a)anthracene	<109
Benzo(a)pyrene	<63.5
Benzo(b)fluoranthene	<109
Benzo(k)fluoranthene	<109
Dibenzo(a,h)anthracene	<63.5
Indeno(1,2,3-cd)pyrene	<109
Pentachlorophenol	5,820

GP-22	
Depth (feet bgs):	0 - 2
Benzo(a)anthracene	<790
Benzo(a)pyrene	<790
Benzo(b)fluoranthene	<790
Benzo(k)fluoranthene	<790
Dibenzo(a,h)anthracene	<790
Indeno(1,2,3-cd)pyrene	<790
Pentachlorophenol	<790

GP-15	
Depth (feet bgs):	4 - 6
Benzo(a)anthracene	<57.2
Benzo(a)pyrene	28.7
Benzo(b)fluoranthene	<57.2
Benzo(k)fluoranthene	<114
Dibenzo(a,h)anthracene	30.2
Indeno(1,2,3-cd)pyrene	<57.2
Pentachlorophenol	NA

GP-12	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<53.0
Benzo(a)pyrene	<5.30
Benzo(b)fluoranthene	<53.0
Benzo(k)fluoranthene	<106
Dibenzo(a,h)anthracene	<5.30
Indeno(1,2,3-cd)pyrene	<53.0
Pentachlorophenol	NA

All concentrations reported in micrograms per kilogram (μg/kg)
( ) = Concentration exceeds WDNR Interim Guidance Residual Contaminant Level for direct contact

MW-7	
Depth (feet bgs):	0 - 2
Benzo(a)anthracene	<350
Benzo(a)pyrene	<350
Benzo(b)fluoranthene	<350
Benzo(k)fluoranthene	<350
Dibenzo(a,h)anthracene	<350
Indeno(1,2,3-cd)pyrene	<350
Pentachlorophenol	<350

GP-2	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<56.9
Benzo(a)pyrene	(47.6)
Benzo(b)fluoranthene	<56.9
Benzo(k)fluoranthene	<114
Dibenzo(a,h)anthracene	(37.7)
Indeno(1,2,3-cd)pyrene	<56.9
Pentachlorophenol	NA

GP-5	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	(410)
Benzo(a)pyrene	(412)
Benzo(b)fluoranthene	(407)
Benzo(k)fluoranthene	211
Dibenzo(a,h)anthracene	(233)
Indeno(1,2,3-cd)pyrene	(344)
Pentachlorophenol	NA

GP-3	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	(130)
Benzo(a)pyrene	(129)
Benzo(b)fluoranthene	(147)
Benzo(k)fluoranthene	<111
Dibenzo(a,h)anthracene	(21.6)
Indeno(1,2,3-cd)pyrene	(117)
Pentachlorophenol	NA

GP-25	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<360
Benzo(a)pyrene	<360
Benzo(b)fluoranthene	<360
Benzo(k)fluoranthene	<360
Dibenzo(a,h)anthracene	<360
Indeno(1,2,3-cd)pyrene	<360
Pentachlorophenol	<360

GP-24	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	<400
Benzo(a)pyrene	<400
Benzo(b)fluoranthene	<400
Benzo(k)fluoranthene	<400
Dibenzo(a,h)anthracene	<400
Indeno(1,2,3-cd)pyrene	<400
Pentachlorophenol	<400

GP-6	
Depth (feet bgs):	2 - 4
Benzo(a)anthracene	(133)
Benzo(a)pyrene	(144)
Benzo(b)fluoranthene	(98.6)
Benzo(k)fluoranthene	<124
Dibenzo(a,h)anthracene	(50.2)
Indeno(1,2,3-cd)pyrene	(115)
Pentachlorophenol	NA

LEGEND

- GP = GEOPROBE SOIL BORING LOCATION
- SUMP = ABANDONED SUMP LOCATION
- MW = SIGMA MONITORING WELL LOCATION
- MW = ABANDONED MONITORING WELL LOCATION
- OE = OVERHEAD ELECTRIC LINE
- E = UNDERGROUND ELECTRIC LINE
- S = UNDERGROUND STORM SEWER LINE
- W = UNDERGROUND WATER LINE

NOTES:

1. BASE MAP BASED ON ELECTRONIC FILE PROVIDED TO SIGMA BY CITY OF SHEBOYGAN.
2. LOCATION OF SOIL BORINGS GP-1 THROUGH GP-16 AND UTILITY LOCATIONS BASED ON FIELD MEASUREMENTS TO SITE FEATURES. SOIL BORINGS GP-17 THROUGH GP-25 AND MONITORING WELLS MW-1 THROUGH MW-7 SURVEYED BY SIGMA DEVELOPMENT, INC. IN DECEMBER 2004.

SIGMA
ENVIRONMENTAL SERVICES INC.
1300 W. CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
1-800-732-4671

SCALE - 1" = 40'- 0" 0' 20' 40' 60' 80'

NO	DATE	REVISIONS	BY	APVD
1	1-26-05	ADDED GEOPROBES & MONITORING WELLS GP-17 - GP-25 & MW-1 - MW-7	BEB	

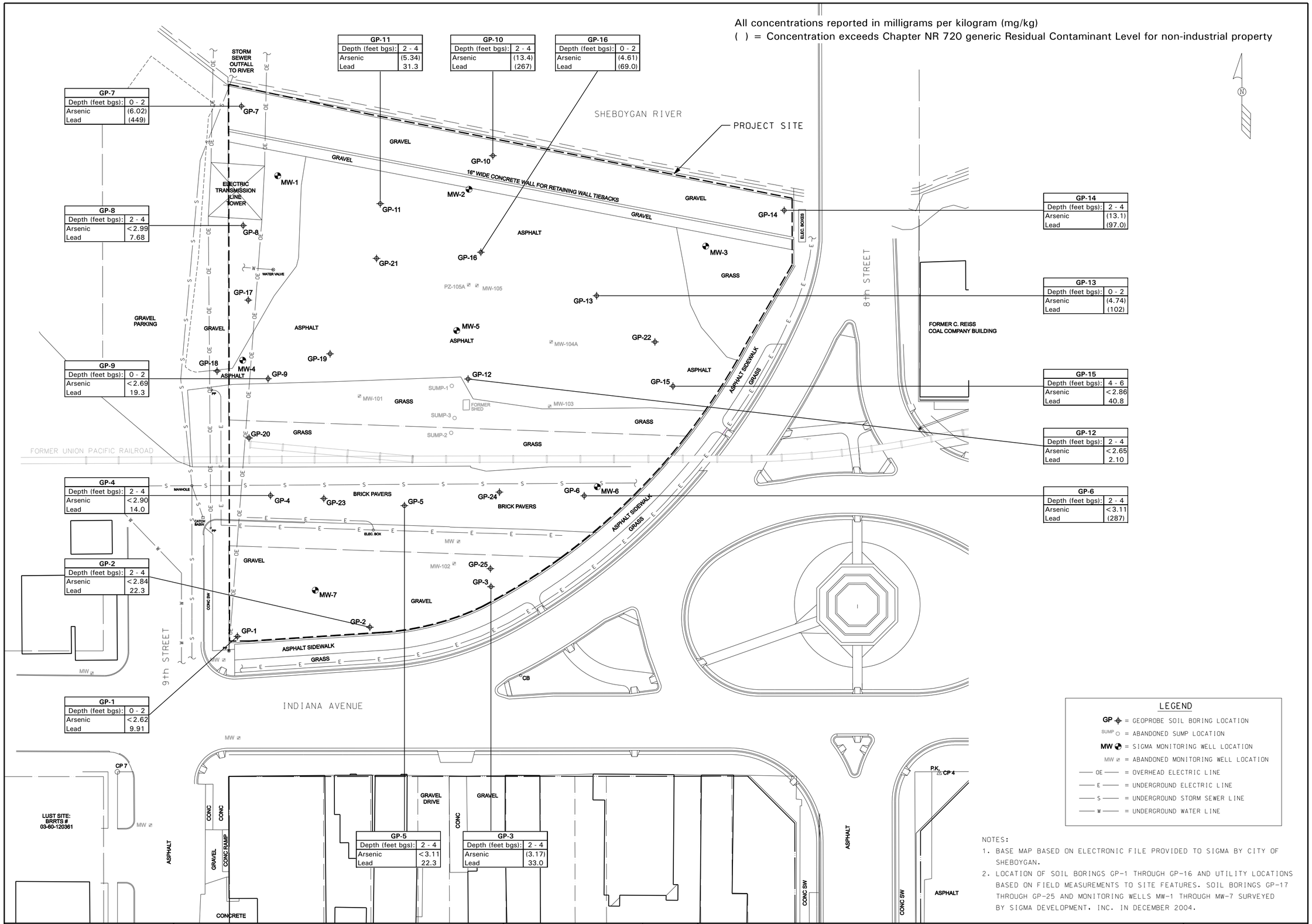
	NAME:	DATE:
DRAWN BY:	BEB	3-4-05
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

CITY OF SHEBOYGAN - ORIGINAL C. REISS COAL PARCEL
NORTHWEST CORNER OF 8th STREET & INDIANA AVENUE, SHEBOYGAN, WI
SOIL QUALITY MAP (SVOCs)

DRAWING NUMBER
7875-007

FIGURE 5

All concentrations reported in milligrams per kilogram (mg/kg)
( ) = Concentration exceeds Chapter NR 720 generic Residual Contaminant Level for non-industrial property



GP-7	
Depth (feet bgs):	0 - 2
Arsenic	(6.02)
Lead	(449)

GP-8	
Depth (feet bgs):	2 - 4
Arsenic	<2.99
Lead	7.68

GP-9	
Depth (feet bgs):	0 - 2
Arsenic	<2.69
Lead	19.3

GP-4	
Depth (feet bgs):	2 - 4
Arsenic	<2.90
Lead	14.0

GP-2	
Depth (feet bgs):	2 - 4
Arsenic	<2.84
Lead	22.3

GP-1	
Depth (feet bgs):	0 - 2
Arsenic	<2.62
Lead	9.91

GP-11	
Depth (feet bgs):	2 - 4
Arsenic	(5.34)
Lead	31.3

GP-10	
Depth (feet bgs):	2 - 4
Arsenic	(13.4)
Lead	(267)

GP-16	
Depth (feet bgs):	0 - 2
Arsenic	(4.61)
Lead	(69.0)

GP-14	
Depth (feet bgs):	2 - 4
Arsenic	(13.1)
Lead	(97.0)

GP-13	
Depth (feet bgs):	0 - 2
Arsenic	(4.74)
Lead	(102)

GP-15	
Depth (feet bgs):	4 - 6
Arsenic	<2.86
Lead	40.8

GP-12	
Depth (feet bgs):	2 - 4
Arsenic	<2.65
Lead	2.10

GP-6	
Depth (feet bgs):	2 - 4
Arsenic	<3.11
Lead	(287)

GP-5	
Depth (feet bgs):	2 - 4
Arsenic	<3.11
Lead	22.3

GP-3	
Depth (feet bgs):	2 - 4
Arsenic	(3.17)
Lead	33.0

LEGEND

- GP = GEOPROBE SOIL BORING LOCATION
- SUMP = ABANDONED SUMP LOCATION
- MW = SIGMA MONITORING WELL LOCATION
- MW = ABANDONED MONITORING WELL LOCATION
- OE = OVERHEAD ELECTRIC LINE
- E = UNDERGROUND ELECTRIC LINE
- S = UNDERGROUND STORM SEWER LINE
- W = UNDERGROUND WATER LINE

NOTES:

1. BASE MAP BASED ON ELECTRONIC FILE PROVIDED TO SIGMA BY CITY OF SHEBOYGAN.
2. LOCATION OF SOIL BORINGS GP-1 THROUGH GP-16 AND UTILITY LOCATIONS BASED ON FIELD MEASUREMENTS TO SITE FEATURES. SOIL BORINGS GP-17 THROUGH GP-25 AND MONITORING WELLS MW-1 THROUGH MW-7 SURVEYED BY SIGMA DEVELOPMENT, INC. IN DECEMBER 2004.

SIGMA
ENVIRONMENTAL SERVICES INC.
1300 W. CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
1-800-732-4671

SCALE - 1" = 40'- 0" 0' 20' 40' 60' 80'

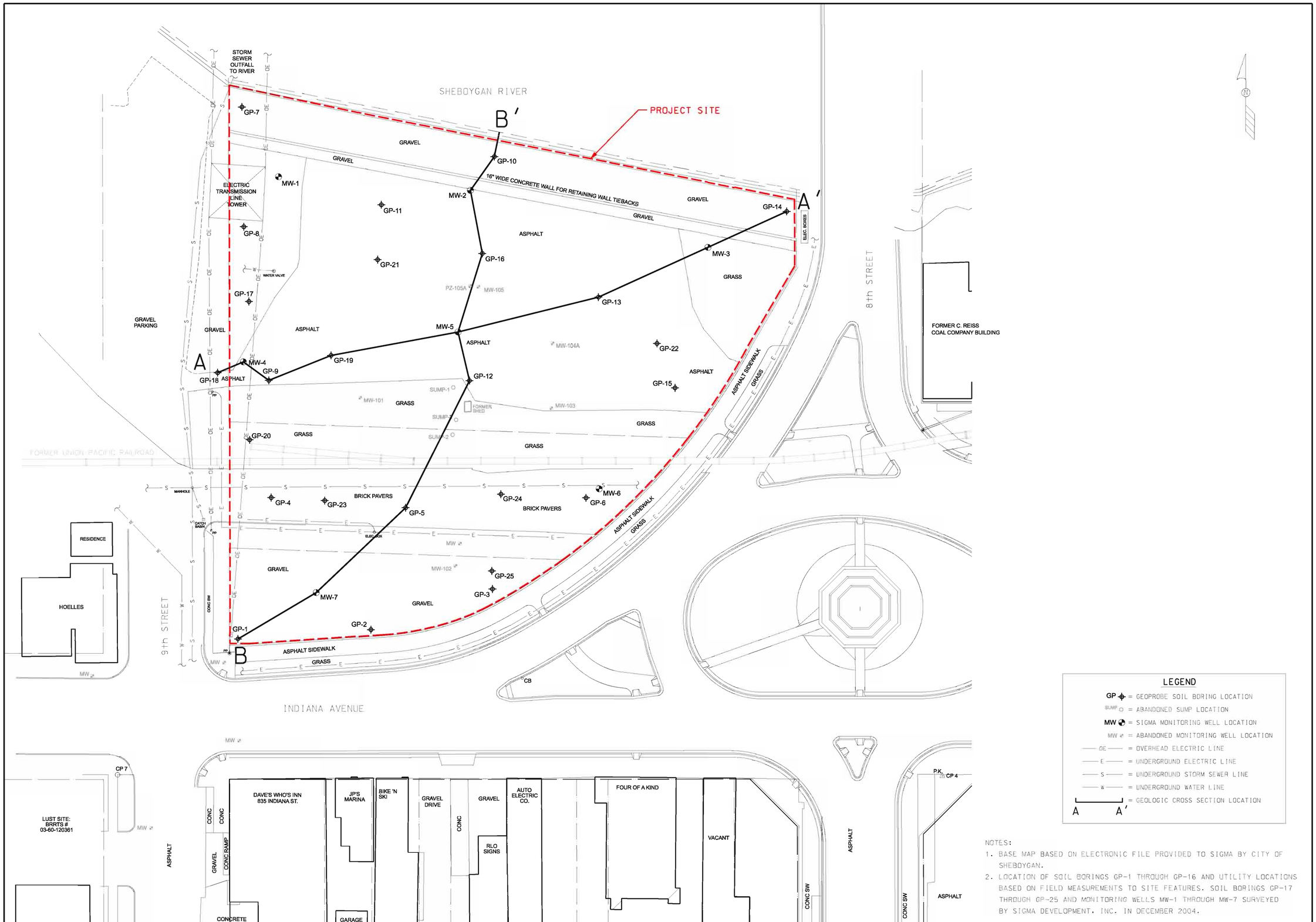
NO	DATE	REVISIONS	BY	APVD
1	1-26-05	ADDED GEOPROBES & MONITORING WELLS GP-17 - GP-25 & MW-1 - MW-7	BEB	

	NAME:	DATE:
DRAWN BY:	BEB	3-4-05
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

CITY OF SHEBOYGAN - ORIGINAL C. REISS COAL PARCEL
NORTHWEST CORNER OF 8th STREET & INDIANA AVENUE, SHEBOYGAN, WI
SOIL QUALITY MAP (METALS)

DRAWING NUMBER
7875-008

FIGURE 6



NOTES:

1. BASE MAP BASED ON ELECTRONIC FILE PROVIDED TO SIGMA BY CITY OF SHEBOYGAN.
2. LOCATION OF SOIL BORINGS GP-1 THROUGH GP-16 AND UTILITY LOCATIONS BASED ON FIELD MEASUREMENTS TO SITE FEATURES. SOIL BORINGS GP-17 THROUGH GP-25 AND MONITORING WELLS MW-1 THROUGH MW-7 SURVEYED BY SIGMA DEVELOPMENT, INC. IN DECEMBER 2004.

SIGMA ENVIRONMENTAL SERVICES INC.
1300 W. CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
1-800-732-4671

SCALE - 1" = 40'- 0" 0' 20' 40' 60' 80'

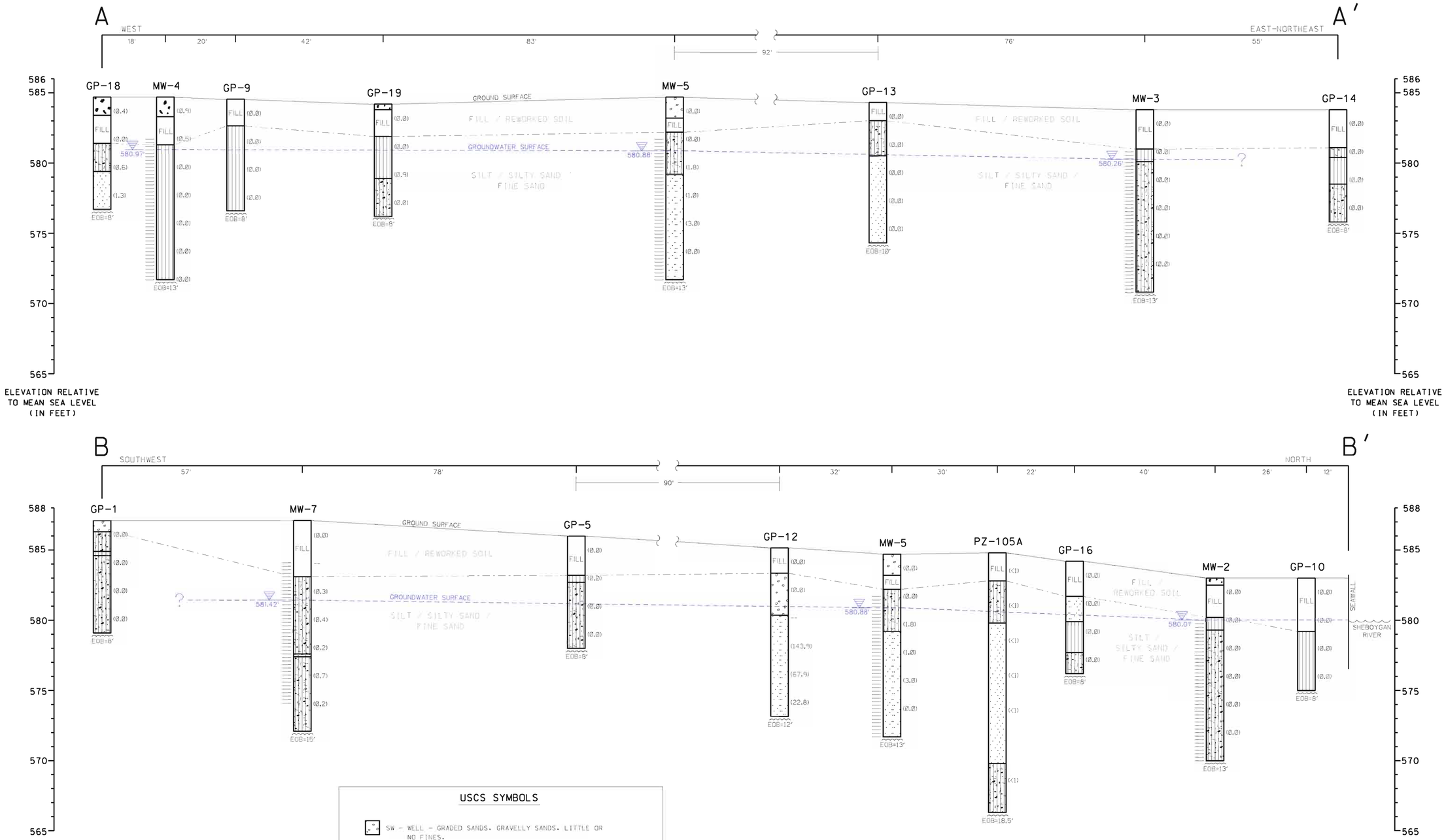
NO	DATE	REVISIONS	BY	APVD
1	1-26-05	ADDED GEOPROBES & MONITORING WELLS GP-17 - GP-25 & MW-1 - MW-7	BEB	

	NAME:	DATE:
DRAWN BY:	BEB	3-3-05
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

CITY OF SHEBOYGAN - ORIGINAL C. REISS COAL PARCEL
NORTHWEST CORNER OF 8th STREET & INDIANA AVENUE, SHEBOYGAN, WI
GEOLOGIC CROSS SECTION LOCATION MAP

DRAWING NUMBER
7875-005

FIGURE 3



USCS SYMBOLS

- SW – WELL – GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.
- SP – POORLY – GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.
- SM – SILTY – SANDS, SAND – SILT MIXTURES.
- ML – INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY.
- GW – WELL – GRADED GRAVELS, GRAVEL – SAND MIXTURES LITTLE OR NO FINES.

