

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT

**FOR THE:
FORMER STUDEBAKER (SOUTH BEND AREA A) PROPERTIES/
IGNITION PARK
VRP SITE # 6020803
SOUTH OF SAMPLE STREET, EAST OF PRARIE AVEUNE, NORTH OF
CONRAIL PROPERTY AND WEST OF FRANKLIN STREET,
SOUTH BEND, INDIANA 46601**

**PREPARED FOR:
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1.0 INTRODUCTION

The purpose of this of this Comprehensive Environmental Summary Report (Summary) is to describe all historical activities undertaken to date to evaluate the presence of chemicals of concern (COCs) in soil and groundwater at and in the vicinity of the former Studebaker automotive manufacturing complex property (also herein referred to as the proposed Ignition Park and the Site). A second purpose of this summary report is to propose additional activities necessary to complete assessment of the distribution of COCs in groundwater off-Site so that a Remediation Work Plan pursuant to the Voluntary Remediation Program (VRP) may be proposed to the Indiana Department of Environmental Management (IDEM). Ultimately, the goal for the Site is to receive a Covenant Not to Sue from the State of Indiana under the VRP.

The Site is comprised of several parcels totaling approximately 71.5 acres (+/-) of land located southeast of the intersection of Sample Street and Prairie Avenue in South Bend, Indiana. When the Site was originally enrolled in the VRP, it was comprised of over 100 acres of land, but the City of South Bend Redevelopment Commission (the City), the South Bend Public Transportation Corporation (TRANSPO), and private entities have redeveloped portions of the former Studebaker Complex (including portions thereof north of Sample Street), effectively removing certain parcels of the Site from inclusion in the VRP.

Operations under Studebaker Corporation, from as early as 1927 to the early 1960s, consisted of a foundry, lumberyard, and manufacturing facilities, primarily dedicated to the manufacture of automobiles. Following the cessation of Studebaker's operations at the Site, the majority of the Site was subdivided and sold to Mr. Jay Huckins, ARG Corporation (South Bend Lathe), Allied Products Corporation, and Cummins Engine Co., Inc. During the mid- to late-2000s, those parcels were gradually acquired by the City and the outdated buildings (with the exception of the former Foundry structure) were demolished by the City. The City's Economic Development Commission retained control of the former Studebaker Foundry until it was sold to the 1100 Corporation in September 1998; thereafter it was operated by the 1100 Corporation as its headquarters and for storage of larger-scale pipe and valve products. The 1100 Corporation vacated the Foundry portion of the Site approximately two years ago, and the City subsequently regained control of the Site and demolished the Foundry building in 2011 and early 2012. Although the City is in the process of establishing new parcels at the Site, all former parcels comprising the Site are currently vacant. Various stages of infrastructure improvements (e.g.,

road construction and utility installation) are occurring in an area generally limited to the southern third of the Site.

Multiple environmental assessments have been conducted at the Site. These assessments included sampling and testing of surface and subsurface soils and groundwater for volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH), semivolatile organic compounds (SVOCs; also herein referred to as polynuclear aromatics (PNAs)), Resource Conservation and Recovery Act (RCRA) metals, Target Analyte List (TAL) metals and/or polychlorinated biphenyls (PCBs). As will be evidenced by this Summary, many of these chemicals of concern (COCs) identified have been remediated or have been detected in areas where exposure pathways are incomplete or likely to be rendered incomplete by future redevelopment efforts planned for the Site.

Finally, a strategy and a schedule for completing off-Site assessment to define the extent of impacts to groundwater are presented.

2.0 SUMMARY OF ENVIRONMENTAL ACTIVITIES

Hull & Associates, Inc. (Hull) has been retained by the City of South Bend Department of Community and Economic Development (the City) to prepare this Comprehensive Summary Report (Summary) and supporting documents with the ultimate goal of remediating the soils and groundwater at the Site in accordance with Indiana's VRP. Supporting documents previously submitted include: a Quality Assurance Project Plan (QAPP) and a Health and Safety Plan (HASP). This Summary and associated documents were prepared in general conformance with the requirements contained in the VRP Resource Guide dated July 1996.