LEGEND

= WELL SCREEN INTERVAL

= STATIC WATER LEVEL MEASURED 12-21-04 (FEET MEAN SEA LEVEL)

= INFERRED SOIL CONTACT

FILL = REWORKED GRAVEL, SAND, SILT, CLAY; FOUNDRY SAND; BRICK FRAGMENTS; CINDERS; WOOD DEBRIS

NOTES:
HORIZONTAL SCALE 1" = 20'
VERTICAL SCALE 1" = 5'

SIGMA ENVIRONMENTAL SERVICES INC.
1300 W. CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
1-800-732-4671

HORIZONTAL SCALE
1" = 20'- 0"
0' 10' 20' 30' 40'

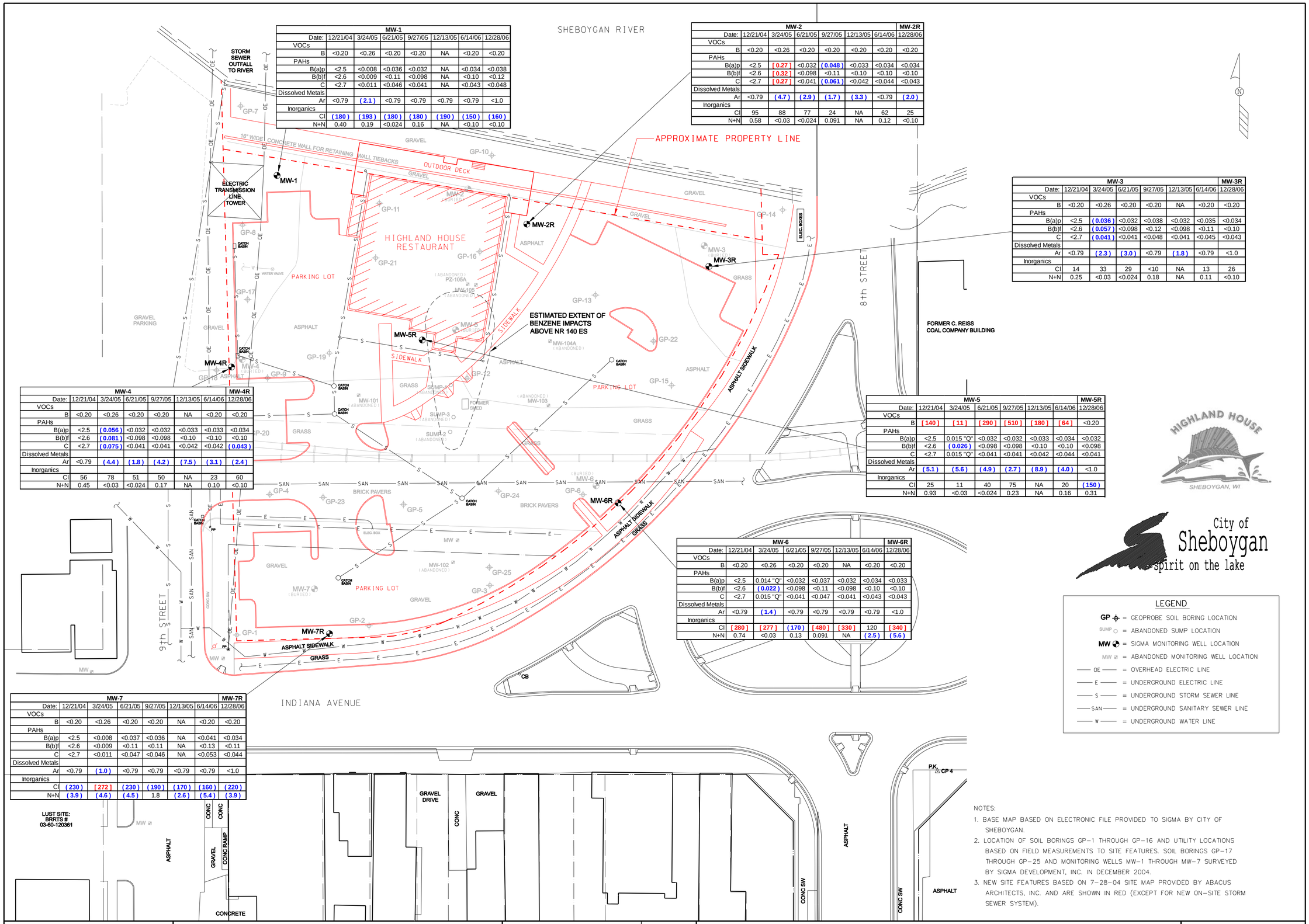
NO	DATE	REVISIONS	BY	APVD

	NAME:	DATE:
DRAWN BY:	BEB	3-3-05
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

CITY OF SHEBOYGAN - ORIGINAL C. REISS COAL PARCEL
NORTHWEST CORNER OF 8th STREET & INDIANA AVENUE, SHEBOYGAN, WI
GEOLOGIC CROSS SECTIONS A -A' AND B - B'

DRAWING NUMBER
7875-004

FIGURE 4



MW-1							
Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06
VOCs							
B	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20
PAHs							
B(a)p	<2.5	<0.008	<0.036	<0.032	NA	<0.034	<0.038
B(b)f	<2.6	<0.009	<0.11	<0.098	NA	<0.10	<0.12
C	<2.7	<0.011	<0.046	<0.041	NA	<0.043	<0.048
Dissolved Metals							
Ar	<0.79	(2.1)	<0.79	<0.79	<0.79	<0.79	<1.0
Inorganics							
Cl	(180)	(193)	(180)	(180)	(190)	(150)	(160)
N+N	0.40	0.19	<0.024	0.16	NA	<0.10	<0.10

MW-2							MW-2R
Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06
VOCs							
B	<0.20	<0.26	<0.20	<0.20	<0.20	<0.20	<0.20
PAHs							
B(a)p	<2.5	[0.27]	<0.032	(0.048)	<0.033	<0.034	<0.034
B(b)f	<2.6	[0.32]	<0.098	<0.11	<0.10	<0.10	<0.10
C	<2.7	[0.27]	<0.041	(0.061)	<0.042	<0.044	<0.043
Dissolved Metals							
Ar	<0.79	(4.7)	(2.9)	(1.7)	(3.3)	<0.79	(2.0)
Inorganics							
Cl	95	88	77	24	NA	62	25
N+N	0.58	<0.03	<0.024	0.091	NA	0.12	<0.10

MW-3							MW-3R
Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06
VOCs							
B	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20
PAHs							
B(a)p	<2.5	(0.036)	<0.032	<0.038	<0.032	<0.035	<0.034
B(b)f	<2.6	(0.057)	<0.098	<0.12	<0.098	<0.11	<0.10
C	<2.7	(0.041)	<0.041	<0.048	<0.041	<0.045	<0.043
Dissolved Metals							
Ar	<0.79	(2.3)	(3.0)	<0.79	(1.8)	<0.79	<1.0
Inorganics							
Cl	14	33	29	<10	NA	13	26
N+N	0.25	<0.03	<0.024	0.18	NA	0.11	<0.10

MW-4							MW-4R
Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06
VOCs							
B	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20
PAHs							
B(a)p	<2.5	(0.056)	<0.032	<0.032	<0.033	<0.033	<0.034
B(b)f	<2.6	(0.081)	<0.098	<0.098	<0.10	<0.10	<0.10
C	<2.7	(0.075)	<0.041	<0.041	<0.042	<0.042	(0.043)
Dissolved Metals							
Ar	<0.79	(4.4)	(1.8)	(4.2)	(7.5)	(3.1)	(2.4)
Inorganics							
Cl	56	78	51	50	NA	23	60
N+N	0.45	<0.03	<0.024	0.17	NA	0.10	<0.10

MW-5							MW-5R
Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06
VOCs							
B	[140]	[11]	[290]	[510]	[180]	[64]	<0.20
PAHs							
B(a)p	<2.5	0.015 "Q"	<0.032	<0.032	<0.033	<0.034	<0.032
B(b)f	<2.6	(0.026)	<0.098	<0.098	<0.10	<0.10	<0.098
C	<2.7	0.015 "Q"	<0.041	<0.041	<0.042	<0.044	<0.041
Dissolved Metals							
Ar	(5.1)	(5.6)	(4.9)	(2.7)	(8.9)	(4.0)	<1.0
Inorganics							
Cl	25	11	40	75	NA	20	(150)
N+N	0.93	<0.03	<0.024	0.23	NA	0.16	0.31

MW-6							MW-6R
Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06
VOCs							
B	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20
PAHs							
B(a)p	<2.5	0.014 "Q"	<0.032	<0.037	<0.032	<0.034	<0.033
B(b)f	<2.6	(0.022)	<0.098	<0.11	<0.098	<0.10	<0.10
C	<2.7	0.015 "Q"	<0.041	<0.047	<0.041	<0.043	<0.043
Dissolved Metals							
Ar	<0.79	(1.4)	<0.79	<0.79	<0.79	<0.79	<1.0
Inorganics							
Cl	[280]	[277]	(170)	[480]	[330]	120	[340]
N+N	0.74	<0.03	0.13	0.091	NA	(2.5)	(5.6)

MW-7							MW-7R
Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06
VOCs							
B	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20
PAHs							
B(a)p	<2.5	<0.008	<0.037	<0.036	NA	<0.041	<0.034
B(b)f	<2.6	<0.009	<0.11	<0.11	NA	<0.13	<0.11
C	<2.7	<0.011	<0.047	<0.046	NA	<0.053	<0.044
Dissolved Metals							
Ar	<0.79	(1.0)	<0.79	<0.79	<0.79	<0.79	<1.0
Inorganics							
Cl	(230)	[272]	(230)	(190)	(170)	(160)	(220)
N+N	(3.9)	(4.6)	(4.5)	1.8	(2.6)	(5.4)	(3.9)

HIGHLAND HOUSE
SHEBOYGAN, WI

City of Sheboygan
spirit on the lake

LEGEND

- GP = GEOPROBE SOIL BORING LOCATION
- SUMP = ABANDONED SUMP LOCATION
- MW = SIGMA MONITORING WELL LOCATION
- MW = ABANDONED MONITORING WELL LOCATION
- OE = OVERHEAD ELECTRIC LINE
- E = UNDERGROUND ELECTRIC LINE
- S = UNDERGROUND STORM SEWER LINE
- SAN = UNDERGROUND SANITARY SEWER LINE
- W = UNDERGROUND WATER LINE

NOTES:

1. BASE MAP BASED ON ELECTRONIC FILE PROVIDED TO SIGMA BY CITY OF SHEBOYGAN.
2. LOCATION OF SOIL BORINGS GP-1 THROUGH GP-16 AND UTILITY LOCATIONS BASED ON FIELD MEASUREMENTS TO SITE FEATURES. SOIL BORINGS GP-17 THROUGH GP-25 AND MONITORING WELLS MW-1 THROUGH MW-7 SURVEYED BY SIGMA DEVELOPMENT, INC. IN DECEMBER 2004.
3. NEW SITE FEATURES BASED ON 7-28-04 SITE MAP PROVIDED BY ABACUS ARCHITECTS, INC. AND ARE SHOWN IN RED (EXCEPT FOR NEW ON-SITE STORM SEWER SYSTEM).

SIGMA ENVIRONMENTAL SERVICES INC.
1300 W. CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
1-800-732-4671

SCALE - 1" = 40'- 0" 0' 20' 40' 60' 80'

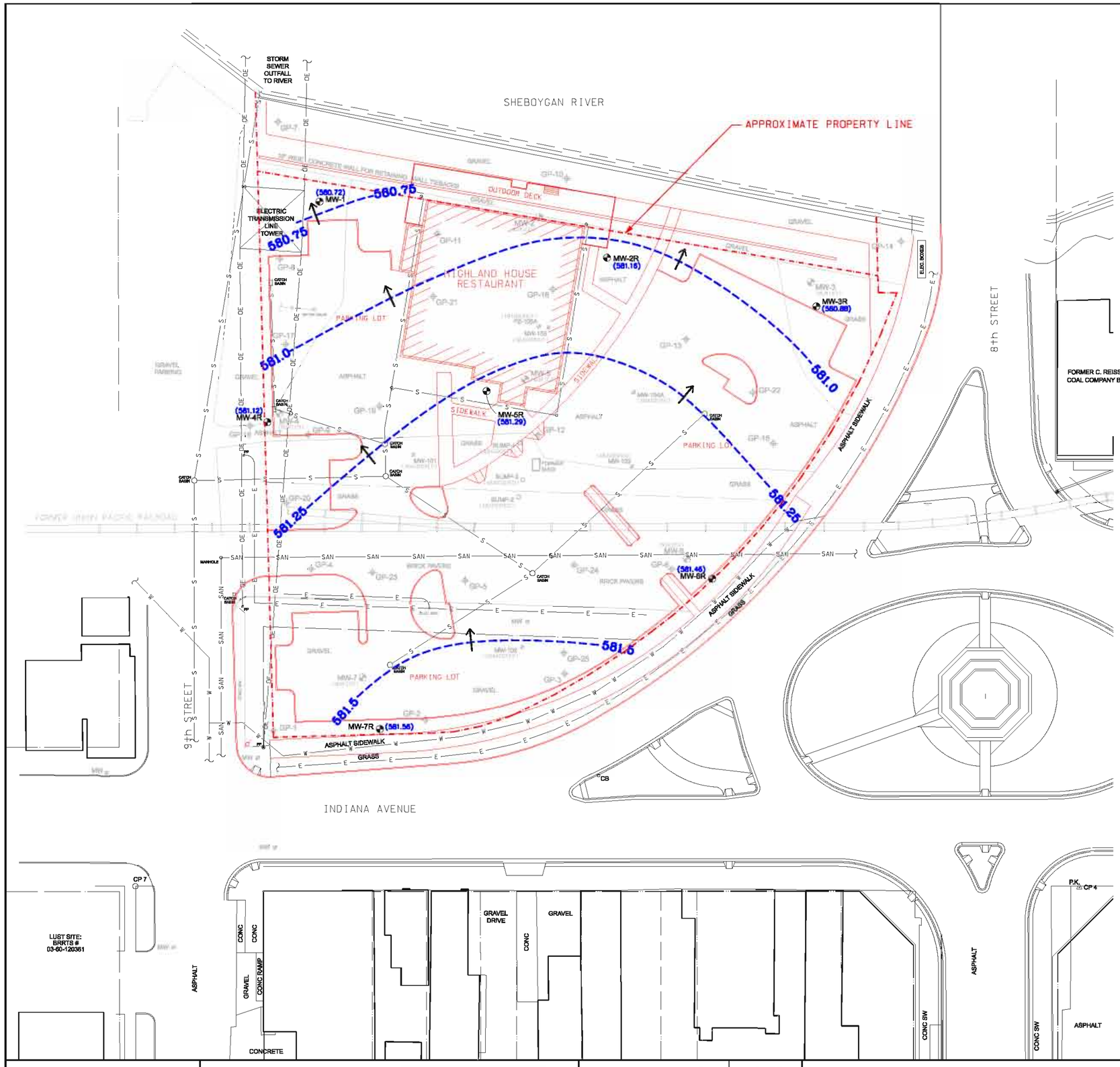
NO	DATE	REVISIONS	BY	APVD
1	1-26-05	ADDED GEOPROBES & MONITORING WELLS GP-17 - GP-25 & MW-1 - MW-7	BEB	

	NAME:	DATE:
DRAWN BY:	BEB	12-29-06
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

CITY OF SHEBOYGAN - ORIGINAL C. REISS COAL PARCEL
NORTHWEST CORNER OF 8th STREET & INDIANA AVENUE, SHEBOYGAN, WI
GROUNDWATER QUALITY MAP

DRAWING NUMBER
7875-019

FIGURE 3



HIGHLAND HOUSE
SHEBOYGAN, WI

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- W = UNDERGROUND WATER LINE
- = GROUNDWATER CONTOUR LINE, CONTOUR INTERVAL = 0.25'
- ( ) = STATIC GROUNDWATER LEVEL (12-28-06)
- → = GROUNDWATER FLOW DIRECTION

NOTES:

1. BASE MAP BASED ON ELECTRONIC FILE PROVIDED TO SIGMA BY CITY OF SHEBOYGAN
2. LOCATION OF SOIL BORINGS GP-1 THROUGH GP-16 AND UTILITY LOCATIONS BASED ON FIELD MEASUREMENTS TO SITE FEATURES. SOIL BORINGS GP-17 THROUGH GP-25 AND MONITORING WELLS MW-1 THROUGH MW-7 SURVEYED BY SIGMA DEVELOPMENT, INC. IN DECEMBER 2004.
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MILWAUKEE, WISCONSIN 53233
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1-800-732-4671

SCALE - 1" = 40'- 0" 0' 20' 40' 60' 80'

NO	DATE	REVISIONS	BY	APVD
1	1-26-05	ADDED GEOPROBES & MONITORING WELLS GP-17 - GP-25 & MW-1 - MW-7	BEB	

	NAME:	DATE:
DRAWN BY:	BEB	12-29-06
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

CITY OF SHEBOYGAN - ORIGINAL C. REISS COAL PARCEL
NORTHWEST CORNER OF 8th STREET & INDIANA AVENUE, SHEBOYGAN, WI
GROUNDWATER CONTOUR MAP (12-28-06)

DRAWING NUMBER
7875-017

FIGURE 2

TABLES

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Table 4 - September 2000 Arsenic Soil Sampling Summary [for Property #1]
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Table 5 - Berm Soil Analytical Results - Former C. Reiss Coal Company Property [for Property #1]
Table 1 - Post Remediation Soil Quality Data - Excavation Area 1 (Nitrogen & Chloride) [for Property #1]
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Groundwater Analytical Table

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Water Elevations

Table 1 - Static Water Level Measurements [for Property #1]
Table 1 - Static Groundwater Elevations [for Property #2]

Table 2
Soil Quality Results
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

Soil Sample Location:		GP-1	GP-2	GP-3	GP-4	GP-5	GP-6	GP-7	GP-8	GP-9	GP-10	GP-11	GP-12	GP-13	GP-14	GP-15	GP-16	NR 720 RCL[5]		Calculated RCL[9]	
Sample Depth (feet bgs):		0 - 2	2 - 4	2 - 4	2 - 4	2 - 4	2 - 4	0 - 2	2 - 4	0 - 2	2 - 4	2 - 4	2 - 4	0 - 2	2 - 4	4 - 6	0 - 2			Direct Contact	Migration to Groundwater
	Date:	09/02/03	09/02/03	09/02/03	09/02/03	09/02/03	09/02/03	09/02/03	09/03/03	09/02/03	09/03/03	09/03/03	09/02/03	09/02/03	09/03/03	09/02/03	09/03/03				
Photoionization Detector	ppm	0	0	0	0	0	0	0	0	0	0	0	0	107.6	0	0	0	NS		---	---
PVOCs & Detected VOCs																					
Benzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	**352**	**75.6**	<25.0	<25.0	**90.3**	**233**	<25.0	**50.1**	5.5		---	---
Ethylbenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	87.8	103	<25.0	<25.0	271	154	<25.0	123	2,900		---	---
Methyl-tert-butyl-ether	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0	<25.0	<25.0	<125	<25.0	<25.0	<25.0	NS		---	---
Toluene	µg/kg	<25.0	<25.0	45.1	30.7	<25.0	<25.0	<25.0	<25.0	784	363	31.4	<25.0	290	1,260	<25.0	248	1,500		---	---
1,2,4-Trimethylbenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	210	267	<25.0	<25.0	684	412	<25.0	304	NS		---	---
1,3,5-Trimethylbenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	407	80.8	<25.0	<25.0	230	99.2	<25.0	106	NS		---	---
Xylenes (total)	µg/kg	<25.0	<25.0	42.9	<25.0	<25.0	<25.0	<25.0	<25.0	822	760	36.3	<25.0	977	1,730	<25.0	747	4,100		---	---
Naphthalene	µg/kg	<25.0	<25.0	61.8	108	69.8	<25.0	64.7	77.8	462	449	38.2	<25.0	982	587	<25.0	380	NS		---	---
n-Butylbenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0	<25.0	<25.0	424	<25.0	<25.0	48.4	NS		---	---
Chlorobenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	***4,620***	<50.0	<25.0	<25.0	<125	<25.0	<25.0	<25.0	NS		26,000[inh]	75
1,2-Dichlorobenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	***12,500***	<50.0	<25.0	<25.0	<125	<25.0	<25.0	<25.0	NS		610,000[inh]	910
1,4-Dichlorobenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	***469***	<50.0	<25.0	<25.0	<125	<25.0	<25.0	<25.0	NS		2,660[ing]	230
1,2-Dichloroethane	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	**273**	<50.0	<25.0	<25.0	<125	<25.0	<25.0	<25.0	4.9		---	---
Isopropylbenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0	<25.0	<25.0	<125	65.1	<25.0	95.2	NS		---	---
p-Isopropyltoluene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0	<25.0	<25.0	<125	<25.0	<25.0	33.6	NS		---	---
n-Propylbenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	26.9	<50.0	<25.0	<25.0	276	70.7	<25.0	78.7	NS		---	---
1,2,4-Trichlorobenzene	µg/kg	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	129	<50.0	<25.0	<25.0	<125	<25.0	<25.0	<25.0	NS		36,000[inh]	540
PAHs/Detected SVOCs																		**DC RCL[6]**	**GW RCL[7]**		
Acenaphthene	µg/kg	<105	<114	136	<116	526	138	<180	<120	226	<128	<123	<106	<109	<124	<114	406	900,000	38,000	---	---
Acenaphthylene	µg/kg	<210	<227	<223	<116	<249	<249	<180	<239	<215	<256	<246	<212	<109	<248	<229	<220	18,000	700	---	---
Anthracene	µg/kg	<105	<114	<111	<116	191	<124	<180	<120	172	<128	<123	<106	<109	<124	<114	138	5,000,000	3,000,000	---	---
Benzo(a)anthracene	µg/kg	<52.5	<56.9	**130**	<116	**410**	**133**	<180	**120**	**299**	**116**	<61.6	<53.0	<109	<62.0	<57.2	**313**	88	17,000	---	---
Benzo(a)pyrene	µg/kg	**25.2**	**47.6**	**129**	<67.3	**412**	**144**	<104	**125**	**258**	**120**	**49.7**	<5.30	<63.5	**53.1**	28.7	**105**	8.8	48,000	---	---
Benzo(b)fluoranthene	µg/kg	<52.5	<56.9	**147**	<116	**407**	**98.6**	<180	**111**	**242**	**129**	<61.6	<53.0	<109	<62.0	<57.2	**315**	88	360,000	---	---
Benzo(ghi)perylene	µg/kg	<105	<114	<111	<116	282	127	<180	<120	218	<128	<123	<106	<109	<124	<114	323	1,800	6,800,000	---	---
Benzo(k)fluoranthene	µg/kg	<105	<114	<111	<116	211	<124	<180	<120	202	<128	<123	<106	<109	<124	<114	218	880	870,000	---	---
Chrysene	µg/kg	<105	<114	171	<116	749	225	<180	140	356	<128	<123	<106	<109	<124	<114	698	8,800	37,000	---	---
Dibenzo(a,h)anthracene	µg/kg	**23.0**	**37.7**	**21.6**	<67.3	**233**	**50.2**	<104	**22.0**	**207**	**29.3**	**44.2**	<5.30	<63.5	<6.20	30.2	**265**	8.8	38,000	---	---
Fluoranthene	µg/kg	<105	<114	<111	<116	379	393	<180	290	855	184	<123	<106	<109	<124	<114	1,020	600,000	500,000	---	---
Fluorene	µg/kg	<105	<114	<111	<116	<125	<124	<180	<120	<108	<128	<123	<106	<109	<124	<114	<110	600,000	100,000	---	---
Indeno(1,2,3-cd)pyrene	µg/kg	<52.5	<56.9	**117**	<116	**344**	**115**	<180	**122**	**230**	**121**	<61.6	<53.0	<109	68.2	<57.2	**246**	88	680,000	---	---
1-Methylnaphthalene	µg/kg	<105	<114	<111	NA	<125	<124	NA	<120	<108	<128	<123	<106	<109	<124	<114	<110	1,100,000	23,000	---	---
2-Methylnaphthalene	µg/kg	<105	<114	172	140	463	145	<180	<120	344	559	<123	<106	<109	<124	159	932	600,000	20,000	---	---
Naphthalene	µg/kg	<105	<114	<111	<116	<125	<124	<180	<120	<108	<128	<123	<106	<109	<124	<114	<110	20,000	400	---	---
Phenanthrene	µg/kg	<105	<114	176	443	770	220	300	143	484	219	<123	<106	259	<124	<114	644	18,000	1,800	---	---
Pyrene	µg/kg	<105	<114	188	166	756	226	<180	192	486	161	<123	<106	<109	149	<114	553	500,000	8,700,000	---	---
Pentachlorophenol	µg/kg	NA	NA	NA	***9,240***	NA	NA	***10,700***	NA	NA	NA	NA	NA	***5,820***	NA	NA	NA	NS	NS	266[dc]	1.5
Detected RCRA Metals																		**NR 720 RCL[5]**			
Mercury	mg/kg	0.044	0.117	0.169	0.0719	0.108	0.880	0.115	0.0949	<0.0431	0.0924	0.225	<0.0424	0.0670	0.100	<0.0458	0.0643	NS		2.1[inh]	---
Arsenic	mg/kg	<2.62	<2.84	**3.17**	<2.90	<3.11	<3.11	**6.02**	<2.99	<2.69	**13.4**	**5.34**	<2.65	**4.74**	**13.1**	<2.86	**4.61**	0.039		---	---
Barium	mg/kg	<26.2	36.5	31.2	45.2	<31.1	***2,360***	605	34.8	<26.9	116	32.7	<26.5	67.1	91.0	48.8	60.7	NS		1,100[ing]	---
Cadmium	mg/kg	<0.525	<0.569	<0.557	0.580	<0.623	0.750	0.908	1.09	<0.538	<0.641	<0.616	<0.530	0.672	0.845	<0.572	0.617	8		---	---
Chromium	mg/kg	3.55	5.52	9.49	11.3	6.58	11.1	9.92	9.46	4.17	11.0	8.46	4.02	8.05	13.6	6.36	9.21	16,000		---	---
Lead	mg/kg	9.91	22.3	33.0	14.0	22.3	**287**	**449**	7.68	19.3	**267**	31.3	2.10	**102**	**97.0**	40.8	**69.0**	50		---	---
Inorganics																		**NR 720 RCL[5]**			
Chloride	mg/kg	304	466	362	220	230	149	261	227	194	340	215	244	197	186	200	314	NS		---	---

Notes:
1. All VOCs reported below laboratory detection limits in methanol blank sample submitted with soil samples on September 2 & 3, 2003.
2. mg/kg = milligrams per kilogram (equivalent to parts per million, ppm)
3. µg/kg = micrograms per kilogram (equivalent to parts per billion, ppb)
4. NA = not analyzed
5. NR 720 RCL = Wisconsin Administrative Code, Chapter NR 720 generic Residual Contaminant Level. RCLs for metals based on non-industrial land use; RCL for chromium listed for trivalent chromium.
6. DC RCL = Interim guidance RCL for protection of direct contact with PAH compounds (non-industrial land use), from WDNR publication RR-519-97 *"Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance"* (April 1997)
7. GW RCL = Interim guidance RCL for protection of groundwater pathway from PAH compounds, from WDNR publication RR-519-97 *"Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance"* (April 1997)
8. NS = no standard established
9. Calculated RCL = Residual Contaminant Level calculated in accordance with WDNR default values on EPA Soil Screening Level Web Site as described in WDNR PUB-RR-682 (January 11, 2002)
   Direct Contact RCL shown is lowest calculated RCL of Ingestion ([ing]), Particulate Inhalation, Volatile Inhalation ([inh]), or dermal contact ([dc]) pathways.
   Migration to Groundwater only shown for non-metal compounds.
10. Exceedances: **bold, box** = concentration exceeds NR 720 RCL for PVOCs/VOCs (migration to groundwater pathway) or metals (non-industrial, direct contact pathway) or DC RCL for PAHs
    bold, italics = concentration exceeds calculated RCL for direct contact and/or migration to groundwater pathway

Table 2
Soil Quality Results
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

Soil Sample Location:		MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	GP-17		GP-18		GP-19		GP-20		GP-21	GP-22	GP-23	GP-24	GP-25	NR 720 RCL[5]		Calculated RCL[8]	
Sample Depth (feet bgs):		---	---	2 - 4	2 - 4	2 - 4	2 - 4	0 - 2	2 - 4	4 - 6	2 - 4	4 - 6	0 - 2	4 - 6	2 - 4	4 - 6	2 - 4	0 - 2	2 - 4	2 - 4	2 - 4			Direct Contact	Migration to Groundwater
	Date:	11/17/04	11/17/04	11/16/04	11/16/04	11/16/04	11/16/04	11/16/04	11/17/04	11/17/04	11/17/04	11/17/04	11/17/04	11/17/04	11/17/04	11/17/04	11/17/04	11/17/04	11/16/04	11/16/04	11/16/04				
Photoionization Detector	ppm	---	---	0	0.5	0	0	0	0.6	0.9	0	0.6	0	0.9	0.4	0.4	0	0	0	0	0.9	NS		---	---
PVOCs & Detected VOCs																									
Benzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	**45**	<32	<28	<33	NA	NA	NA	NA	NA	5.5		---	---
Ethylbenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	85	<32	<28	<33	NA	NA	NA	NA	NA	2,900		---	---
Methyl-tert-butyl-ether	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	<30	<32	<28	<33	NA	NA	NA	NA	NA	NS		---	---
Toluene	µg/kg	NA	NA	NA	NA	NA	NA	NA	50	<28	<28	<27	303	<32	<28	<33	NA	NA	NA	NA	NA	1,500		---	---
1,2,4-Trimethylbenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	46	<28	34	<27	206	<32	<28	<33	NA	NA	NA	NA	NA	NS		---	---
1,3,5-Trimethylbenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	51	<32	<28	<33	NA	NA	NA	NA	NA	NS		---	---
Xylenes (total)	µg/kg	NA	NA	NA	NA	NA	NA	NA	100	<39	<39	<38	583	<44	<39	<46	NA	NA	NA	NA	NA	4,100		---	---
Naphthalene	µg/kg	NA	NA	NA	NA	NA	NA	NA	934	51	266	<27	364	<32	29	<33	NA	NA	NA	NA	NA	NS		---	---
n-Butylbenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	<30	<32	<28	<33	NA	NA	NA	NA	NA	NS		---	---
Chlorobenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	<30	<32	<28	<33	NA	NA	NA	NA	NA	NS		26,000[inh]	75
1,2-Dichlorobenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	<30	<32	<28	<33	NA	NA	NA	NA	NA	NS		610,000[inh]	910
1,4-Dichlorobenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	<30	<32	<28	<33	NA	NA	NA	NA	NA	NS		2,660[ing]	230
1,2-Dichloroethane	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	<30	<32	<28	<33	NA	NA	NA	NA	NA	4.9		---	---
Isopropylbenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	44	<32	<28	<33	NA	NA	NA	NA	NA	NS		---	---
p-Isopropyltoluene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	<30	<32	<28	<33	NA	NA	NA	NA	NA	NS		---	---
n-Propylbenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	<30	<32	<28	<33	NA	NA	NA	NA	NA	NS		---	---
1,2,4-Trichlorobenzene	µg/kg	NA	NA	NA	NA	NA	NA	NA	<29	<28	<28	<27	<30	<32	<28	<33	NA	NA	NA	NA	NA	NS		36,000[inh]	540
PAHs/Detected SVOCs																						**DC RCL[6]**	**GW RCL[7]**		
Acenaphthene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	980	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	900,000	38,000	---	---
Acenaphthylene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	<380	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	18,000	700	---	---
Anthracene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	2,400	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	5,000,000	3,000,000	---	---
Benzo(a)anthracene	µg/kg	NA	NA	<430	**1,400**	<1,200	NA	<350	**4,200**	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	88	17,000	---	---
Benzo(a)pyrene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	<380	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	8.8	48,000	---	---
Benzo(b)fluoranthene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	**3,300**	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	88	360,000	---	---
Benzo(ghi)perylene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	<380	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	1,800	6,800,000	---	---
Benzo(k)fluoranthene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	**2,500**	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	880	870,000	---	---
Chrysene	µg/kg	NA	NA	<430	1,500	<1,200	NA	<350	4,200	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	8,800	37,000	---	---
Dibenzo(a,h)anthracene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	<380	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	8.8	38,000	---	---
Fluoranthene	µg/kg	NA	NA	<430	3,400	<1,200	NA	<350	9,600	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	600,000	500,000	---	---
Fluorene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	1,000	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	600,000	100,000	---	---
Indeno(1,2,3-cd)pyrene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	**1,600**	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	88	680,000	---	---
1-Methylnaphthalene	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,100,000	23,000	---	---
2-Methylnaphthalene	µg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	600,000	20,000	---	---
Naphthalene	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	***420***	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	20,000	400	---	---
Phenanthrene	µg/kg	NA	NA	<430	***3,600***	<1,200	NA	<350	***8,200***	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	18,000	1,800	---	---
Pyrene	µg/kg	NA	NA	<430	2,900	<1,200	NA	<350	7,600	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	500,000	8,700,000	---	---
Pentachlorophenol	µg/kg	NA	NA	<430	<1,300	<1,200	NA	<350	<380	NA	NA	NA	NA	NA	NA	NA	<440	<790	<400	<400	<360	NS	NS	266[dc]	1.5
Inorganics																						**NR 720 RCL[b]**			
Nitrate + Nitrite	mg/kg	NA	NA	<2.6	NA	NA	<2.5	13	NA	NA	NA	NA	<2.4	NA	NA	NA	4.6	4.2	NA	NA	NA	NS		---	---

Table 2
Soil Quality Results (Site Investigation)
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

Soil Sample Location:		MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	GP-17		GP-18		GP-19		GP-20		GP-21	GP-22	GP-23	GP-24	GP-25			
Sample Depth (feet bgs):		---	---	2 - 4	2 - 4	2 - 4	2 - 4	0 - 2	2 - 4	4 - 6	2 - 4	4 - 6	0 - 2	4 - 6	2 - 4	4 - 6	2 - 4	0 - 2	2 - 4	2 - 4	2 - 4	NR 720 RCL[5]	PRG [9]	SSL [10]
Pesticides																								
Aldrin	µg/kg	NA	NA	<22	NA	NA	<2.1	<3.5	NA	NA	NA	NA	<10	NA	NA	NA	<2.3	<25	NA	NA	NA	NS	29	500
a-BHC	µg/kg	NA	NA	<22	NA	NA	<2.1	<3.5	NA	NA	NA	NA	<10	NA	NA	NA	<2.3	<25	NA	NA	NA	NS	NS	NS
b-BHC	µg/kg	NA	NA	<22	NA	NA	<2.1	<3.5	NA	NA	NA	NA	<10	NA	NA	NA	<2.3	<25	NA	NA	NA	NS	NS	NS
d-BHC	µg/kg	NA	NA	<22	NA	NA	<2.1	<3.5	NA	NA	NA	NA	<10	NA	NA	NA	<2.3	<25	NA	NA	NA	NS	NS	NS
g-BHC (Lindane)	µg/kg	NA	NA	<22	NA	NA	<2.1	<3.5	NA	NA	NA	NA	<10	NA	NA	NA	<2.3	<25	NA	NA	NA	NS	NS	NS
Chlordane	µg/kg	NA	NA	<43	NA	NA	<4.3	<3.6	NA	NA	NA	NA	<20	NA	NA	NA	<4.6	<48	NA	NA	NA	NS	1,600	10,000
4,4'-DDD	µg/kg	NA	NA	<42	NA	NA	<4.1	<6.8	NA	NA	NA	NA	<21	NA	NA	NA	<4.4	<47	NA	NA	NA	NS	2,400	16,000
4,4'-DDE	µg/kg	NA	NA	<42	NA	NA	<4.1	<6.8	NA	NA	NA	NA	<21	NA	NA	NA	<4.4	<47	NA	NA	NA	NS	1,700	54,000
4,4'-DDT	µg/kg	NA	NA	<42	NA	NA	<4.1	<6.8	NA	NA	NA	NA	<21	NA	NA	NA	<4.4	<47	NA	NA	NA	NS	1,700	32,000
Dieldrin	µg/kg	NA	NA	<42	NA	NA	<4.1	<6.8	NA	NA	NA	NA	<21	NA	NA	NA	<4.4	<47	NA	NA	NA	NS	30	4
Endosulfan I	µg/kg	NA	NA	<22	NA	NA	<2.1	<3.5	NA	NA	NA	NA	<10	NA	NA	NA	<2.3	<25	NA	NA	NA	NS	370,000	18,000
Endosulfan II	µg/kg	NA	NA	<42	NA	NA	<4.1	<6.8	NA	NA	NA	NA	<21	NA	NA	NA	<4.4	<47	NA	NA	NA	NS	370,000	18,000
Endosulfan Sulfate	µg/kg	NA	NA	<42	NA	NA	<4.1	<6.8	NA	NA	NA	NA	<21	NA	NA	NA	<4.4	<47	NA	NA	NA	NS	NS	NS
Endrin	µg/kg	NA	NA	<42	NA	NA	<4.1	<6.8	NA	NA	NA	NA	<21	NA	NA	NA	<4.4	<47	NA	NA	NA	NS	18,000	1,000
Endrin Aldehyde	µg/kg	NA	NA	<42	NA	NA	<4.1	<6.8	NA	NA	NA	NA	<21	NA	NA	NA	<4.4	<47	NA	NA	NA	NS	NS	NS
Heptachlor	µg/kg	NA	NA	<22	NA	NA	<2.1	<3.5	NA	NA	NA	NA	<10	NA	NA	NA	<2.3	<25	NA	NA	NA	NS	110	23,000
Heptachlor Epoxide	µg/kg	NA	NA	<22	NA	NA	<2.1	<3.5	NA	NA	NA	NA	<10	NA	NA	NA	<2.3	<25	NA	NA	NA	NS	53	700
Methoxychlor	µg/kg	NA	NA	<220	NA	NA	<21	<35	NA	NA	NA	NA	<100	NA	NA	NA	<23	<250	NA	NA	NA	NS	310,000	160,000
Toxaphene	µg/kg	NA	NA	<4,200	NA	NA	<410	<700	NA	NA	NA	NA	<2,100	NA	NA	NA	<440	<4,700	NA	NA	NA	NS	440	31,000
Herbicides																								
2,4-D	mg/kg	NA	NA	<0.22	NA	NA	<0.21	<0.18	NA	NA	NA	NA	<0.21	NA	NA	NA	1.1	<0.20	NA	NA	NA	NS	690	NS
2,4,5-TP (Silvex)	mg/kg	NA	NA	<0.022	NA	NA	<0.021	<0.018	NA	NA	NA	NA	<0.021	NA	NA	NA	<0.023	<0.020	NA	NA	NA	NS	490	NS
PCBs																								
Arochlor 1016	µg/kg	NA	NA	<22	NA	NA	<21	<18	NA	NA	NA	NA	<25	NA	NA	NA	<23	<20	NA	NA	NA	NS	3,900	NS
Arochlor 1221	µg/kg	NA	NA	<42	NA	NA	<41	<35	NA	NA	NA	NA	<51	NA	NA	NA	<44	<38	NA	NA	NA	NS	220	NS
Arochlor 1232	µg/kg	NA	NA	<22	NA	NA	<21	<18	NA	NA	NA	NA	<25	NA	NA	NA	<23	<20	NA	NA	NA	NS	220	NS
Arochlor 1242	µg/kg	NA	NA	<22	NA	NA	<21	<18	NA	NA	NA	NA	<25	NA	NA	NA	<23	<20	NA	NA	NA	NS	220	NS
Arochlor 1248	µg/kg	NA	NA	<22	NA	NA	<21	<18	NA	NA	NA	NA	<25	NA	NA	NA	<23	<20	NA	NA	NA	NS	220	NS
Arochlor 1254	µg/kg	NA	NA	<22	NA	NA	<21	<18	NA	NA	NA	NA	<25	NA	NA	NA	<23	<20	NA	NA	NA	NS	220	NS
Arochlor 1260	µg/kg	NA	NA	<22	NA	NA	<21	<18	NA	NA	NA	NA	<25	NA	NA	NA	<23	<20	NA	NA	NA	NS	220	NS