2.1 Site Background

2.1.1 Site Location and History

The Site (VRP Application #6020803) is located southeast of the intersection of Sample Street and Chapin Street/Prairie Avenue, South Bend, Indiana. The Site encompasses multiple historical parcels (which have since been abandoned by the City, pending future re-parceling) totaling approximately 71.5 acres (+/-) and is generally bounded on the north by Sample Street; to the east by Franklin Street; to the South by Cotter Street, industrial and commercial properties, and the former Norfolk Southern Railroad; and to the west by Chapin Street/Prairie Avenue. The location of the property is shown on Figure 1.

Operations under Studebaker Corporation, from as early as 1927 to the early 1960s, consisted of a foundry, lumberyard, and manufacturing facilities, primarily dedicated to the manufacture of automobiles. Following the cessation of Studebaker's operations at the Site, the majority of the Site was subdivided and sold to Mr. Jay Huckins, ARG Corporation (South Bend Lathe), Allied Products Corporation, and Cummins Engine Co., Inc. During the mid- to late-2000s, those parcels were gradually acquired by the City and the outdated buildings (with the exception of the former Foundry structure) were demolished by the City. The City's Economic Development Commission retained control of the former Studebaker Foundry until it was sold to the 1100 Corporation in September 1998; thereafter it was operated by the 1100 Corporation as its headquarters and for storage of larger-scale pipe and valve products. The 1100 Corporation vacated the Foundry portion of the Site approximately two years ago, and the City subsequently regained control of the Site and demolished the Foundry building in 2011 and early 2012. Although the City is in the process of establishing new parcels at the Site, all former parcels comprising the Site are currently vacant. Various stages of infrastructure improvements (e.g.,

road construction and utility installation) related to the proposed Ignition Park are occurring in an area generally limited to the southern third of the Site. The Site Plan showing the configuration of buildings; other Site features prior to demolition activities; and the locations of Recognized Environmental Conditions (RECs) identified in a Phase I environmental site assessment (ESA) completed by Hull in January 2001; is included as Figure 2.

2.2 Summary of Site Activities

Since 1992, numerous environmental investigations have been completed at the Site and off-Site. A brief description of all pertinent ESA activities that have been completed to date is provided below. Soil boring logs and monitoring well construction diagrams for all historical boring locations, as well as any off-Site locations, are included in sequential order based on date of installation in Appendix A. Remediation activities have also been conducted, including the removal and disposal of soils impacted by various chemicals of concern (COCs), the removal of 31 underground storage tanks (USTs), and the completion of a pilot study to evaluate the efficacy of an *in-situ* groundwater cleanup technology. Those remediation activities are also summarized below. Because certain historical reports do not appear to have been uploaded to the IDEM Virtual File Cabinet (VFC), copies or excerpts of these historical reports are provided as appendices to this Summary. Where excerpts are provided, copies of laboratory reports will be provided to IDEM under separate cover.

A prior Remediation Work Plan (RWP) for the Site was prepared by Hull and submitted to the IDEM in April 2004. Pursuant to the Site's original Voluntary Remediation Agreement (VRA) with the IDEM, that prior RWP solely contemplated the remediation of soils within the footprint of the former Studebaker property. More recent discussions and correspondence between the City and the IDEM have focused on including the remediation of groundwater at and downgradient of the Site with the remediation of soils at the Site. Furthermore, in consideration of vapor intrusion science that has evolved since the Site's original VRA was executed, potentially complete soil and/or groundwater to indoor air exposure pathways must be evaluated on- and off-Site. Accordingly, the short-term additional assessment needs identified in this Summary, and the future remediation goals that will be proposed in a forthcoming RWP, include the evaluation of soil, groundwater and vapor media.

The following provides brief summaries of the assessments and remedial activities and respective analytical results for soils and/or groundwater that have been completed at the Site to date.

2.2.1 Prior Assessment and Remedial Activities

Environmental Investigation – South Bend Lathe by EIS Environmental Engineers, Inc.

A report titled "Environmental Investigation South Bend Lathe" was prepared by EIS Environmental Engineers, Inc. in July of 1992. Only portions of this report were received for review and inclusion in this Summary. Available portions of this report are included in Appendix B. This report was prepared to evaluate potential impacts to soil and groundwater from five USTs and an associated fuel oil piping track. Four of the USTs investigated were located on the south side of the South Bend Lathe building near the chip house. The remaining UST was located at the east portion of the South Bend Lathe property, south of the Engineering Building. The general locations of these UST systems are shown on Figure 2 and are further denoted on the original report figures included in Appendix B. According to the report, eight borings were installed near the five tanks and soil and groundwater samples were collected from each boring location and were submitted to a laboratory. The report states that soil samples were analyzed only for total petroleum hydrocarbons (TPH); groundwater samples were analyzed for TPH and VOCs.