Notes:
1. All VOCs reported below laboratory detection limits in methanol blank sample submitted with November 2004 soil samples.
2. mg/kg = milligrams per kilogram (equivalent to parts per million, ppm)
3. µg/kg = micrograms per kilogram (equivalent to parts per billion, ppb)
4. NA = not analyzed
5. NR 720 RCL = Wisconsin Administrative Code, Chapter NR 720 generic Residual Contaminant Level.
6. DC RCL = Interim guidance RCL for protection of direct contact with PAH compounds (non-industrial land use), from WDNR publication RR-519-97 *"Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance"* (April 1997)
7. GW RCL = Interim guidance RCL for protection of groundwater pathway from PAH compounds, from WDNR publication RR-519-97 *"Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Guidance"* (April 1997)
8. Calculated RCL = Residual Contaminant Level calculated in accordance with WDNR default values on EPA Soil Screening Level Web Site as described in WDNR PUB-RR-682 (January 11, 2002)
   Direct Contact RCL shown is lowest calculated RCL of Ingestion (^{ing}), Particulate Inhalation, Volatile Inhalation (^{inh}), or dermal contact (^{dc}) pathways.
9. PRG = US EPA Region IX Preliminary Remediation Goal for residential soil
10. SSL = US EPA Region IX Soil Screening Level for protection of groundwater with a dilution-attenuation factor of 20
11. NS = no standard established
12. Exceedances: **bold, box** = concentration exceeds NR 720 RCL for PVOCs/VOCs (migration to groundwater pathway) or DC RCL for PAHs
    bold, italics = concentration exceeds GW RCL for PAHs

Table 2
Groundwater Quality Results
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

Well Location:		**MW-1**							**NR 140**	**NR 140**
Analytes	Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06	**ES**	**PAL**
PVOCs & Detected VOCs										
Benzene	µg/L	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20	5	0.5
Ethylbenzene	µg/L	<0.50	<0.3	<0.50	<0.50	NA	<0.50	<0.50	700	140
Methyl-tert-butyl-ether	µg/L	<0.50	<0.36	<0.50	<0.50	NA	<0.50	<0.50	60	12
Toluene	µg/L	<0.20	<0.52	<0.20	<0.20	NA	<0.20	<0.20	1,000	200
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.32	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
1,3,5-Trimethylbenzene	µg/L	<0.20	<0.83	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Total Trimethylbenzene	µg/L	<0.40	<1.15	<0.40	<0.40	NA	<0.40	<0.40	480	96
Xylenes, Total	µg/L	<0.50	<1.17	<0.50	<0.50	NA	<0.50	<0.50	10,000	1,000
sec-Butylbenzene	µg/L	<0.25	<0.25	<0.25	<0.25	NA	<0.25	<0.25	NS	NS
n-Butylbenzene	µg/L	<0.20	<0.61	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Chlorobenzene	µg/L	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Isopropylbenzene	µg/L	<0.20	<0.56	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
p-Isopropyltoluene	µg/L	<0.20	<0.5	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
n-Propylbenzene	µg/L	<0.50	<0.56	<0.50	<0.50	NA	<0.50	<0.50	NS	NS
Tetrachloroethene	µg/L	<0.50	<0.45	<0.50	<0.50	NA	<0.50	<0.50	5	0.5
PAHs & Detected SVOCs										
Acenaphthene	µg/L	<2.9	<0.032	<0.37	<0.33	NA	<0.35	<0.39	NS	NS
Acenaphthylene	µg/L	<2.5	<0.015	<0.77	<0.69	NA	<0.73	<0.81	NS	NS
Anthracene	µg/L	<2.1	<0.013	<0.042	0.066 "Q"	NA	<0.040	<0.045	3,000	600
Benzo(a)anthracene	µg/L	<2.7	<0.099	<0.049	0.067 "Q"	NA	<0.046	<0.052	NS	NS
Benzo(a)pyrene	µg/L	<2.5	<0.008	<0.036	<0.032	NA	<0.034	<0.038	0.2	0.02
Benzo(b)fluoranthene	µg/L	<2.6	<0.009	<0.11	<0.098	NA	<0.10	<0.12	0.2	0.02
Benzo(ghi)perylene	µg/L	<2.8	0.028 "Q"	<0.13	<0.12	NA	<0.13	<0.14	NS	NS
Benzo(k)fluoranthene	µg/L	<2.6	<0.024	<0.054	<0.049	NA	<0.052	<0.058	NS	NS
Chrysene	µg/L	<2.7	<0.011	<0.046	<0.041	NA	<0.043	<0.048	0.2	0.02
Dibenzo(a,h)anthracene	µg/L	<2.7	<0.009	<0.14	<0.13	NA	<0.14	<0.15	NS	NS
Fluoranthene	µg/L	<2.1	0.015 "Q"	<0.090	<0.081	NA	<0.085	<0.095	400	80
Fluorene	µg/L	<2.1	<0.015	<0.069	<0.062	NA	<0.065	<0.073	400	80
Indeno(1,2,3-cd)pyrene	µg/L	<2.6	<0.015	<0.069	<0.062	NA	<0.065	<0.073	NS	NS
1-Methylnaphthalene	µg/L	NA	0.031 "Q"	<0.36	<0.32	NA	<0.34	<0.38	NS	NS
2-Methylnaphthalene	µg/L	<2.2	<0.03	<0.34	<0.31	NA	<0.33	<0.36	NS	NS
Naphthalene	µg/L	<2.7	<0.023	<0.44	<0.40	NA	<0.42	<0.47	40	8
Phenanthrene	µg/L	<2.6	<0.011	<0.033	0.033 "Q"	NA	<0.032	<0.035	NS	NS
Pyrene	µg/L	<2.8	0.024 "Q"	<0.049	0.076 "Q"	NA	<0.046	<0.052	250	50
Bis(2-ethylhexyl)phthalate	µg/L	<3.1	NA	NA	NA	NA	NA	NA	6	0.6
Di-n-butyl phthalate	µg/L	3.8 "B"	NA	NA	NA	NA	NA	NA	100	20
N-Nitrosodi-n-propylamine	µg/L	<2.4	NA	NA	NA	NA	NA	NA	NS	NS
Pentachlorophenol	µg/L	<2.8	NA	NA	<10.0	<0.020	NA	NA	1	0.1
Dissolved RCRA Metals										
Mercury	µg/L	<0.092	NA	<0.092	<0.092	NA	NA	NA	2	0.2
Arsenic	µg/L	<0.79	***2.1***	<0.79	<0.79	<0.79	<0.79	<1.0	10	1
Barium	µg/L	130	100	110	100	NA	NA	NA	2,000	400
Cadmium	µg/L	<0.14	NA	<0.14	<0.14	NA	NA	NA	5	0.5
Chromium	µg/L	2.5 "Q"	NA	<2.1	4.8 "Q"	NA	NA	NA	100	10
Lead	µg/L	<1.4	NA	<1.4	<1.4	NA	NA	NA	15	1.5
Selenium	µg/L	7.3 "Q"	NA	<3.2	<3.2	NA	NA	NA	50	10
Silver	µg/L	<1.3	NA	<1.3	<1.3	NA	NA	NA	50	10
Inorganics										
Chloride	mg/L	***180***	***193***	***180***	***180***	***190***	***150***	***160***	250	125
Nitrate + Nitrite	mg/L	0.40	0.19	<0.024	0.16	NA	<0.10	<0.10	10	2
PCBs										
Arochlor 1016	µg/L	<0.10	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1221	µg/L	<0.49	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1232	µg/L	<0.027	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1242	µg/L	<0.085	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1248	µg/L	<0.065	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1254	µg/L	<0.098	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1260	µg/L	<0.091	NA	NA	NA	NA	NA	NA	0.03	0.003
Herbicides										
2,4-D	µg/L	<0.16	NA	NA	NA	NA	NA	NA	70	7
2,4,5-TP (Silvex)	µg/L	<0.05	NA	NA	NA	NA	NA	NA	50	5
Pesticides										
Aldrin	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NS	NS
a-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
b-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
d-BHC	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NS	NS
g-BHC (Lindane)	µg/L	<0.004	NA	NA	NA	NA	NA	NA	0.2	0.02
Chlordane	µg/L	<0.003	NA	NA	NA	NA	NA	NA	2	0.2
4,4'-DDD	µg/L	<0.001	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDE	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDT	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Dieldrin	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan I	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan II	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan Sulfate	µg/L	<0.021	NA	NA	NA	NA	NA	NA	NS	NS
Endrin	µg/L	<0.004	NA	NA	NA	NA	NA	NA	2	0.4
Endrin Aldehyde	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NS	NS
Heptachlor	µg/L	<0.004	NA	NA	NA	NA	NA	NA	0.4	0.04
Heptachlor Epoxide	µg/L	<0.002	NA	NA	NA	NA	NA	NA	0.2	0.02
Methoxychlor	µg/L	<0.11	NA	NA	NA	NA	NA	NA	40	4
Toxaphene	µg/L	<0.19	NA	NA	NA	NA	NA	NA	3	0.3

Notes:
1. Groundwater samples collected by Sigma Environmental Services, Inc.
2. NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
3. NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
4. NS = no standard
5. µg/L = micrograms per liter (equivalent to parts per billion, ppb)
6. mg/L = milligrams per liter (equivalent to parts per million, ppm)
7. NA = Not Analyzed
8. "Q" = concentration reported between Method Detection Limits and Limit of Quantification.
   "B" = analyte was detected in associated Method Blank
9. Trip blank results: 12/21/04 - All VOCs reported below laboratory detection limits.
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - All VOCs reported below laboratory detection limits.
   6/14/06 - All VOCs reported below laboratory detection limits.
   12/28/06 - All VOCs reported below laboratory detection limits.
10. Equipment blank results: 12/21/04 - All VOCs reported below laboratory detection limits, except benzene (0.37 µg/L) and toluene (0.32 µg/L)
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - Not used for this sampling event
   6/14/06 - All VOCs reported below laboratory detection limits, except benzene (0.31 "Q" µg/L) and toluene (0.24 "Q" µg/L)
   12/28/06 - All VOCs reported below laboratory detection limits, except benzene (0.45 "Q" µg/L) and toluene (0.26 "Q" µg/L)
11. Exceedances: **bold, box** = Concentration exceeds NR 140 ES
   bold, italics = Concentration exceeds NR 140 PAL

Table 2
Groundwater Quality Results
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

Well Location:		**MW-2**						**MW-2R**	**NR 140**	**NR 140**
Analytes	Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06	**ES**	**PAL**
PVOCs & Detected VOCs										
Benzene	µg/L	<0.20	<0.26	<0.20	<0.20	<0.20	<0.20	<0.20	5	0.5
Ethylbenzene	µg/L	<0.50	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	700	140
Methyl-tert-butyl-ether	µg/L	<0.50	<0.36	<0.50	<0.50	<0.50	<0.50	<0.50	60	12
Toluene	µg/L	<0.20	<0.52	<0.20	<0.20	<0.20	<0.20	<0.20	1,000	200
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.32	0.77	<0.20	<0.20	<0.20	<0.20	NS	NS
1,3,5-Trimethylbenzene	µg/L	<0.20	<0.83	0.34 "Q"	<0.20	<0.20	<0.20	<0.20	NS	NS
Total Trimethylbenzene	µg/L	<0.40	<1.15	1.11	<0.40	<0.40	<0.40	<0.40	480	96
Xylenes, Total	µg/L	<0.50	<1.17	<0.50	<0.50	<0.50	<0.50	<0.50	10,000	1,000
sec-Butylbenzene	µg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	NS	NS
n-Butylbenzene	µg/L	<0.20	<0.61	<0.20	<0.20	<0.20	<0.20	<0.20	NS	NS
Chlorobenzene	µg/L	<0.20	<0.26	<0.20	<0.20	<0.20	<0.20	<0.20	NS	NS
Isopropylbenzene	µg/L	<0.20	<0.56	<0.20	<0.20	<0.20	<0.20	<0.20	NS	NS
p-Isopropyltoluene	µg/L	<0.20	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	NS	NS
n-Propylbenzene	µg/L	<0.50	<0.56	<0.50	<0.50	<0.50	<0.50	<0.50	NS	NS
Tetrachloroethene	µg/L	<0.50	<0.45	***0.74 "Q"***	<0.50	<0.50	<0.50	<0.50	5	0.5
PAHs & Detected SVOCs										
Acenaphthene	µg/L	<2.9	0.078	<0.33	<0.38	<0.34	<0.35	<0.35	NS	NS
Acenaphthylene	µg/L	<2.5	0.021 "Q"	<0.69	<0.80	<0.70	<0.73	<0.73	NS	NS
Anthracene	µg/L	<2.1	0.21	<0.038	0.12 "Q"	<0.039	<0.040	<0.040	3,000	600
Benzo(a)anthracene	µg/L	<2.7	0.28	<0.044	0.071 "Q"	<0.045	<0.047	<0.046	NS	NS
Benzo(a)pyrene	µg/L	<2.5	**0.27**	<0.032	***0.048 "Q"***	<0.033	<0.034	<0.034	0.2	0.02
Benzo(b)fluoranthene	µg/L	<2.6	**0.32**	<0.098	<0.11	<0.10	<0.10	<0.10	0.2	0.02
Benzo(ghi)perylene	µg/L	<2.8	0.35	<0.12	<0.14	<0.12	<0.13	<0.13	NS	NS
Benzo(k)fluoranthene	µg/L	<2.6	0.13	<0.049	<0.057	<0.050	<0.052	<0.052	NS	NS
Chrysene	µg/L	<2.7	**0.27**	<0.041	***0.061 "Q"***	<0.042	<0.044	<0.043	0.2	0.02
Dibenzo(a,h)anthracene	µg/L	<2.7	0.022 "Q"	<0.13	<0.15	<0.13	<0.14	<0.14	NS	NS
Fluoranthene	µg/L	<2.1	0.93	<0.081	0.22 "Q"	<0.083	<0.086	<0.085	400	80
Fluorene	µg/L	<2.1	0.10	<0.062	0.079 "Q"	<0.063	<0.066	<0.065	400	80
Indeno(1,2,3-cd)pyrene	µg/L	<2.6	0.18	<0.062	<0.072	<0.063	<0.066	<0.065	NS	NS
1-Methylnaphthalene	µg/L	NA	0.039 "Q"	<0.32	<0.37	<0.33	<0.34	<0.34	NS	NS
2-Methylnaphthalene	µg/L	<2.2	0.062 "Q"	<0.31	<0.36	<0.32	<0.33	<0.33	NS	NS
Naphthalene	µg/L	<2.7	0.088	<0.40	<0.47	<0.41	<0.43	<0.42	40	8
Phenanthrene	µg/L	<2.6	0.51	<0.030	0.25	<0.031	<0.032	<0.032	NS	NS
Pyrene	µg/L	<2.8	0.80	<0.044	0.21	<0.045	<0.047	<0.046	250	50
Bis(2-ethylhexyl)phthalate	µg/L	<3.1	NA	NA	NA	NA	NA	NA	6	0.6
Di-n-butyl phthalate	µg/L	<2.5 "B"	NA	NA	NA	NA	NA	NA	100	20
N-Nitrosodi-n-propylamine	µg/L	<2.4	NA	NA	NA	NA	NA	NA	NS	NS
Pentachlorophenol	µg/L	<2.8	NA	NA	<10.0	<0.020	NA	NA	1	0.1
Dissolved RCRA Metals										
Mercury	µg/L	<0.092	NA	<0.092	<0.092	NA	NA	NA	2	0.2
Arsenic	µg/L	<0.79	***4.7***	***2.9***	***1.7 "Q"***	***3.3***	<0.79	***2.0 "Q"***	10	1
Barium	µg/L	200	160	170	160	NA	NA	NA	2,000	400
Cadmium	µg/L	0.20 "Q"	NA	<0.14	<0.14	NA	NA	NA	5	0.5
Chromium	µg/L	<2.1	NA	<2.1	<2.1	NA	NA	NA	100	10
Lead	µg/L	<1.4	NA	<1.4	<1.4	NA	NA	NA	15	1.5
Selenium	µg/L	<3.2	NA	<3.2	<3.2	NA	NA	NA	50	10
Silver	µg/L	<1.3	NA	<1.3	<1.3	NA	NA	NA	50	10
Inorganics										
Chloride	mg/L	95	88	77	24	NA	62	25	250	125
Nitrate + Nitrite	mg/L	0.58	<0.03	<0.024	0.091	NA	0.12 "Q"	<0.10	10	2
PCBs										
Arochlor 1016	µg/L	<0.10	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1221	µg/L	<0.49	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1232	µg/L	<0.027	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1242	µg/L	<0.085	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1248	µg/L	<0.065	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1254	µg/L	<0.098	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1260	µg/L	<0.091	NA	NA	NA	NA	NA	NA	0.03	0.003
Herbicides										
2,4-D	µg/L	<0.16	NA	NA	NA	NA	NA	NA	70	7
2,4,5-TP (Silvex)	µg/L	<0.05	NA	NA	NA	NA	NA	NA	50	5
Pesticides										
Aldrin	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NS	NS
a-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
b-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
d-BHC	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NS	NS
g-BHC (Lindane)	µg/L	<0.004	NA	NA	NA	NA	NA	NA	0.2	0.02
Chlordane	µg/L	<0.003	NA	NA	NA	NA	NA	NA	2	0.2
4,4'-DDD	µg/L	<0.001	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDE	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDT	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Dieldrin	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan I	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan II	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan Sulfate	µg/L	<0.021	NA	NA	NA	NA	NA	NA	NS	NS
Endrin	µg/L	<0.004	NA	NA	NA	NA	NA	NA	2	0.4
Endrin Aldehyde	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NS	NS
Heptachlor	µg/L	<0.004	NA	NA	NA	NA	NA	NA	0.4	0.04
Heptachlor Epoxide	µg/L	<0.002	NA	NA	NA	NA	NA	NA	0.2	0.02
Methoxychlor	µg/L	<0.11	NA	NA	NA	NA	NA	NA	40	4
Toxaphene	µg/L	<0.19	NA	NA	NA	NA	NA	NA	3	0.3

Notes:
1. Groundwater samples collected by Sigma Environmental Services, Inc.
2. NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
3. NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
4. NS = no standard
5. µg/L = micrograms per liter (equivalent to parts per billion, ppb)
6. mg/L = milligrams per liter (equivalent to parts per million, ppm)
7. NA = Not Analyzed
8. "Q" = concentration reported between Method Detection Limits and Limit of Quantification.
   "B" = laboratory blank is contaminated
9. Trip blank results: 12/21/04 - All VOCs reported below laboratory detection limits.
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - All VOCs reported below laboratory detection limits.
   6/14/06 - All VOCs reported below laboratory detection limits.
   12/28/06 - All VOCs reported below laboratory detection limits.
10. Equipment blank results: 12/21/04 - All VOCs reported below laboratory detection limits, except benzene (0.37 µg/L) and toluene (0.32 µg/L)
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - Not used for this sampling event
   6/14/06 - All VOCs reported below laboratory detection limits, except benzene (0.31 "Q" µg/L) and toluene (0.24 "Q" µg/L)
   12/28/06 - All VOCs reported below laboratory detection limits, except benzene (0.45 "Q" µg/L) and toluene (0.26 "Q" µg/L)
11. Exceedances: **bold, box** = Concentration exceeds NR 140 ES
   bold, italics = Concentration exceeds NR 140 PAL

Table 2
Groundwater Quality Results
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

	Well Location:	**MW-3**						**MW-3R**		**NR 140**	**NR 140**
Analytes	Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06	12/06 Dup	**ES**	**PAL**
PVOCs & Detected VOCs											
Benzene	µg/L	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20	<0.20	5	0.5
Ethylbenzene	µg/L	<0.50	<0.3	<0.50	<0.50	NA	<0.50	<0.50	<0.50	700	140
Methyl-tert-butyl-ether	µg/L	<0.50	<0.36	<0.50	<0.50	NA	<0.50	<0.50	<0.50	60	12
Toluene	µg/L	<0.20	<0.52	<0.20	<0.20	NA	<0.20	<0.20	<0.20	1,000	200
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.32	<0.20	<0.20	NA	<0.20	<0.20	<0.20	NS	NS
1,3,5-Trimethylbenzene	µg/L	<0.20	<0.83	<0.20	<0.20	NA	<0.20	<0.20	<0.20	NS	NS
Total Trimethylbenzene	µg/L	<0.40	<1.15	<0.40	<0.40	NA	<0.40	<0.40	<0.40	480	96
Xylenes, Total	µg/L	<0.50	<1.17	<0.50	<0.50	NA	<0.50	<0.50	<0.50	10,000	1,000
sec-Butylbenzene	µg/L	<0.25	<0.25	<0.25	<0.25	NA	<0.25	<0.25	<0.25	NS	NS
n-Butylbenzene	µg/L	<0.20	<0.61	<0.20	<0.20	NA	<0.20	<0.20	<0.20	NS	NS
Chlorobenzene	µg/L	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20	<0.20	NS	NS
Isopropylbenzene	µg/L	<0.20	<0.56	<0.20	<0.20	NA	<0.20	<0.20	<0.20	NS	NS
p-Isopropyltoluene	µg/L	<0.20	<0.5	<0.20	<0.20	NA	<0.20	<0.20	<0.20	NS	NS
n-Propylbenzene	µg/L	<0.50	<0.56	<0.50	<0.50	NA	<0.50	<0.50	<0.50	NS	NS
Tetrachloroethene	µg/L	<0.50	<0.45	<0.50	<0.50	NA	<0.50	<0.50	<0.50	5	0.5
PAHs & Detected SVOCs											
Acenaphthene	µg/L	<2.9	<0.032	<0.33	<0.39	<0.33	<0.36	<0.35	NA	NS	NS
Acenaphthylene	µg/L	<2.5	<0.015	<0.69	<0.81	<0.69	<0.75	<0.73	NA	NS	NS
Anthracene	µg/L	<2.1	<0.013	<0.038	<0.045	<0.038	<0.041	<0.040	NA	3,000	600
Benzo(a)anthracene	µg/L	<2.7	<0.099	<0.044	<0.052	<0.044	<0.048	<0.046	NA	NS	NS
Benzo(a)pyrene	µg/L	<2.5	***0.036***	<0.032	<0.038	<0.032	<0.035	<0.034	NA	0.2	0.02
Benzo(b)fluoranthene	µg/L	<2.6	***0.057***	<0.098	<0.12	<0.098	<0.11	<0.10	NA	0.2	0.02
Benzo(ghi)perylene	µg/L	<2.8	0.058	<0.12	<0.14	<0.12	<0.13	<0.13	NA	NS	NS
Benzo(k)fluoranthene	µg/L	<2.6	0.022 "Q"	<0.049	<0.058	<0.049	<0.053	<0.052	NA	NS	NS
Chrysene	µg/L	<2.7	***0.041***	<0.041	<0.048	<0.041	<0.045	<0.043	NA	0.2	0.02
Dibenzo(a,h)anthracene	µg/L	<2.7	<0.009	<0.13	<0.15	<0.13	<0.14	<0.14	NA	NS	NS
Fluoranthene	µg/L	<2.1	0.084	<0.081	0.44	<0.081	<0.088	<0.085	NA	400	80
Fluorene	µg/L	<2.1	<0.015	<0.062	<0.073	<0.062	<0.067	<0.065	NA	400	80
Indeno(1,2,3-cd)pyrene	µg/L	<2.6	<0.015	<0.062	<0.073	<0.062	<0.067	<0.065	NA	NS	NS
1-Methylnaphthalene	µg/L	NA	0.018 "Q"	<0.32	<0.38	<0.32	<0.35	<0.34	NA	NS	NS
2-Methylnaphthalene	µg/L	<2.2	0.027 "Q"	<0.31	<0.36	<0.31	<0.34	<0.33	NA	NS	NS
Naphthalene	µg/L	<2.7	0.033 "Q"	<0.40	<0.47	<0.40	<0.43	<0.42	NA	40	8
Phenanthrene	µg/L	<2.6	0.036	<0.030	0.24	<0.030	<0.033	<0.032	NA	NS	NS
Pyrene	µg/L	<2.8	0.086	<0.044	0.15 "Q"	<0.044	<0.048	<0.046	NA	250	50
Bis(2-ethylhexyl)phthalate	µg/L	<3.1	NA	NA	NA	NA	NA	NA	NA	6	0.6
Di-n-butyl phthalate	µg/L	<2.5 "B"	NA	NA	NA	NA	NA	NA	NA	100	20
N-Nitrosodi-n-propylamine	µg/L	<2.4	NA	NA	NA	NA	NA	NA	NA	NS	NS
Pentachlorophenol	µg/L	<2.8	NA	NA	<10.0	<0.020	NA	NA	NA	1	0.1
Dissolved RCRA Metals											
Mercury	µg/L	<0.092	NA	<0.092	<0.092	NA	NA	NA	NA	2	0.2
Arsenic	µg/L	<0.79	***2.3***	***3.0***	<0.79	***1.8 "Q"***	<0.79	<1.0	NA	10	1
Barium	µg/L	71	64	70	56	NA	NA	NA	NA	2,000	400
Cadmium	µg/L	<0.14	NA	<0.14	<0.14	NA	NA	NA	NA	5	0.5
Chromium	µg/L	3.5 "Q"	NA	<2.1	<2.1	NA	NA	NA	NA	100	10
Lead	µg/L	<1.4	NA	<1.4	<1.4	NA	NA	NA	NA	15	1.5
Selenium	µg/L	<3.2	NA	<3.2	<3.2	NA	NA	NA	NA	50	10
Silver	µg/L	<1.3	NA	<1.3	<1.3	NA	NA	NA	NA	50	10
Inorganics											
Chloride	mg/L	14	33	29	<10	NA	13	26	NA	250	125
Nitrate + Nitrite	mg/L	0.25	<0.03	<0.024	0.18	NA	0.11 "Q"	<0.10	NA	10	2
PCBs											
Arochlor 1016	µg/L	<0.10	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1221	µg/L	<0.49	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1232	µg/L	<0.027	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1242	µg/L	<0.085	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1248	µg/L	<0.065	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1254	µg/L	<0.098	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1260	µg/L	<0.091	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Herbicides											
2,4-D	µg/L	<0.16	NA	NA	NA	NA	NA	NA	NA	70	7
2,4,5-TP (Silvex)	µg/L	<0.05	NA	NA	NA	NA	NA	NA	NA	50	5
Pesticides											
Aldrin	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NA	NS	NS
a-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
b-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
d-BHC	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	NS	NS
g-BHC (Lindane)	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	0.2	0.02
Chlordane	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NA	2	0.2
4,4'-DDD	µg/L	<0.001	NA	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDE	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDT	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
Dieldrin	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan I	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan II	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan Sulfate	µg/L	<0.021	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endrin	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	2	0.4
Endrin Aldehyde	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	NS	NS
Heptachlor	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	0.4	0.04
Heptachlor Epoxide	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	0.2	0.02
Methoxychlor	µg/L	<0.11	NA	NA	NA	NA	NA	NA	NA	40	4
Toxaphene	µg/L	<0.19	NA	NA	NA	NA	NA	NA	NA	3	0.3

Notes:
1. Groundwater samples collected by Sigma Environmental Services, Inc.
2. NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
3. NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
4. NS = no standard
5. µg/L = micrograms per liter (equivalent to parts per billion, ppb)
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   12/13/05 - All VOCs reported below laboratory detection limits.
   6/14/06 - All VOCs reported below laboratory detection limits.
   12/28/06 - All VOCs reported below laboratory detection limits.
10. Equipment blank results: 12/21/04 - All VOCs reported below laboratory detection limits, except benzene (0.37 µg/L) and toluene (0.32 µg/L)
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - Not used for this sampling event
   6/14/06 - All VOCs reported below laboratory detection limits, except benzene (0.31 "Q" µg/L) and toluene (0.24 "Q" µg/L)
   12/28/06 - All VOCs reported below laboratory detection limits, except benzene (0.45 "Q" µg/L) and toluene (0.26 "Q" µg/L)
11. Exceedances: **bold, box** = Concentration exceeds NR 140 ES
   bold, italics = Concentration exceeds NR 140 PAL

Table 2
Groundwater Quality Results
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

	Well Location:	**MW-4**							**MW-4R**	**NR 140**	**NR 140**
Analytes	Date:	12/21/04	3/24/05	3/05 Dup	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06	**ES**	**PAL**
PVOCs & Detected VOCs											
Benzene	µg/L	<0.20	<0.26	<0.26	<0.20	<0.20	NA	<0.20	<0.20	5	0.5
Ethylbenzene	µg/L	<0.50	<0.3	<0.3	<0.50	<0.50	NA	<0.50	<0.50	700	140
Methyl-tert-butyl-ether	µg/L	<0.50	<0.36	<0.36	<0.50	<0.50	NA	<0.50	<0.50	60	12
Toluene	µg/L	<0.20	<0.52	<0.52	<0.20	<0.20	NA	<0.20	<0.20	1,000	200
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.32	<0.32	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
1,3,5-Trimethylbenzene	µg/L	<0.20	<0.83	<0.83	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Total Trimethylbenzene	µg/L	<0.40	<1.15	<1.15	<0.40	<0.40	NA	<0.40	<0.40	480	96
Xylenes, Total	µg/L	<0.50	<1.17	<1.17	<0.50	<0.50	NA	<0.50	<0.50	10,000	1,000
sec-Butylbenzene	µg/L	<0.25	<0.25	NA	<0.25	<0.25	NA	<0.25	<0.25	NS	NS
n-Butylbenzene	µg/L	<0.20	<0.61	NA	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Chlorobenzene	µg/L	<0.20	<0.26	NA	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Isopropylbenzene	µg/L	<0.20	<0.56	NA	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
p-Isopropyltoluene	µg/L	<0.20	<0.5	NA	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
n-Propylbenzene	µg/L	<0.50	<0.56	NA	<0.50	<0.50	NA	<0.50	<0.50	NS	NS
Tetrachloroethene	µg/L	<0.50	<0.45	NA	<0.50	<0.50	NA	<0.50	<0.50	5	0.5
PAHs & Detected SVOCs											
Acenaphthene	µg/L	<2.9	0.031 "Q"	NA	<0.33	<0.33	<0.34	<0.34	<0.35	NS	NS
Acenaphthylene	µg/L	<2.5	<0.015	NA	<0.69	<0.69	<0.70	<0.70	<0.73	NS	NS
Anthracene	µg/L	<2.1	0.056	NA	<0.038	<0.038	<0.039	<0.039	<0.040	3,000	600
Benzo(a)anthracene	µg/L	<2.7	<0.099	NA	<0.044	<0.044	<0.045	<0.045	0.056 "Q"	NS	NS
Benzo(a)pyrene	µg/L	<2.5	***0.056***	NA	<0.032	<0.032	<0.033	<0.033	<0.034	0.2	0.02
Benzo(b)fluoranthene	µg/L	<2.6	***0.081***	NA	<0.098	<0.098	<0.10	<0.10	<0.10	0.2	0.02
Benzo(ghi)perylene	µg/L	<2.8	0.11	NA	<0.12	<0.12	<0.12	<0.12	<0.13	NS	NS
Benzo(k)fluoranthene	µg/L	<2.6	0.033	NA	<0.049	<0.049	<0.050	<0.050	<0.052	NS	NS
Chrysene	µg/L	<2.7	***0.075***	NA	<0.041	<0.041	<0.042	<0.042	***0.043 "Q"***	0.2	0.02
Dibenzo(a,h)anthracene	µg/L	<2.7	<0.009	NA	<0.13	<0.13	<0.13	<0.13	<0.14	NS	NS
Fluoranthene	µg/L	<2.1	0.27	NA	<0.081	<0.081	<0.083	<0.083	0.14 "Q"	400	80
Fluorene	µg/L	<2.1	0.036 "Q"	NA	<0.062	<0.062	<0.063	<0.063	<0.065	400	80
Indeno(1,2,3-cd)pyrene	µg/L	<2.6	0.034 "Q"	NA	<0.062	<0.062	<0.063	<0.063	<0.065	NS	NS
1-Methylnaphthalene	µg/L	NA	0.018 "Q"	NA	<0.32	<0.32	<0.33	<0.33	<0.34	NS	NS
2-Methylnaphthalene	µg/L	<2.2	0.031 "Q"	NA	<0.31	<0.31	<0.32	<0.32	<0.33	NS	NS
Naphthalene	µg/L	<2.7	0.042 "Q"	NA	<0.40	<0.40	<0.41	<0.41	<0.42	40	8
Phenanthrene	µg/L	<2.6	0.21	NA	<0.030	<0.030	<0.031	<0.031	0.081 "Q"	NS	NS
Pyrene	µg/L	<2.8	0.29	NA	<0.044	<0.044	<0.045	<0.045	<0.046	250	50
Bis(2-ethylhexyl)phthalate	µg/L	<3.1	NA	NA	NA	NA	NA	NA	NA	6	0.6
Di-n-butyl phthalate	µg/L	<2.5	NA	NA	NA	NA	NA	NA	NA	100	20
N-Nitrosodi-n-propylamine	µg/L	14	NA	NA	NA	NA	NA	NA	NA	NS	NS
Pentachlorophenol	µg/L	<2.8	NA	NA	NA	<10.0	<0.020	NA	NA	1	0.1
Dissolved RCRA Metals											
Mercury	µg/L	<0.092	NA	NA	<0.092	<0.092	NA	NA	NA	2	0.2
Arsenic	µg/L	<0.79	***4.4***	NA	***1.8 "Q"***	***4.2***	***7.5***	***3.1***	***2.4 "Q"***	10	1
Barium	µg/L	***420***	88	NA	110	110	NA	NA	NA	2,000	400
Cadmium	µg/L	<0.14	NA	NA	<0.14	<0.14	NA	NA	NA	5	0.5
Chromium	µg/L	2.6 "Q"	NA	NA	<2.1	<2.1	NA	NA	NA	100	10
Lead	µg/L	<1.4	NA	NA	<1.4	<1.4	NA	NA	NA	15	1.5
Selenium	µg/L	<3.2	NA	NA	<3.2	<3.2	NA	NA	NA	50	10
Silver	µg/L	<1.3	NA	NA	<1.3	<1.3	NA	NA	NA	50	10
Inorganics											
Chloride	mg/L	56	78	NA	51	50	NA	23	60	250	125
Nitrate + Nitrite	mg/L	0.45	<0.03	NA	<0.024	0.17	NA	0.10 "Q"	<0.10	10	2
PCBs											
Arochlor 1016	µg/L	<0.10	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1221	µg/L	<0.49	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1232	µg/L	<0.027	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1242	µg/L	<0.085	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1248	µg/L	<0.065	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1254	µg/L	<0.098	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1260	µg/L	<0.091	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Herbicides											
2,4-D	µg/L	<0.16	NA	NA	NA	NA	NA	NA	NA	70	7
2,4,5-TP (Silvex)	µg/L	<0.05	NA	NA	NA	NA	NA	NA	NA	50	5
Pesticides											
Aldrin	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NA	NS	NS
a-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
b-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
d-BHC	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	NS	NS
g-BHC (Lindane)	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	0.2	0.02
Chlordane	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NA	2	0.2
4,4'-DDD	µg/L	<0.001	NA	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDE	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDT	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
Dieldrin	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan I	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan II	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan Sulfate	µg/L	<0.021	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endrin	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	2	0.4
Endrin Aldehyde	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	NS	NS
Heptachlor	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	0.4	0.04
Heptachlor Epoxide	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	0.2	0.02
Methoxychlor	µg/L	<0.11	NA	NA	NA	NA	NA	NA	NA	40	4
Toxaphene	µg/L	<0.19	NA	NA	NA	NA	NA	NA	NA	3	0.3

Notes:
1. Groundwater samples collected by Sigma Environmental Services, Inc.
2. NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
3. NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
4. NS = no standard
5. µg/L = micrograms per liter (equivalent to parts per billion, ppb)
6. mg/L = milligrams per liter (equivalent to parts per million, ppm)
7. NA = Not Analyzed
8. "Q" = concentration reported between Method Detection Limits and Limit of Quantification.
   "B" = laboratory blank is contaminated
9. Trip blank results: 12/21/04 - All VOCs reported below laboratory detection limits.
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - All VOCs reported below laboratory detection limits.
   6/14/06 - All VOCs reported below laboratory detection limits.
   12/28/06 - All VOCs reported below laboratory detection limits.
10. Equipment blank results: 12/21/04 - All VOCs reported below laboratory detection limits, except benzene (0.37 µg/L) and toluene (0.32 µg/L)
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - Not used for this sampling event
   6/14/06 - All VOCs reported below laboratory detection limits, except benzene (0.31 "Q" µg/L) and toluene (0.24 "Q" µg/L)
   12/28/06 - All VOCs reported below laboratory detection limits, except benzene (0.45 "Q" µg/L) and toluene (0.26 "Q" µg/L)
11. Exceedances: **bold, box** = Concentration exceeds NR 140 ES
   bold, italics = Concentration exceeds NR 140 PAL

Table 2
Groundwater Quality Results
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