The only notable concentration of TPH detected in soil at the Site during this investigation was 10,400 mg/kg from B-2 at a depth of 16.5 to 18- ft. below ground surface (bgs). It should be noted that this concentration was detected by the obsolete method 418.1. No other detections of COCs at the site during this investigation exceeded 1996 VRP Nonresidential Tier II Cleanup Goals. Additional VOC analytical information was either not provided or was not included in the parameter list for analysis.

Spill Release Report to IDEM by APT, Inc.

A letter prepared by APT in April of 1994 was reviewed for this Summary. The letter was prepared for IDEM and concerned a release from the four USTs located on the west end of Building 86 on the Allied Products Corp. property. The locations of these USTs are shown on Figure 2. The spill report indicates that, during the in-place closure of four USTs, soil sample results indicated that a release of tetrachloroethylene (PCE) had occurred. Specifically, elevated concentrations of PCE were found in soil beneath the tank. The report also indicated

that no product was located in the tank prior to closure activities. The report states that IDEM incident number 94031118 was issued for the incident. A copy of this letter is included in Appendix C.

Site Investigation Report by APT, Inc.

A report titled "Site Investigation Report," prepared by APT in May of 1995 was reviewed for this Assessment. A copy of what is believed to be the full report was received from IDEM during preparation of the original RWP and is included in Appendix D.

The report discusses potential releases associated with seventeen UST systems. Thirteen of the tanks were reportedly closed by Petroleum Equipment, Inc. during June 1989 to October 1991 and the remaining four tanks were closed by APT in March 1994. Ten USTs were reportedly removed from a tank farm located between Building 86 and 79. The location of this tank farm is shown on Figure 2 and on the original report figures included in Appendix D. The tank farm consisted of six 10,000-gallon tanks, one 8,000-gallon tank and three 12,000-gallon tanks that reportedly stored gasoline, kerosene and heating oil prior to closures. Soil samples were collected near the USTs and were sent to a laboratory and analyzed for TPH. The report stated that, based on the results of these samples, a release did not occur from this UST system. The report also stated that groundwater was not sampled in this area since it was not encountered during the UST excavation.

One 5,000-gallon UST, which was reportedly used to store gasoline, was located approximately midway along the outside of the east wall of the east building (Building 86). The location of this UST is shown on Figure 2 and on the original report figures included in Appendix D. The report does not indicate if the tank was removed or closed in-place. Soil samples were collected near the UST and were sent to a laboratory for TPH analysis. Sample results indicated that releases had occurred from the UST and, therefore, soil was overexcavated and disposed of. Groundwater was not sampled at this time because it was not encountered during tank closure. The report does not state whether confirmatory samples were collected following excavation.

One 20,000-gallon UST that reportedly stored heating oil prior to its closure was located near the northwest corner of the west building (Building 86). The location of this UST is shown on Figure 2 and on the original report figures included in Appendix D. The tank was abandoned in-place and soil samples were collected near the tank and sent to a laboratory for TPH analysis.

It is not stated how many samples were collected; however, the report did state that two of the soil samples exhibited concentrations of TPH at 62 mg/kg and at 17 mg/kg. No remedial action was discussed in association with this tank. Groundwater was not sampled at the time of the closure effort because it was not encountered during tank closure.

According to the report, a 10,000-gallon UST that reportedly stored mineral spirits and kerosene was removed from the Site in October of 1991. The tank was located north of the east Studebaker Stamping Plant building. The general location of this UST is shown on Figure 2 and on the original report figures included in Appendix D. Strong petroleum odors were noted during the excavation of the UST. Soil samples were collected and sent to a laboratory for TPH and VOC analysis. A sample collected from the soil stockpile produced during the excavation exhibited a TPH concentration of 6,300 mg/kg and a soil sample collected from the floor of the excavation exhibited a TPH concentration of 31 mg/kg and a 1,2,4-trimethylbenzene concentration of 1,052 ug/kg. 2,264 cubic yards of soil near the tank were excavated, bioremediated, and returned to the excavation after concentrations of constituents were below the reporting limit.