	Well Location:	**MW-5**											**MW-5R**	**NR 140**	**NR 140**
Analytes	Date:	12/21/04	12/04 Dup	3/24/05	6/21/05	6/05 Dup	9/27/05	9/05 Dup	12/13/05	12/05 Dup	6/14/06	6/06 Dup	12/28/06	**ES**	**PAL**
PVOCs & Detected VOCs															
Benzene	µg/L	**140**	150	**11**	**290**	210	**510**	500	**180**	190	**64**	64	<0.20	5	0.5
Ethylbenzene	µg/L	<0.50	<0.50	<0.3	<2.0	0.75 "Q"	0.73 "Q"	0.76 "Q"	<0.50	<0.50	2.8	3.0	<0.50	700	140
Methyl-tert-butyl-ether	µg/L	<0.50	<0.50	<0.36	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	60	12
Toluene	µg/L	1.9	1.9	0.77 "Q"	3.2	2.3	5.0	4.9	1.9	1.9	0.85	0.84	<0.20	1,000	200
1,2,4-Trimethylbenzene	µg/L	18	17	0.86 "Q"	21	14	38	37	15	14	9.7	9.7	<0.20	NS	NS
1,3,5-Trimethylbenzene	µg/L	2.7	2.6	<0.83	3.3	2.3	6.5	6.5	2.2	1.9	0.60 "Q"	0.46 "Q"	<0.20	NS	NS
Total Trimethylbenzene	µg/L	20.7	19.6	0.86	24.3	16.3	44.5	43.5	17.2	15.9	10.3	10.16	<0.40	480	96
Xylenes, Total	µg/L	5.3	5.2	<1.17	4.2	3.2	7.7	7.4	2.9	2.7	2.1	2.1	<0.50	10,000	1,000
sec-Butylbenzene	µg/L	2.1	2.1	3.5	3.0	2.5	1.7	1.6	2.1	2.0	3.3	3.3	<0.25	NS	NS
n-Butylbenzene	µg/L	<0.20	<0.20	1.15 "Q"	<0.80	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	NS	NS
Chlorobenzene	µg/L	<0.20	0.67	<0.26	<0.80	0.39 "Q"	0.67	0.64 "Q"	0.42 "Q"	0.43 "Q"	0.77	0.74	<0.20	NS	NS
Isopropylbenzene	µg/L	<0.20	2.9	1.56 "Q"	5.4	3.8	6.7	6.1	2.9	2.8	5.2	5.2	<0.20	NS	NS
p-Isopropyltoluene	µg/L	<0.20	<0.20	1.32 "Q"	<0.80	<0.20	<0.20	<0.20	<0.20	<0.20	0.60 "Q"	0.60 "Q"	<0.20	NS	NS
n-Propylbenzene	µg/L	3.7	3.7	1.3 "Q"	5.4	3.8	7.8	7.4	3.6	3.4	6.2	6.2	<0.50	NS	NS
Tetrachloroethene	µg/L	<0.50	<0.50	<0.45	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	5	0.5
PAHs & Detected SVOCs															
Acenaphthene	µg/L	<2.9	NA	<0.032	<0.33	NA	<0.33	NA	<0.34	NA	<0.35	NA	<0.33	NS	NS
Acenaphthylene	µg/L	<2.5	NA	<0.015	<0.69	NA	<0.69	NA	<0.70	NA	<0.73	NA	<0.69	NS	NS
Anthracene	µg/L	<2.1	NA	<0.013	<0.038	NA	<0.038	NA	<0.039	NA	<0.040	NA	<0.038	3,000	600
Benzo(a)anthracene	µg/L	<2.7	NA	<0.099	<0.044	NA	<0.044	NA	<0.045	NA	<0.047	NA	<0.044	NS	NS
Benzo(a)pyrene	µg/L	<2.5	NA	0.015 "Q"	<0.032	NA	<0.032	NA	<0.033	NA	<0.034	NA	<0.032	0.2	0.02
Benzo(b)fluoranthene	µg/L	<2.6	NA	***0.026 "Q"***	<0.098	NA	<0.098	NA	<0.10	NA	<0.10	NA	<0.098	0.2	0.02
Benzo(ghi)perylene	µg/L	<2.8	NA	0.070	<0.12	NA	<0.12	NA	<0.12	NA	<0.13	NA	<0.12	NS	NS
Benzo(k)fluoranthene	µg/L	<2.6	NA	0.011 "Q"	<0.049	NA	<0.049	NA	<0.050	NA	<0.052	NA	<0.049	NS	NS
Chrysene	µg/L	<2.7	NA	0.015 "Q"	<0.041	NA	<0.041	NA	<0.042	NA	<0.044	NA	<0.041	0.2	0.02
Dibenzo(a,h)anthracene	µg/L	<2.7	NA	<0.009	<0.13	NA	<0.13	NA	<0.13	NA	<0.14	NA	<0.13	NS	NS
Fluoranthene	µg/L	<2.1	NA	0.040	<0.081	NA	<0.081	NA	<0.083	NA	<0.086	NA	<0.081	400	80
Fluorene	µg/L	<2.1	NA	<0.015	<0.062	NA	<0.062	NA	<0.063	NA	<0.066	NA	<0.062	400	80
Indeno(1,2,3-cd)pyrene	µg/L	<2.6	NA	0.016 "Q"	<0.062	NA	<0.062	NA	<0.063	NA	<0.066	NA	<0.062	NS	NS
1-Methylnaphthalene	µg/L	NA	NA	0.022 "Q"	<0.32	NA	<0.32	NA	<0.33	NA	<0.34	NA	<0.32	NS	NS
2-Methylnaphthalene	µg/L	<2.2	NA	0.022 "Q"	<0.31	NA	<0.31	NA	<0.32	NA	<0.33	NA	<0.31	NS	NS
Naphthalene	µg/L	<2.7	NA	0.17	<0.40	NA	<0.40	NA	<0.41	NA	<0.43	NA	<0.40	40	8
Phenanthrene	µg/L	<2.6	NA	0.021 "Q"	<0.030	NA	<0.030	NA	<0.031	NA	<0.032	NA	<0.030	NS	NS
Pyrene	µg/L	<2.8	NA	0.061	<0.044	NA	<0.044	NA	<0.045	NA	<0.047	NA	<0.044	250	50
Bis(2-ethylhexyl)phthalate	µg/L	<3.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0.6
Di-n-butyl phthalate	µg/L	<2.5 "B"	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	20
N-Nitrosodi-n-propylamine	µg/L	<2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Pentachlorophenol	µg/L	<2.8	NA	NA	NA	NA	<10.0	NA	<0.020	NA	NA	NA	NA	1	0.1
Dissolved RCRA Metals															
Mercury	µg/L	<0.092	NA	NA	<0.092	NA	<0.092	NA	NA	NA	NA	NA	NA	2	0.2
Arsenic	µg/L	***5.1***	NA	***5.6***	***4.9***	NA	***2.7 "Q"***	NA	***8.9***	NA	***4.0***	NA	<1.0	10	1
Barium	µg/L	60	NA	35	58	NA	93	NA	NA	NA	NA	NA	NA	2,000	400
Cadmium	µg/L	<0.14	NA	NA	<0.14	NA	<0.14	NA	NA	NA	NA	NA	NA	5	0.5
Chromium	µg/L	3.4 "Q"	NA	NA	<2.1	NA	2.6 "Q"	NA	NA	NA	NA	NA	NA	100	10
Lead	µg/L	<1.4	NA	NA	<1.4	NA	<1.4	NA	NA	NA	NA	NA	NA	15	1.5
Selenium	µg/L	<3.2	NA	NA	<3.2	NA	<3.2	NA	NA	NA	NA	NA	NA	50	10
Silver	µg/L	<1.3	NA	NA	<1.3	NA	<1.3	NA	NA	NA	NA	NA	NA	50	10
Inorganics															
Chloride	mg/L	25	NA	11	40	NA	75	NA	NA	NA	20	NA	***150***	250	125
Nitrate + Nitrite	mg/L	0.93	NA	<0.03	<0.024	NA	0.23	NA	NA	NA	0.16 "Q"	NA	0.31 "Q"	10	2
PCBs															
Arochlor 1016	µg/L	<0.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1221	µg/L	<0.49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1232	µg/L	<0.027	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1242	µg/L	<0.085	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1248	µg/L	<0.065	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1254	µg/L	<0.098	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1260	µg/L	<0.091	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.03	0.003
Herbicides															
2,4-D	µg/L	<0.16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	70	7
2,4,5-TP (Silvex)	µg/L	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	5
Pesticides															
Aldrin	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
a-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
b-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
d-BHC	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
g-BHC (Lindane)	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	0.02
Chlordane	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0.2
4,4'-DDD	µg/L	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDE	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDT	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Dieldrin	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan I	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan II	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan Sulfate	µg/L	<0.021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Endrin	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0.4
Endrin Aldehyde	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NS	NS
Heptachlor	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.4	0.04
Heptachlor Epoxide	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	0.02
Methoxychlor	µg/L	<0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40	4
Toxaphene	µg/L	<0.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	0.3

Notes:
1. Groundwater samples collected by Sigma Environmental Services, Inc.
2. NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
3. NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
4. NS = no standard
5. µg/L = micrograms per liter (equivalent to parts per billion, ppb)
6. mg/L = milligrams per liter (equivalent to parts per million, ppm)
7. NA = Not Analyzed
8. "Q" = concentration reported between Method Detection Limits and Limit of Quantification.
   "B" = laboratory blank is contaminated
9. Trip blank results: 12/21/04 - All VOCs reported below laboratory detection limits.
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - All VOCs reported below laboratory detection limits.
   6/14/06 - All VOCs reported below laboratory detection limits.
   12/28/06 - All VOCs reported below laboratory detection limits.
10. Equipment blank results: 12/21/04 - All VOCs reported below laboratory detection limits, except benzene (0.37 µg/L) and toluene (0.32 µg/L)
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - Not used for this sampling event
   6/14/06 - All VOCs reported below laboratory detection limits, except benzene (0.31 "Q" µg/L) and toluene (0.24 "Q" µg/L)
   12/28/06 - All VOCs reported below laboratory detection limits, except benzene (0.45 "Q" µg/L) and toluene (0.26 "Q" µg/L)
11. Exceedances: **bold, box** = Concentration exceeds NR 140 ES
   bold, italics = Concentration exceeds NR 140 PAL

Table 2
Groundwater Quality Results
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

Well Location:		**MW-6**						**MW-6R**	**NR 140**	**NR 140**
Analytes	Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06	**ES**	**PAL**
PVOCs & Detected VOCs										
Benzene	µg/L	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20	5	0.5
Ethylbenzene	µg/L	<0.50	<0.3	<0.50	<0.50	NA	<0.50	<0.50	700	140
Methyl-tert-butyl-ether	µg/L	<0.50	<0.36	<0.50	<0.50	NA	<0.50	<0.50	60	12
Toluene	µg/L	<0.20	<0.52	<0.20	<0.20	NA	<0.20	<0.20	1,000	200
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.32	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
1,3,5-Trimethylbenzene	µg/L	<0.20	<0.83	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Total Trimethylbenzene	µg/L	<0.40	<1.15	<0.40	<0.40	NA	<0.40	<0.40	480	96
Xylenes, Total	µg/L	<0.50	<1.17	<0.50	<0.50	NA	<0.50	<0.50	10,000	1,000
sec-Butylbenzene	µg/L	<0.25	<0.25	<0.25	<0.25	NA	<0.25	<0.25	NS	NS
n-Butylbenzene	µg/L	<0.20	<0.61	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Chlorobenzene	µg/L	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Isopropylbenzene	µg/L	<0.20	<0.56	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
p-Isopropyltoluene	µg/L	<0.20	<0.5	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
n-Propylbenzene	µg/L	<0.50	<0.56	<0.50	<0.50	NA	<0.50	<0.50	NS	NS
Tetrachloroethene	µg/L	<0.50	<0.45	<0.50	<0.50	NA	<0.50	<0.50	5	0.5
PAHs & Detected SVOCs										
Acenaphthene	µg/L	<2.9	<0.032	<0.33	<0.38	<0.33	<0.35	<0.34	NS	NS
Acenaphthylene	µg/L	<2.5	<0.015	<0.69	<0.79	<0.69	<0.73	<0.72	NS	NS
Anthracene	µg/L	<2.1	<0.013	<0.038	<0.044	<0.038	<0.040	<0.040	3,000	600
Benzo(a)anthracene	µg/L	<2.7	<0.099	<0.044	<0.051	<0.044	<0.046	<0.046	NS	NS
Benzo(a)pyrene	µg/L	<2.5	0.014 "Q"	<0.032	<0.037	<0.032	<0.034	<0.033	0.2	0.02
Benzo(b)fluoranthene	µg/L	<2.6	***0.022 "Q"***	<0.098	<0.11	<0.098	<0.10	<0.10	0.2	0.02
Benzo(ghi)perylene	µg/L	<2.8	0.039	<0.12	<0.14	<0.12	<0.13	<0.12	NS	NS
Benzo(k)fluoranthene	µg/L	<2.6	<0.024	<0.049	<0.056	<0.049	<0.052	<0.051	NS	NS
Chrysene	µg/L	<2.7	0.015 "Q"	<0.041	<0.047	<0.041	<0.043	<0.043	0.2	0.02
Dibenzo(a,h)anthracene	µg/L	<2.7	<0.009	<0.13	<0.15	<0.13	<0.14	<0.14	NS	NS
Fluoranthene	µg/L	<2.1	0.039	<0.081	<0.093	<0.081	<0.085	<0.084	400	80
Fluorene	µg/L	<2.1	<0.015	<0.062	<0.071	<0.062	<0.065	<0.065	400	80
Indeno(1,2,3-cd)pyrene	µg/L	<2.6	<0.015	<0.062	<0.071	<0.062	<0.065	<0.065	NS	NS
1-Methylnaphthalene	µg/L	NA	<0.018	<0.32	<0.37	<0.32	<0.34	<0.33	NS	NS
2-Methylnaphthalene	µg/L	<2.2	<0.03	<0.31	<0.36	<0.31	<0.33	<0.32	NS	NS
Naphthalene	µg/L	<2.7	0.027 "Q"	<0.40	<0.46	<0.40	<0.42	<0.42	40	8
Phenanthrene	µg/L	<2.6	0.018 "Q"	<0.030	<0.034	<0.030	<0.032	<0.031	NS	NS
Pyrene	µg/L	<2.8	0.044	<0.044	<0.051	<0.044	<0.046	<0.046	250	50
Bis(2-ethylhexyl)phthalate	µg/L	<3.1	NA	NA	NA	NA	NA	NA	6	0.6
Di-n-butyl phthalate	µg/L	<2.5 "B"	NA	NA	NA	NA	NA	NA	100	20
N-Nitrosodi-n-propylamine	µg/L	<2.4	NA	NA	NA	NA	NA	NA	NS	NS
Pentachlorophenol	µg/L	<2.8	NA	NA	<10.0	<0.020	NA	NA	1	0.1
Dissolved RCRA Metals										
Mercury	µg/L	<0.092	NA	<0.092	<0.092	NA	NA	NA	2	0.2
Arsenic	µg/L	<0.79	***1.4***	<0.79	<0.79	<0.79	<0.79	<1.0	10	1
Barium	µg/L	170	140	86	210	NA	NA	NA	2,000	400
Cadmium	µg/L	0.28 "Q"	NA	<0.14	<0.14	NA	NA	NA	5	0.5
Chromium	µg/L	2.9 "Q"	NA	<2.1	3.9 "Q"	NA	NA	NA	100	10
Lead	µg/L	<1.4	NA	***1.6 "Q"***	<1.4	NA	NA	NA	15	1.5
Selenium	µg/L	<3.2	NA	<3.2	<3.2	NA	NA	NA	50	10
Silver	µg/L	<1.3	NA	<1.3	<1.3	NA	NA	NA	50	10
Inorganics										
Chloride	mg/L	**280**	**277**	***170***	**480**	**330**	120	**340**	250	125
Nitrate + Nitrite	mg/L	0.74	<0.03	0.13	0.091	NA	***2.5***	***5.6***	10	2
PCBs										
Arochlor 1016	µg/L	<0.10	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1221	µg/L	<0.49	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1232	µg/L	<0.027	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1242	µg/L	<0.085	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1248	µg/L	<0.065	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1254	µg/L	<0.098	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1260	µg/L	<0.091	NA	NA	NA	NA	NA	NA	0.03	0.003
Herbicides										
2,4-D	µg/L	<0.16	NA	NA	NA	NA	NA	NA	70	7
2,4,5-TP (Silvex)	µg/L	<0.05	NA	NA	NA	NA	NA	NA	50	5
Pesticides										
Aldrin	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NS	NS
a-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
b-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
d-BHC	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NS	NS
g-BHC (Lindane)	µg/L	<0.004	NA	NA	NA	NA	NA	NA	0.2	0.02
Chlordane	µg/L	<0.003	NA	NA	NA	NA	NA	NA	2	0.2
4,4'-DDD	µg/L	<0.001	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDE	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDT	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Dieldrin	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan I	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan II	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan Sulfate	µg/L	<0.021	NA	NA	NA	NA	NA	NA	NS	NS
Endrin	µg/L	<0.004	NA	NA	NA	NA	NA	NA	2	0.4
Endrin Aldehyde	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NS	NS
Heptachlor	µg/L	<0.004	NA	NA	NA	NA	NA	NA	0.4	0.04
Heptachlor Epoxide	µg/L	<0.002	NA	NA	NA	NA	NA	NA	0.2	0.02
Methoxychlor	µg/L	<0.11	NA	NA	NA	NA	NA	NA	40	4
Toxaphene	µg/L	<0.19	NA	NA	NA	NA	NA	NA	3	0.3

Notes:
1. Groundwater samples collected by Sigma Environmental Services, Inc.
2. NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
3. NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
4. NS = no standard
5. µg/L = micrograms per liter (equivalent to parts per billion, ppb)
6. mg/L = milligrams per liter (equivalent to parts per million, ppm)
7. NA = Not Analyzed
8. "Q" = concentration reported between Method Detection Limits and Limit of Quantification.
   "B" = laboratory blank is contaminated
9. Trip blank results: 12/21/04 - All VOCs reported below laboratory detection limits.
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - All VOCs reported below laboratory detection limits.
   6/14/06 - All VOCs reported below laboratory detection limits.
   12/28/06 - All VOCs reported below laboratory detection limits.
10. Equipment blank results: 12/21/04 - All VOCs reported below laboratory detection limits, except benzene (0.37 µg/L) and toluene (0.32 µg/L)
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - Not used for this sampling event
   6/14/06 - All VOCs reported below laboratory detection limits, except benzene (0.31 "Q" µg/L) and toluene (0.24 "Q" µg/L)
   12/28/06 - All VOCs reported below laboratory detection limits, except benzene (0.45 "Q" µg/L) and toluene (0.26 "Q" µg/L)
11. Exceedances: **bold, box** = Concentration exceeds NR 140 ES
   bold, italics = Concentration exceeds NR 140 PAL

Table 2
Groundwater Quality Results
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