The four 4,000-gallon USTs historically containing PCE and fuel oil at different times of their operational use were closed in-place in 1994 (as documented in the Spill Release Report from APT presented above). One monitoring well was installed near the tanks and the groundwater sample from this well indicated a release of PCE had occurred from the UST. The report also states that soil samples collected near the UST system confirmed a release of material with detectable concentrations of PCE and TPH. Tables 1 through 3 (contained in Appendix D of this Summary) in the report list the concentrations of the respective chemicals of concern.

As part of the Phase II investigation performed at the Allied Products Corp. (i.e., the former Studebaker Stamping Plant) property by APT, 24 shallow monitoring wells, 17 deep monitoring wells and nine soil borings were installed on the property. Shallow wells were screened at the water table (approximately 25 ft. bgs) and deep wells were screened at approximately 40-45 ft. bgs at a stained interval identified during previous investigations. The locations of these monitoring wells are shown on Figure 3.

A summary of the soil analysis results follows:

1. Six of the 71 soil samples analyzed for TPH exceeded the IDEM LUST cleanup objective of 100mg/kg, the highest of which was 39,000 mg/kg in MW1D at 38- ft. bgs; the remaining exceedences were 930 mg/kg (MW-2 at 21- ft. bgs), 320 mg/kg (MW-7 at 40- ft. bgs), 290 mg/kg (MW20D at 42- ft. bgs), 2,300 mg/kg (T4-SSE) and 3,600 mg/kg (T4-NSW).
2. VOCs were detected in 46 of the 47 soil samples collected and two VOC constituents were detected at concentration that exceeded the VRP Tier II cleanup objectives. The PCE cleanup objective of 8,010 ug/kg was exceeded in six samples and the 1,1,2,2-tetrachloroethane cleanup objective of 210 ug/kg was exceeded in one of the samples associated with the in-place closure of the USTs located in the southwest portion of Building 86.
3. None of the 73 soil samples analyzed for SVOCs exceeded the IDEM LUST or the VRP Tier II cleanup objectives.

A summary of the groundwater analysis results follows:

1. Thirty-four of the 68 groundwater samples were analyzed for TPH and the 18 samples that exhibited concentrations of TPH were above the IDEM LUST cleanup objective of 100 ug/L. These samples were collected from MW-E, MW-2, MW-3, MW-4, MW-12, MW-7, MW-23S, MW-13S, MW-13D, MW-15S, MW-15D, MW-11D, MW-16D, MW-18D, MW-20D, MW-22.
2. Forty of the 43 groundwater samples analyzed for VOCs exhibited concentrations of one or more VOCs. Two constituents of VOCs were detected in concentrations that exceeded the VRP Tier II cleanup criteria. PCE was detected at concentrations that exceeded this criterion in eight samples (MW-1, MW-2, MW-6, MW-13-GW1, MW13D-GW1, MW-15D-GW1, and MW15-GW2). Vinyl chloride was detected in MW17S-GW1 at a concentration that exceeded the cleanup criterion of 10 ug/L.
3. Twenty-one of the 26 groundwater samples analyzed for SVOCs exhibited concentrations of one or more SVOC. Two SVOC constituents were detected in concentrations that exceeded the VRP Tier II cleanup criteria. Bis(ethyl hexyl) phthalate was detected at a concentration of 300 ug/L. APT stated that they believed this was a laboratory contaminant. Pentachlorophenol was detected in MW-3 at a concentration of 82 ug/L. This well was then resampled and pentachlorophenol was not detected in the subsequent sample.

UST Closure Activities by Grauvogel & Associates.

A report prepared by Grauvogel & Associates in April of 2000 was reviewed for this Summary. The report discusses the removal of three USTs and the in-place closure of one UST on the

Former Engineering Building (Building 92) property located adjacent to the east of South Bend Lathe. Two 8,000-gallon USTs and one 5,000-gallon UST that historically stored gasoline were removed from the property in January of 2000. One 1,500-gallon UST that historically stored, at different periods, lubrication oil and mineral spirits was reportedly closed in-place due to its close proximity to a building foundation. No visual signs of leakage were noted near any of the tanks during excavation. Soil samples were collected from both excavations. Soil samples from the east excavation were analyzed for lead and TPH. The highest result for lead was collected from the north portion of the west wall at 119 mg/kg. All TPH results were below the laboratory's reportable limit of 20 mg/kg. All TPH results from the west excavation were below the laboratory's reportable limit of 20 mg/kg. Five samples of the excavated soil were collected and found to be below the laboratory's reportable limit of 20 mg/kg. The excavated soil was returned to the excavation and additional backfill was brought in to return the excavations to grade. A copy of the available portions of the UST Closure Assessment report is included in Appendix E.

Phase I Environmental Site Assessment by Hull

In January 2001, Hull completed a Phase I Environmental Site Assessment (ESA) of the Site consistent with ASTM requirements and procedures. Note that this Phase I ESA did not include the Former Studebaker Engineering Building (Building 92) property located 414 West Sample Street. Hull's Phase I ESA revealed the following Recognized Environmental Conditions (RECs):

RECOGNIZED ENVIRONMENTAL CONDITIONS

REC	REC Item	Potential Chemicals of Concern
<i>Huckins Tool & Die Property (Property A)</i>		
A1	10,000-gallon UST reportedly stored oil was located on the north portion of the Huckins Tool & Die property	Total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs)
A2	Dry well located north of the Huckins building	VOCs, semivolatile organic compounds (SVOCs), TPH, metals
A3	10,000-gallon UST that reportedly stored oil was located near the exterior northeast corner of the Huckins Tool & Die building	TPH, VOCs
A4	Dry well located east of the east building addition	VOCs, SVOCs, TPH, metals
A5	Dust collector and metal shavings located at the exterior southwest corner of the east building addition	metals, VOCs

REC	REC Item	Potential Chemicals of Concern
A6	5,000-gallon UST that reportedly stored gasoline was located east of the south portion of the building	TPH, VOC, lead
A7	Former hydraulic lift located centrally in the Huckins Tool & Die building	TPH, VOCs, PCBs
A8	Former rails located on the east portion of the property	metals, SVOCs
<i>Underground Pipe & Valve Property (Property B)</i>		
B1	500-gallon UST that reportedly stored gasoline, located north of the west portion of the main building	TPH, VOCs, lead
B2	10,000-gallon UST that reportedly stored fuel oil, located north of the east portion of the main building	TPH, VOCs
B3	Three 10,000-gallon core oil tanks located north of the east portion of the main building	TPH, VOCs
B4	A pit with a steel-plate cover located northwest of the former pumphouse	TPH, VOCs, SVOCs
B5	Former rails located on the east and north portions of the property	metals, SVOCs
B6	Two outfalls from the direction of the facility to the reservoir located on the southwest portion of the property	metals, VOCs, SVOCs
B7	Half-buried metal structure (potential tank) located in the east wall of the reservoir	VOCs, TPH, lead
B8	Numerous pits located inside the foundry filled with wood and metal debris	VOCs, SVOCs, metals
B9	Bins with sand and potential historic coke pits located at the eastern portion of the Underground Pipe & Valve building	metals, VOCs, SVOCs, TPH
B10	Four historic ASTs located at the south end of the Underground Pipe & Valve building	metals, VOCs, SVOCs, TPH
<i>South Bend Lathe (Property C)</i>		
C1	Two 5,000-gallon USTs with unknown contents located east of the southern portion of the building	VOCs, SVOCs, metals, TPH
C2	3,000-gallon gasoline tank located south of the Engineering Building	VOCs, SVOCs, TPH, lead
C3	Two 8,000-gallon USTs of unknown contents located south of the Engineering Building	VOCs, SVOCs, metals, TPH
C4	Two 5,000-gallon USTs reportedly containing motor oil, located south of the eastern portion of the building	VOCs, SVOCs, TPH
C5	20,000-gallon UST reportedly containing fuel oil, located north of the AEP property	VOCs, SVOCs, TPH
C6	Two 20,000-gallon USTs reportedly containing fuel oil, located west of the AEP property	VOCs, SVOCs, TPH
C7	Heavy oil staining by the trash bin containing metal shavings and associated catch basin	VOCs, SVOCs, metals, TPH
C8	Oil staining by the wood bins located east of the chip house on the south side of the main building and associated catch basin	VOCs, SVOCs, metals, TPH