Well Location:		**MW-7**						**MW-7R**	**NR 140**	**NR 140**
Analytes	Date:	12/21/04	3/24/05	6/21/05	9/27/05	12/13/05	6/14/06	12/28/06	**ES**	**PAL**
PVOCs & Detected VOCs										
Benzene	µg/L	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20	5	0.5
Ethylbenzene	µg/L	<0.50	<0.3	<0.50	<0.50	NA	<0.50	<0.50	700	140
Methyl-tert-butyl-ether	µg/L	<0.50	<0.36	<0.50	<0.50	NA	<0.50	<0.50	60	12
Toluene	µg/L	<0.20	<0.52	<0.20	<0.20	NA	<0.20	<0.20	1,000	200
1,2,4-Trimethylbenzene	µg/L	<0.20	<0.32	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
1,3,5-Trimethylbenzene	µg/L	<0.20	<0.83	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Total Trimethylbenzene	µg/L	<0.40	<1.15	<0.40	<0.40	NA	<0.40	<0.40	480	96
Xylenes, Total	µg/L	<0.50	<1.17	<0.50	<0.50	NA	<0.50	<0.50	10,000	1,000
sec-Butylbenzene	µg/L	<0.25	<0.25	<0.25	<0.25	NA	<0.25	<0.25	NS	NS
n-Butylbenzene	µg/L	<0.20	<0.61	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Chlorobenzene	µg/L	<0.20	<0.26	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
Isopropylbenzene	µg/L	<0.20	<0.56	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
p-Isopropyltoluene	µg/L	<0.20	<0.5	<0.20	<0.20	NA	<0.20	<0.20	NS	NS
n-Propylbenzene	µg/L	<0.50	<0.56	<0.50	<0.50	NA	<0.50	<0.50	NS	NS
Tetrachloroethene	µg/L	<0.50	<0.45	<0.50	<0.50	NA	<0.50	<0.50	5	0.5
PAHs & Detected SVOCs										
Acenaphthene	µg/L	<2.9	<0.032	<0.38	<0.37	NA	<0.42	<0.35	NS	NS
Acenaphthylene	µg/L	<2.5	<0.015	<0.79	<0.78	NA	<0.88	<0.74	NS	NS
Anthracene	µg/L	<2.1	<0.013	<0.044	<0.043	NA	<0.049	<0.041	3,000	600
Benzo(a)anthracene	µg/L	<2.7	<0.099	<0.051	<0.049	NA	<0.056	<0.047	NS	NS
Benzo(a)pyrene	µg/L	<2.5	<0.008	<0.037	<0.036	NA	<0.041	<0.034	0.2	0.02
Benzo(b)fluoranthene	µg/L	<2.6	<0.009	<0.11	<0.11	NA	<0.13	<0.11	0.2	0.02
Benzo(ghi)perylene	µg/L	<2.8	0.038	<0.14	<0.13	NA	<0.15	<0.13	NS	NS
Benzo(k)fluoranthene	µg/L	<2.6	<0.024	<0.056	<0.055	NA	<0.063	<0.053	NS	NS
Chrysene	µg/L	<2.7	<0.011	<0.047	<0.046	NA	<0.053	<0.044	0.2	0.02
Dibenzo(a,h)anthracene	µg/L	<2.7	<0.009	<0.15	<0.15	NA	<0.17	<0.14	NS	NS
Fluoranthene	µg/L	<2.1	0.017 "Q"	<0.093	<0.091	NA	<0.10	<0.087	400	80
Fluorene	µg/L	<2.1	<0.015	<0.071	<0.070	NA	<0.079	<0.067	400	80
Indeno(1,2,3-cd)pyrene	µg/L	<2.6	<0.015	<0.071	<0.070	NA	<0.079	<0.067	NS	NS
1-Methylnaphthalene	µg/L	NA	<0.018	<0.37	<0.36	NA	<0.41	<0.34	NS	NS
2-Methylnaphthalene	µg/L	<2.2	<0.03	<0.36	<0.35	NA	<0.40	<0.33	NS	NS
Naphthalene	µg/L	<2.7	<0.023	<0.46	<0.45	NA	<0.51	<0.43	40	8
Phenanthrene	µg/L	<2.6	<0.011	<0.034	<0.034	NA	0.25	<0.032	NS	NS
Pyrene	µg/L	<2.8	0.037	<0.051	<0.049	NA	<0.056	<0.047	250	50
Bis(2-ethylhexyl)phthalate	µg/L	<3.1	NA	NA	NA	NA	NA	NA	6	0.6
Di-n-butyl phthalate	µg/L	<2.5 "B"	NA	NA	NA	NA	NA	NA	100	20
N-Nitrosodi-n-propylamine	µg/L	<2.4	NA	NA	NA	NA	NA	NA	NS	NS
Pentachlorophenol	µg/L	<2.8	NA	NA	<10.0	<0.020	NA	NA	1	0.1
Dissolved RCRA Metals										
Mercury	µg/L	<0.092	NA	<0.092	<0.092	NA	NA	NA	2	0.2
Arsenic	µg/L	<0.79	***1.0***	<0.79	<0.79	<0.79	<0.79	<1.0	10	1
Barium	µg/L	150	140	140	150	NA	NA	NA	2,000	400
Cadmium	µg/L	0.24 "Q"	NA	<0.14	0.21 "Q"	NA	NA	NA	5	0.5
Chromium	µg/L	3.4 "Q"	NA	<2.1	6.7 "Q"	NA	NA	NA	100	10
Lead	µg/L	<1.4	NA	<1.4	<1.4	NA	NA	NA	15	1.5
Selenium	µg/L	<3.2	NA	<3.2	<3.2	NA	NA	NA	50	10
Silver	µg/L	<1.3	NA	<1.3	<1.3	NA	NA	NA	50	10
Inorganics										
Chloride	mg/L	***230***	***272***	***230***	***190***	***170***	***160***	***220***	250	125
Nitrate + Nitrite	mg/L	***3.9***	***4.6***	***4.5***	1.8	***2.6 "B"***	***5.4***	***3.9***	10	2
PCBs										
Arochlor 1016	µg/L	<0.10	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1221	µg/L	<0.49	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1232	µg/L	<0.027	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1242	µg/L	<0.085	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1248	µg/L	<0.065	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1254	µg/L	<0.098	NA	NA	NA	NA	NA	NA	0.03	0.003
Arochlor 1260	µg/L	<0.091	NA	NA	NA	NA	NA	NA	0.03	0.003
Herbicides										
2,4-D	µg/L	<0.16	NA	NA	NA	NA	NA	NA	70	7
2,4,5-TP (Silvex)	µg/L	<0.05	NA	NA	NA	NA	NA	NA	50	5
Pesticides										
Aldrin	µg/L	<0.003	NA	NA	NA	NA	NA	NA	NS	NS
a-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
b-BHC	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
d-BHC	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NS	NS
g-BHC (Lindane)	µg/L	<0.004	NA	NA	NA	NA	NA	NA	0.2	0.02
Chlordane	µg/L	<0.003	NA	NA	NA	NA	NA	NA	2	0.2
4,4'-DDD	µg/L	<0.001	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDE	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
4,4'-DDT	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Dieldrin	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan I	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan II	µg/L	<0.002	NA	NA	NA	NA	NA	NA	NS	NS
Endosulfan Sulfate	µg/L	<0.021	NA	NA	NA	NA	NA	NA	NS	NS
Endrin	µg/L	<0.004	NA	NA	NA	NA	NA	NA	2	0.4
Endrin Aldehyde	µg/L	<0.004	NA	NA	NA	NA	NA	NA	NS	NS
Heptachlor	µg/L	<0.004	NA	NA	NA	NA	NA	NA	0.4	0.04
Heptachlor Epoxide	µg/L	<0.002	NA	NA	NA	NA	NA	NA	0.2	0.02
Methoxychlor	µg/L	<0.11	NA	NA	NA	NA	NA	NA	40	4
Toxaphene	µg/L	<0.19	NA	NA	NA	NA	NA	NA	3	0.3

Notes:
1. Groundwater samples collected by Sigma Environmental Services, Inc.
2. NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
3. NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
4. NS = no standard
5. µg/L = micrograms per liter (equivalent to parts per billion, ppb)
6. mg/L = milligrams per liter (equivalent to parts per million, ppm)
7. NA = Not Analyzed
8. "Q" = concentration reported between Method Detection Limits and Limit of Quantification.
   "B" = laboratory blank is contaminated
9. Trip blank results: 12/21/04 - All VOCs reported below laboratory detection limits.
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - All VOCs reported below laboratory detection limits.
   6/14/06 - All VOCs reported below laboratory detection limits.
   12/28/06 - All VOCs reported below laboratory detection limits.
10. Equipment blank results: 12/21/04 - All VOCs reported below laboratory detection limits, except benzene (0.37 µg/L) and toluene (0.32 µg/L)
   3/24/05 - All PVOCs reported below laboratory detection limits.
   6/21/05 - All VOCs reported below laboratory detection limits.
   9/27/05 - All VOCs reported below laboratory detection limits.
   12/13/05 - Not used for this sampling event
   6/14/06 - All VOCs reported below laboratory detection limits, except benzene (0.31 "Q" µg/L) and toluene (0.24 "Q" µg/L)
   12/28/06 - All VOCs reported below laboratory detection limits, except benzene (0.45 "Q" µg/L) and toluene (0.26 "Q" µg/L)
11. Exceedances: **bold, box** = Concentration exceeds NR 140 ES
   bold, italics = Concentration exceeds NR 140 PAL

Table 1
Static Groundwater Elevations
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

Well ID	Date	Ground Surface Elevation (feet MSL)	Casing Elevation (feet MSL)	Depth to Groundwater (feet from toc)	Depth of Well (feet from toc)	Depth to Groundwater (feet bgs)	Groundwater Elevation (feet MSL)	Well Screen Interval (feet bgs)
MW-1	12/21/04	583.2	585.83	5.32	15.75	2.7	580.51	3 to 13
	3/24/05			5.20	15.75	2.6	580.63	
	4/1/05			4.27	---	1.6	581.56	
	4/15/05			5.27	---	2.6	580.56	
	4/21/05			5.27	---	2.6	580.56	
	4/28/05			5.60	---	3.0	580.23	
	6/21/05			6.23	15.74	3.6	579.60	
	9/27/05			5.53	15.75	2.9	580.30	
	12/13/05			5.57	15.75	2.9	580.26	
	6/14/06			5.57		2.9	580.26	
	12/28/06	585.3		5.11		4.5	580.72	5.1 to 13.1
MW-2	12/21/04	583.0	582.71	2.70	12.97	3.0	580.01	3 to 13
	3/24/05			2.75	13.00	3.0	579.96	
	4/1/05			2.49	---	2.8	580.22	
	4/15/05			2.63	---	2.9	580.08	
	4/21/05			2.59	---	2.9	580.12	
	4/28/05			2.75	---	3.0	579.96	
	6/21/05			3.05	12.97	3.3	579.66	
	9/27/05			2.52	13.00	2.8	580.19	
	12/13/05			2.95	13.00	3.2	579.76	
	6/14/06			2.50		2.8	580.21	
MW-2R	12/28/06	585.6	587.97	6.81		4.4	581.16	5.6 to 15.6
MW-3	12/21/04	583.8	583.43	3.17	12.72	3.5	580.26	3 to 13
	3/24/05			3.61	12.75	4.0	579.82	
	4/1/05			3.10	---	3.5	580.33	
	4/15/05			3.19	---	3.6	580.24	
	4/21/05			3.27	---	3.6	580.16	
	4/28/05			3.31	---	3.7	580.12	
	6/21/05			3.93	12.73	4.3	579.50	
	9/27/05			2.97	12.75	3.3	580.46	
	12/13/05			3.51	12.75	3.9	579.92	
	6/14/06			2.95		3.3	580.48	
MW-3R	12/28/06	586.8	589.32	8.44		5.9	580.88	6 to 16
MW-4	12/21/04	584.7	584.40	3.43	12.80	3.8	580.97	3 to 13
	3/24/05			2.67	12.82	3.0	581.73	
	4/1/05			1.58	---	1.9	582.82	
	4/15/05			2.63	---	3.0	581.77	
	4/21/05			3.08	---	3.4	581.32	
	4/28/05			3.40	---	3.7	581.00	
	6/21/05			4.10	12.80	4.4	580.30	
	9/27/05			4.44	12.80	4.8	579.96	
	12/13/05			3.65	12.80	4.0	580.75	
	6/14/06			2.82		3.2	581.58	
MW-4R	12/28/06	585.9	588.25	7.13		4.8	581.12	4.2 to 14.2
MW-5	12/21/04	584.7	584.21	3.33	12.90	3.8	580.88	3 to 13
	3/24/05			3.25	12.88	3.7	580.96	
	4/1/05			2.89	---	3.3	581.32	
	4/15/05			3.30	---	3.7	580.91	
	4/21/05			3.38	---	3.8	580.83	
	4/28/05			3.59	---	4.0	580.62	
	6/21/05			3.93	12.83	4.4	580.28	
	9/27/05			3.94	12.85	4.4	580.27	
	12/13/05			3.69	12.85	4.1	580.52	
	6/14/06			3.00		3.4	581.21	
MW-5R	12/28/06	586.0	587.93	6.64		4.7	581.29	4.3 to 14.3

Table 1
Static Groundwater Elevations
Original C. Reiss Coal Company Property - Northwest Corner of 8th Street & Indiana Avenue, Sheboygan, Wisconsin
Sigma Project No. 7875

Well ID	Date	Ground Surface Elevation (feet MSL)	Casing Elevation (feet MSL)	Depth to Groundwater (feet from toc)	Depth of Well (feet from toc)	Depth to Groundwater (feet bgs)	Groundwater Elevation (feet MSL)	Well Screen Interval (feet bgs)
MW-6	12/21/04	587.1	586.43	5.37	12.85	6.0	581.06	3 to 13
	3/24/05			5.46	12.80	6.1	580.97	
	4/1/05			5.14	---	5.8	581.29	
	4/15/05			5.38	---	6.0	581.05	
	4/21/05			5.50	---	6.1	580.93	
	4/28/05			5.68	---	6.3	580.75	
	6/21/05			6.04	12.83	6.7	580.39	
	9/27/05			6.09	12.85	6.7	580.34	
	12/13/05			5.78	12.85	6.4	580.65	
	6/14/06			5.02		5.7	581.41	
MW-6R	12/28/06	587.8	589.83	8.37		6.4	581.46	3.8 to 13.8
MW-7	12/21/04	587.1	586.55	5.13	12.73	5.6	581.42	3 to 13
	3/24/05			5.84	12.74	6.3	580.71	
	4/1/05			5.55	---	6.1	581.00	
	4/15/05			5.44	---	5.9	581.11	
	4/21/05			5.54	---	6.0	581.01	
	4/28/05			5.70	---	6.2	580.85	
	6/21/05			6.13	12.73	6.6	580.42	
	9/27/05			6.12	12.75	6.6	580.43	
	12/13/05			5.66	12.75	6.2	580.89	
	6/14/06			5.00		5.5	581.55	
MW-7R	12/28/06	587.8	589.88	8.32		6.2	581.56	3.8 to 13.8

Notes:
1. Survey of MW-1 through MW-7 performed by Sigma Development, Inc. in December 2004.
2. feet MSL = feet above Mean Sea Level
3. feet from toc = feet below top of casing
4. feet bgs = feet below ground surface
5. Replacement monitoring wells MW-2R through MW-7R installed on December 21, 2006. Elevations at wells MW-2R through MW-7R were surveyed by Sigma Environmental Services, Inc. on December 28, 2006 relative to MW-1 top of casing elevation.

IMPROPERLY ABANDONED MONITORING WELLS

Site Location Map

Figure 1 - Map of Improperly Abandoned Monitoring Wells at Property #1
Figure 2 - Map of Improperly Abandoned Monitoring Wells at Property #2

Well Construction Report

Well construction reports for the following wells are attached:

- Property #1
  - MW-109 – not available
  - MW-112 – not available
  - MW-113 – not available
  - MW-116 – not available
  - MW-203 – not available
  - MW-303

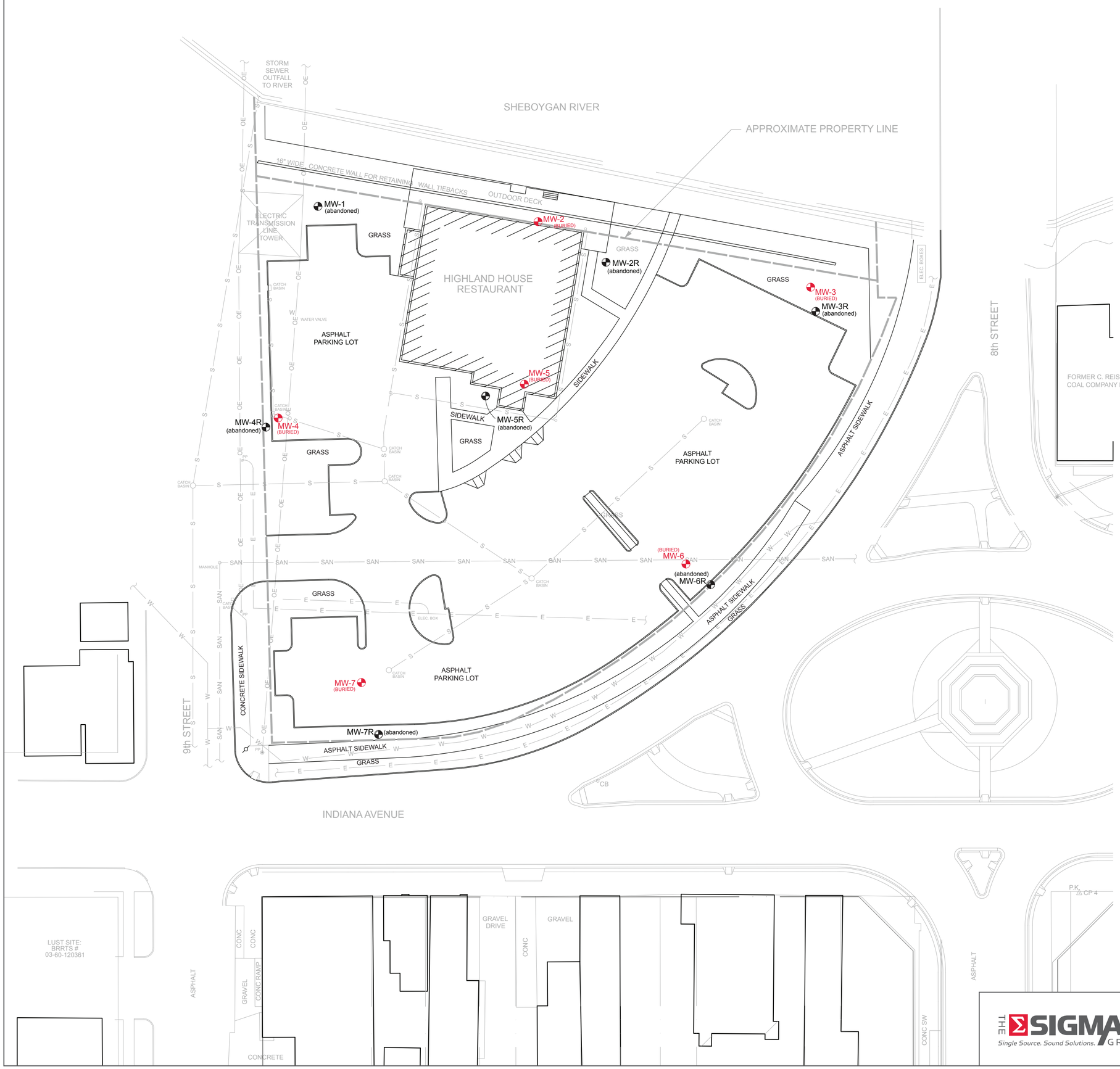
- Property #2
  - MW-2
  - MW-3
  - MW-4
  - MW-5
  - MW-6
  - MW-7

Deed

Refer to deed included with GIS Registry packet.

Notification Letter

Wells that were improperly abandoned were only located on City of Sheboygan property.



NOTES:

1. BASE MAP BASED ON ELECTRONIC FILE PROVIDED TO SIGMA BY CITY OF SHEBOYGAN AND SIGMA DRAWING NO. 7875-018.

2. MONITORING WELLS MW-1 THROUGH MW-7 SURVEYED BY SIGMA DEVELOPMENT, INC. IN DECEMBER 2004.

3. NEW SITE FEATURES BASED ON 7-28-04 SITE MAP PROVIDED BY ABACUS ARCHITECTS, INC. AND ARE SHOWN IN BLACK.

4. MONITORING WELLS MW-2 THROUGH MW-7 TO BE ABANDONED IN ACCORDANCE WITH NR 141 REGULATIONS IF DISCOVERED IN THE FUTURE.

LEGEND

- = FORMER MONITORING WELL
- OE = OVERHEAD ELECTRIC LINE
- E = UNDERGROUND ELECTRIC LINE
- S = UNDERGROUND STORM SEWER LINE
- SAN = UNDERGROUND SANITARY SEWER LINE
- W = UNDERGROUND WATER LINE

THE SIGMA GROUP
Single Source. Sound Solutions.

MAP OF IMPROPERLY ABANDONED MONITORING WELLS - PROPERTY #2

FORMER C. REISS COAL CO. / LAKEFRONT PROPERTY
HARBOR CENTRE SOUTH PIER DISTRICT
SHEBOYGAN, WISCONSIN

FIGURE
2

Project: 7392-080 | Directory: GRAPHICS | Filename: 7392_F2_improperWellsAband_Prop2.ai | Created By: ERO | Date: 10/13/2008

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Original C. Reiss Coal Company Property	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-2
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PH195 / DNR Well Number:
Facility ID: 460032430	St. Plane 643,903 ft. N, 2,572,590 ft. E. S/C/N	Date Well Installed: 11/17/2004
Type of Well: Well Code 71/dw	Section Location of Waste/Source: NE 1/4 of NW 1/4 of Sec. 26, T. 14 N, R. 23 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Tony Kapugi, On-Site Environmental Services, Inc.
Distance from Waste/Source ____ ft. / Enf. Stds. Apply ☒	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number:

A. Protective pipe, top elevation 582.97 ft. MSL

B. Well casing, top elevation 582.71 ft. MSL

C. Land surface elevation 583.0 ft. MSL

D. Surface seal, bottom 582.2 ft. MSL or 0.8 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☒ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required): NA

E. Bentonite seal, top 582.2 ft. MSL or 0.8 ft.

F. Fine sand, top 580.7 ft. MSL or 2.3 ft.

G. Filter pack, top 580.5 ft. MSL or 2.5 ft.

H. Screen joint, top 580.0 ft. MSL or 3.0 ft.

I. Well bottom 570.0 ft. MSL or 13.0 ft.

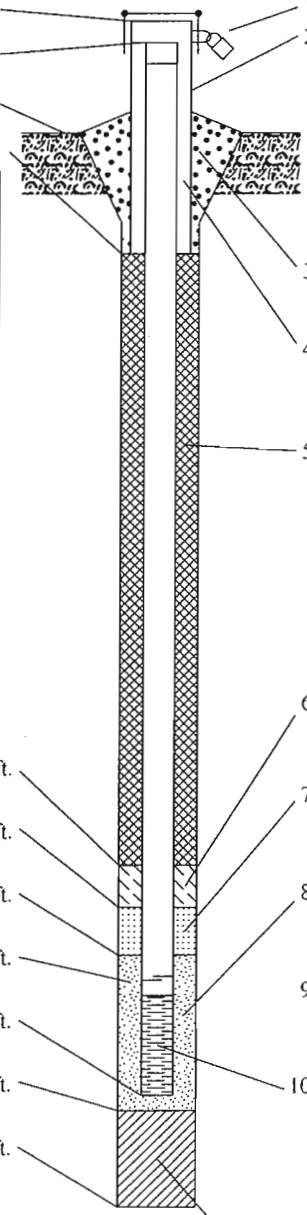
J. Filter pack, bottom 570.0 ft. MSL or 13.0 ft.