REC	REC Item	Potential Chemicals of Concern
C9	Areas of stressed vegetation and bare soil located between the AEP property and the metal storage building	VOCs, SVOCs, metals, TPH
C10	6,000-gallon UST reportedly containing waste oil, located south of the west portion of the building	VOCs, SVOCs, TPH
C11	Former rails located on the west and east portions of the property	metals, SVOCs
C12	Pit located in the heat treat room located in the south portion of the main building	VOCs, SVOCs, metals
C13	Potential releases from PCB-containing transformers located in the building	PCBs
<i>Allied Products Corporation Property (Property D)</i>		
D1	20,000-gallon UST reportedly containing heating oil located near the northwest corner of Building 78	VOCs, SVOCs, TPH
D2	Potential UST of unknown size and contents located south of Building 78 approximately 130 ft. west of the southeast corner of the building	VOCs, SVOCs, metals, TPH
D3	10,000-gallon enamel reducer tank (removed), located on the northeast portion of the property	VOCs, SVOCs, TPH
D4	Former and current rails located on the property	metals and SVOCs
D5	6,000-gallon enamel reducer tank, located west of the south end of Building 79	VOCs, SVOCs, TPH
D6	Tank farm formerly comprised of ten USTs reportedly containing gasoline and kerosene	VOCs, SVOCs, TPH, lead
D7	Catch basin with an oily sheen located west of Building 80	VOCs, TPH
D8	Four 4,000-gallon USTs reportedly containing TCE and fuel oil located west of Building 86	VOCs, SVOCs, TPH
D9	5,000-gallon UST reportedly containing gasoline, located east of the central portion of Building 86	VOCs, SVOCs, TPH, lead
D10	5,000-gallon UST reportedly containing diesel fuel, located east of Building 93	VOCs, SVOCs, TPH
D11	Potential releases from PCB-containing transformers	PCBs
D12	Press pits with petroleum product located inside building 80	VOCs, TPH, metals
D13	Oil change pit located near the northeast corner of Building 93	VOCs, TPH
D14	Former die wash area located at the south end of Building 142	VOCs, TPH, SVOCs
D15	Press pits with petroleum product located in Building 142	VOCs, TPH, SVOCs
D16	Press pits with petroleum product located in Building 86	VOCs, TPH, SVOCs
D17	Three potential drywells located in the southern portion of Building 79.	VOCs, TPH, SVOCs, metals
D18	Potential releases from ASTs and 55-gallon drums located south of Building 93.	VOCs, TPH, SVOCs
D19	Potential releases from ASTs that were historically located at the south end of Building 93.	VOCs, SVOCs

The locations of these RECs and other pertinent Site features and property usage are shown on Figure 2.

Initial Phase II ESA Work Plan and Supporting Documents by Hull

Based on the findings of the Phase I ESA, an Initial Phase II ESA Work Plan (Hull Document # SBI002.100.0003), excluding the Former Studebaker Engineering Building property, was prepared to provide descriptions of investigative and sampling rationale, soil and groundwater sampling methods and analytical methods for soil and groundwater. To support the Initial Phase II Work Plan, a Quality Assurance Project Plan (QAPP) [Hull Document # SBI002.300.0008] and a Site-Specific Health and Safety Plan (HASP) [Hull Document # SBI002.100.0010] were prepared in general conformance with the July 1996 VRP Resource Guide. This Work Plan was prepared prior to completing the field work for the Initial Phase II ESA. Adherence to the procedures in the Work Plan and QAPP provided for collection of representative soil and groundwater samples.

Initial Phase II ESA by Hull

The Initial Phase II ESA was designed to evaluate the concentrations of COCs (in surface and subsurface soils and groundwater) and to characterize the geologic and hydrogeologic conditions beneath the Site. Field activities included the installation of numerous groundwater monitoring wells and soil borings advanced by hollow stem augers and direct-push soil borings. The locations of these soil borings and monitoring wells are shown on Figure 3. Selected soil borings and monitoring wells were continuously sampled using 24-inch split-spoon samplers or 48-inch macro samplers that were decontaminated between each sampling interval. Monitoring wells were installed in boreholes created by advancing 4.25 inch, inside-diameter inside diameter (ID), hollow stem augers. The wells were constructed of two-inch ID Schedule 40 PVC screen and casing. Soil boring logs and monitoring well construction diagrams are provided in Appendix A of this Summary.

As stated in the Initial Phase II ESA Work Plan, the objectives of the soils investigations were to:

1. evaluate the stratigraphy and textural characteristics of the vadose zone and the unconfined aquifer;
2. collect soil samples and conduct geotechnical analyses to evaluate contaminant transport characteristics;

3. provide initial data to demonstrate the completeness or incompleteness of potential exposure pathways of identified COCs; and
4. collect soil samples from REC areas and additional areas for chemical analyses to evaluate the absence/presence and concentrations of COCs.