K. Borehole, bottom 570.0 ft. MSL or 13.0 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.05 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 9.0 in.
b. Length: 1.0 ft.
c. Material: Steel ☒ 04 Other ☐
d. Additional protection? ☒ Yes ☐ No
If yes, describe: compression cap
3. Surface seal: Bentonite ☐ 30 Concrete ☒ 01 Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ 30 Sand Other ☒
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. Ohio Brand #4000
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Ohio Brand #5
b. Volume added ____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐
10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐
b. Manufacturer ____
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☐ 14 Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Neal Shefchek

Firm: Sigma Environmental Services, Inc
1300 West Canal Street Milwaukee, WI 53233
Tel: (414) 643-4200
Fax: (414) 643-4210

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: Original C. Reiss Coal Company Property	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-3
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PH193 / DNR Well Number:
Facility ID: 460032430	St. Plane 643,866 ft. N, 2,572,741 ft. E. S/C/N	Date Well Installed: 11/16/2004
Type of Well: Well Code 71/dw	Section Location of Waste/Source: NE 1/4 of NW 1/4 of Sec. 26, T. 14 N, R. 23 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Tony Kapugi, On-Site Environmental Services, Inc.
Distance from Waste/Source ____ ft. / Enf. Stds. Apply ☒	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number:

A. Protective pipe, top elevation 583.90 ft. MSL

B. Well casing, top elevation 583.43 ft. MSL

C. Land surface elevation 583.8 ft. MSL

D. Surface seal, bottom 583.0 ft. MSL or 0.8 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☒ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 5 0
Hollow Stem Auger ☒ 4 1
____ Other ☐ __

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1
Drilling Mud ☐ 0 3 None ☒ 9 9

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required):
NA

E. Bentonite seal, top 583.0 ft. MSL or 0.8 ft.

F. Fine sand, top 581.5 ft. MSL or 2.3 ft.

G. Filter pack, top 581.3 ft. MSL or 2.5 ft.

H. Screen joint, top 580.8 ft. MSL or 3.0 ft.

I. Well bottom 570.8 ft. MSL or 13.0 ft.

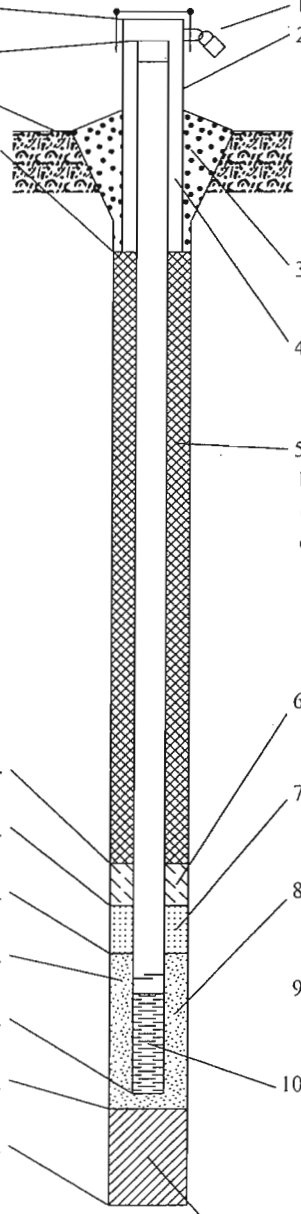
J. Filter pack, bottom 570.8 ft. MSL or 13.0 ft.

K. Borehole, bottom 570.8 ft. MSL or 13.0 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.05 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 9.0 in.
b. Length: 1.0 ft.
c. Material: Steel ☒ 0 4
____ Other ☐ __
d. Additional protection? ☒ Yes ☐ No
If yes, describe: compression cap

3. Surface seal: Bentonite ☐ 3 0
Concrete ☒ 0 1
____ Other ☐ __

4. Material between well casing and protective pipe:
Bentonite ☐ 3 0
Sand Other ☒ __

5. Annular space seal: a. Granular/Chipped Bentonite ☐ 3 3
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3 5
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 3 1
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 5 0
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 0 1
Tremie pumped ☐ 0 2
Gravity ☐ 0 8

6. Bentonite seal: a. Bentonite granules ☐ 3 3
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 3 2
c. ____ Other ☐ __

7. Fine sand material: Manufacturer, product name & mesh size
a. Ohio Brand #4000
b. Volume added ____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. Ohio Brand #5
b. Volume added ____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3
Flush threaded PVC schedule 80 ☐ 2 4
____ Other ☐ __

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 1 1
Continuous slot ☐ 0 1
____ Other ☐ __
b. Manufacturer ____
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.

11. Backfill material (below filter pack): None ☐ 1 4
____ Other ☒ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Nate Shepherd

Firm: Sigma Environmental Services, Inc
1300 West Canal Street Milwaukee, WI 53233
Tel: (414) 643-4200
Fax: (414) 643-4210

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: Original C. Reiss Coal Company Property	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-4
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PH197 / DNR Well Number:
Facility ID: 460032430	St. Plane 643,794 ft. N, 2,572,446 ft. E. S/C/N	Date Well Installed: 11/16/2004
Type of Well: Well Code 71/dw	Section Location of Waste/Source: NE 1/4 of NW 1/4 of Sec. 26, T. 14 N, R. 23 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Tony Kapugi
Distance from Waste/Source ft. / Enf. Stds. Apply ☒	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number: ____ / On-Site Environmental Services, Inc.

A. Protective pipe, top elevation 584.75 ft. MSL

B. Well casing, top elevation 584.40 ft. MSL

C. Land surface elevation 584.7 ft. MSL

D. Surface seal, bottom 583.9 ft. MSL or 0.8 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☒ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 5 0
Hollow Stem Auger ☒ 4 1
____ Other ☐

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1
Drilling Mud ☐ 0 3 None ☒ 9 9

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required):
NA

E. Bentonite seal, top 583.9 ft. MSL or 0.8 ft.

F. Fine sand, top 582.4 ft. MSL or 2.3 ft.

G. Filter pack, top 582.2 ft. MSL or 2.5 ft.

H. Screen joint, top 581.7 ft. MSL or 3.0 ft.

I. Well bottom 571.7 ft. MSL or 13.0 ft.

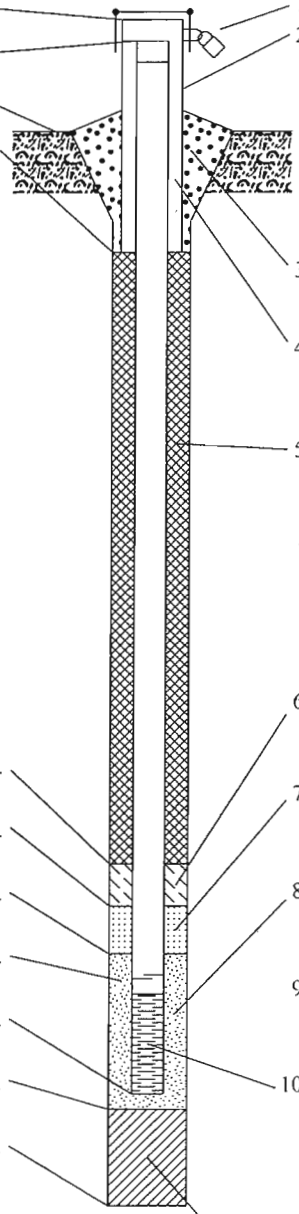
J. Filter pack, bottom 571.7 ft. MSL or 13.0 ft.

K. Borehole, bottom 571.7 ft. MSL or 13.0 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.05 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 9.0 in.
b. Length: 1.0 ft.
c. Material: Steel ☒ 0 4 / ____ Other ☐
d. Additional protection? ☒ Yes ☐ No
If yes, describe: compression cap
3. Surface seal: Bentonite ☐ 3 0 / Concrete ☒ 0 1 / ____ Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ 3 0
Sand Other ☒
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 3 3
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3 5
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 3 1
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 5 0
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 0 1
Tremie pumped ☐ 0 2
Gravity ☐ 0 8
6. Bentonite seal: a. Bentonite granules ☐ 3 3
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 3 2
c. ____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. Ohio Brand #4000
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Ohio Brand #5
b. Volume added ____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3
Flush threaded PVC schedule 80 ☐ 2 4
____ Other ☐
10. Screen material: PVC
a. Screen Type: Factory cut ☒ 1 1
Continuous slot ☐ 0 1
____ Other ☐
b. Manufacturer ____
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☐ 1 4
____ Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [signature] Firm: Sigma Environmental Services, Inc
1300 West Canal Street Milwaukee, WI 53233
Tel: (414) 643-4200
Fax: (414) 643-4210

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Original C. Reiss Coal Company Property	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-5
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PH 196 / DNR Well Number:
Facility ID: 460032430	St. Plane 643,813 ft. N, 2,572,582 ft. E. S/C/N	Date Well Installed: 11/16/2004
Type of Well: Well Code 71/dw	Section Location of Waste/Source: NE 1/4 of NW 1/4 of Sec. 26, T. 14 N, R. 23 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Tony Kapugi
Distance from Waste/Source ft. / Enf. Stds. Apply ☒	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number: ____ / On-Site Environmental Services, Inc.

A. Protective pipe, top elevation 584.64 ft. MSL

B. Well casing, top elevation 584.21 ft. MSL

C. Land surface elevation 584.7 ft. MSL

D. Surface seal, bottom 583.9 ft. MSL or 0.8 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☒ SC ☐ ML ☒ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 5 0
Hollow Stem Auger ☒ 4 1
____ Other ☐ __

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1
Drilling Mud ☐ 0 3 None ☒ 9 9

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required):
NA

E. Bentonite seal, top 583.9 ft. MSL or 0.8 ft.

F. Fine sand, top 582.4 ft. MSL or 2.3 ft.

G. Filter pack, top 582.2 ft. MSL or 2.5 ft.

H. Screen joint, top 581.7 ft. MSL or 3.0 ft.

I. Well bottom 571.7 ft. MSL or 13.0 ft.

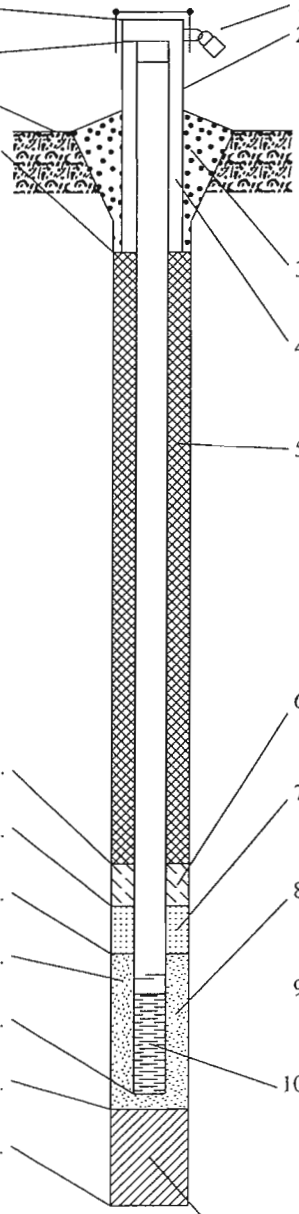
J. Filter pack, bottom 571.7 ft. MSL or 13.0 ft.

K. Borehole, bottom 571.7 ft. MSL or 13.0 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.05 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 9.0 in.
b. Length: 1.0 ft.
c. Material: Steel ☒ 0 4
____ Other ☐ __
d. Additional protection? ☒ Yes ☐ No
If yes, describe: compression cap
3. Surface seal: Bentonite ☐ 3 0
Concrete ☒ 0 1
____ Other ☐ __
4. Material between well casing and protective pipe: Bentonite ☐ 3 0
Sand Other ☒ __
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 3 3
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3 5
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 3 1
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 5 0
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 0 1
Tremie pumped ☐ 0 2
Gravity ☐ 0 8
6. Bentonite seal: a. Bentonite granules ☐ 3 3
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 3 2
c. ____ Other ☐ __
7. Fine sand material: Manufacturer, product name & mesh size
a. Ohio Brand #4000 __
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Ohio Brand #5 __
b. Volume added ____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3
Flush threaded PVC schedule 80 ☐ 2 4
____ Other ☐ __
10. Screen material: PVC __
a. Screen Type: Factory cut ☒ 1 1
Continuous slot ☐ 0 1
____ Other ☐ __
b. Manufacturer ____
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☐ 1 4
____ Other ☒ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [signature] Firm: Sigma Environmental Services, Inc, 1300 West Canal Street Milwaukee, WI 53233 Tel: (414) 643-4200 Fax: (414) 643-4210

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State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Original C. Reiss Coal Company Property	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-6
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PH192 / DNR Well Number:
Facility ID: 460032430	St. Plane 643,713 ft. N, 2,572,672 ft. E. S/C/N	Date Well Installed: 11/16/2004
Type of Well: Well Code 71/dw	Section Location of Waste/Source: NE 1/4 of NW 1/4 of Sec. 26, T. 14 N, R. 23 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Tony Kapugi, On-Site Environmental Services, Inc.
Distance from Waste/Source ft. / Enf. Stds. Apply ☒	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number:

A. Protective pipe, top elevation 587.12 ft. MSL

B. Well casing, top elevation 586.43 ft. MSL

C. Land surface elevation 587.1 ft. MSL

D. Surface seal, bottom 586.3 ft. MSL or 0.8 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☒ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50; Hollow Stem Auger ☒ 41; Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of water (attach analysis, if required): NA

E. Bentonite seal, top 586.3 ft. MSL or 0.8 ft.

F. Fine sand, top 584.8 ft. MSL or 2.3 ft.

G. Filter pack, top 584.6 ft. MSL or 2.5 ft.

H. Screen joint, top 584.1 ft. MSL or 3.0 ft.

I. Well bottom 574.1 ft. MSL or 13.0 ft.

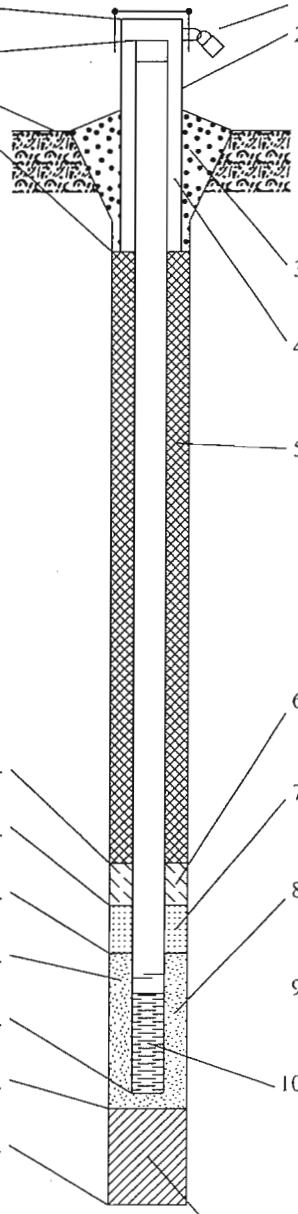
J. Filter pack, bottom 574.1 ft. MSL or 13.0 ft.

K. Borehole, bottom 574.1 ft. MSL or 13.0 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.05 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
   a. Inside diameter: 9.0 in.
   b. Length: 1.0 ft.
   c. Material: Steel ☒ 04; Other ☐
   d. Additional protection? ☒ Yes ☐ No
   If yes, describe: compression cap
3. Surface seal: Bentonite ☐ 30; Concrete ☒ 01; Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ 30; Sand; Other ☒
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
   b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
   c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 31
   d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
   e. ____ Ft^3 volume added for any of the above
   f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
   b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
   c. ____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
   a. Ohio Brand #4000
   b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
   a. Ohio Brand #5
   b. Volume added ____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐
10. Screen material: PVC
    a. Screen Type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐
    b. Manufacturer ____
    c. Slot size: 0.010 in.
    d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☐ 14; Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [signature] Firm: Sigma Environmental Services, Inc, 1300 West Canal Street Milwaukee, WI 53233 Tel: (414) 643-4200 Fax: (414) 643-4210

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State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Original C. Reiss Coal Company Property	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-7
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PH191 / DNR Well Number:
Facility ID: 460032430	St. Plane 643,647 ft. N, 2,572,492 ft. E. S/C/N	Date Well Installed: 11/16/2004
Type of Well: Well Code 71/dw	Section Location of Waste/Source: NE 1/4 of NW 1/4 of Sec. 26, T. 14 N, R. 23 ☒ E ☐ W	Well Installed By: (Person's Name and Firm) Tony Kapugi
Distance from Waste/Source ____ ft. / Enf. Stds. Apply ☒	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number: ____ / On-Site Environmental Services, Inc.

A. Protective pipe, top elevation 586.98 ft. MSL

B. Well casing, top elevation 586.55 ft. MSL

C. Land surface elevation 587.1 ft. MSL

D. Surface seal, bottom 586.3 ft. MSL or 0.8 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☒ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 5 0
Hollow Stem Auger ☒ 4 1
____ Other ☐ __

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1
Drilling Mud ☐ 0 3 None ☒ 9 9

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required):
NA

E. Bentonite seal, top 586.3 ft. MSL or 0.8 ft.

F. Fine sand, top 584.8 ft. MSL or 2.3 ft.

G. Filter pack, top 584.6 ft. MSL or 2.5 ft.

H. Screen joint, top 584.1 ft. MSL or 3.0 ft.

I. Well bottom 574.1 ft. MSL or 13.0 ft.

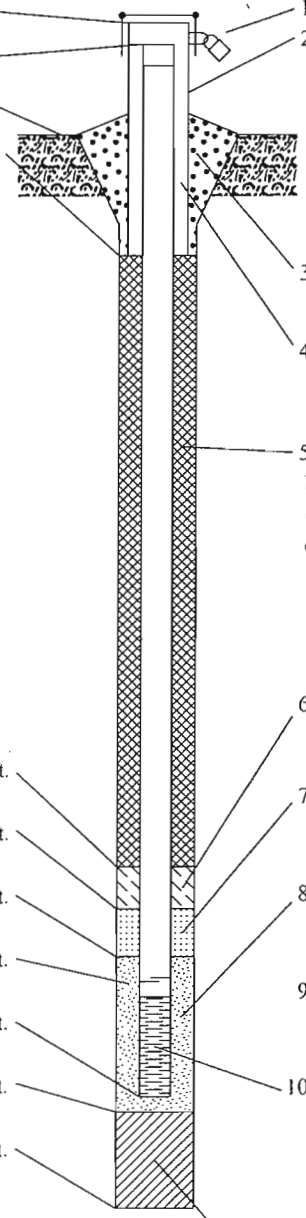
J. Filter pack, bottom 574.1 ft. MSL or 13.0 ft.

K. Borehole, bottom 572.1 ft. MSL or 15.0 ft.

L. Borehole, diameter 8.3 in.

M. O.D. well casing 2.38 in.

N. I.D. well casing 2.05 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 9.0 in.
b. Length: 1.0 ft.
c. Material: Steel ☒ 0 4
____ Other ☐ __
d. Additional protection? ☒ Yes ☐ No
If yes, describe: compression cap

3. Surface seal: Bentonite ☐ 3 0
Concrete ☒ 0 1
____ Other ☐ __

4. Material between well casing and protective pipe: Bentonite ☐ 3 0
Sand Other ☒ __

5. Annular space seal: a. Granular/Chipped Bentonite ☐ 3 3
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3 5
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 3 1
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 5 0
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 0 1
Tremie pumped ☐ 0 2
Gravity ☐ 0 8

6. Bentonite seal: a. Bentonite granules ☐ 3 3
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 3 2
c. ____ Other ☐ __

7. Fine sand material: Manufacturer, product name & mesh size
a. Ohio Brand #4000
b. Volume added ____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. Ohio Brand #5
b. Volume added ____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3
Flush threaded PVC schedule 80 ☐ 2 4
____ Other ☐ __

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 1 1
Continuous slot ☐ 0 1
____ Other ☐ __
b. Manufacturer ____
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.

11. Backfill material (below filter pack): None ☒ 1 4
cave-in Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm	
AJK for Heather Shefbuch	Sigma Environmental Services, Inc 1300 West Canal Street Milwaukee, WI 53233	Tel: (414) 643-4200 Fax: (414) 643-4210

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