To address these objectives, continuous sampling was completed at 32 shallow direct-push borings (to a depth of four ft. bgs), five shallow soil borings, and at selected shallow and deep monitoring well locations to characterize the vadose zone stratigraphy and potential exposure pathways. Note that when nested wells were installed, only the deeper of the borings was continuously sampled.

To evaluate the horizontal and vertical extent of COCs in the vadose zone, 98 discrete samples (excluding quality assurance/quality control (QA/QC) samples) were submitted to the analytical laboratory for analyses. In addition, six samples were submitted to a geotechnical laboratory to evaluate the textural composition and physical properties of the unsaturated soils.

The objectives of the groundwater investigation were to:

1. assess the location and stratigraphy of the unconfined aquifer(s) and the presence or absence of confining layers in the unconsolidated material;
2. determine the nature and concentrations of COCs in groundwater;
3. evaluate the groundwater yield and hydraulic characteristics of the unconsolidated aquifer; and,
4. evaluate the general flow direction and gradient of groundwater.

These objectives were achieved by installing 26 shallow monitoring wells, 9 intermediate monitoring wells, and 21 deep monitoring wells. Continuous sampling of the saturated portion of the unconfined aquifer was completed in selected deep monitoring well locations, and at selected intermediate monitoring well locations where no deep monitoring wells were proposed. In addition, continuous sampling of the upper portion of the unconfined aquifer was completed when only a shallow monitoring well was installed.

To determine the extent of COCs in the unconfined aquifer, 72 representative groundwater samples were collected from the newly installed monitoring wells and from selected existing

monitoring wells installed by APT, Inc. In conjunction with the groundwater sampling event, static water levels were collected to evaluate horizontal and vertical groundwater flow.

A copy of Hull's initial February 2002 Phase II ESA report documenting this phase of investigation is included as Appendix F.

Additional Phase II ESA by Hull

In July 2003, Hull installed 31 continuously sampled soil borings, designated SB-6 through SB-37, using direct-push technology that collected samples using a 48-inch Macrocore sampler. Fourteen soil samples were selected from the above borings, submitted to the laboratory, and analyzed for VOCs, SVOCs and metals. The objectives of this investigation were to define the vertical and lateral extents of impacted soils that are the likely source of VOCs in groundwater. The locations of the soil borings are shown on Figure 3.

Analytical results from these soil borings indicated that a source area for PCE exists to the east of Building #93 in an area where petroleum contaminated soils were found, as determined by visual observation of soil samples and by elevated TPH-DRO concentrations in these samples. PCE was detected at six of the eight sampling locations east of Building #93, with the highest concentration of 12,200 ug/kg located at SB-30.

Additionally, relatively low concentrations of VOCs were detected in the area of the Former Die Wash area. VOCs detected in shallow soils beneath the concrete floor included PCE, carbon tetrachloride and chloroform. In addition, various SVOCs were also detected in these shallow soils. Given the presence of the compounds and the fact the elevated concentrations of PCE were detected at HMW-9I during the initial Phase II ESA, this area could be a contributing source of VOCs for groundwater. The Phase II ESA Report documenting this phase of investigation is located on IDEM's Virtual File Cabinet (VFC) as Document Number 45983350.

Remediation Work Plan for Soils by Hull

As stated above, a prior RWP for the Site was prepared by Hull and submitted to the IDEM in April 2004. Pursuant to the Site's original Voluntary Remediation Agreement (VRA) with the IDEM, that prior RWP solely contemplated the remediation of soils within the footprint of the former Studebaker property. A copy of the prior RWP is located on IDEM's VFC as Document Number 45982770.

Site Assessment Report for South Bend Stamping Site by Tetra Tech EM

In May 2004 the City requested a site assessment and removal action for the South Bend Stamping facility from the U.S. EPA. Accordingly, U.S. EPA tasked Tetra Tech EM Inc.'s Superfund Technical Assessment and Response Team (START) with completing a site assessment to evaluate potential threats posed by the abandoned site to human health and the environment. In June 2004, U.S. EPA and START observed numerous drums, containers, open pits, PCB-containing transformers, mercury switches, and friable asbestos in areas of the site where access was not restricted. The assessment report concluded that the site posed a threat of release of hazardous substances both on the site property and off-site properties, and to human populations, and that the site was therefore eligible for an emergency removal action. A copy of Tetra Tech EM Inc.'s assessment report is included in Appendix G.

Removal Action Completion Report by Tetra Tech EM

The report documents the emergency removal action justified by the aforementioned U.S. EPA and START site assessment. A copy of this report could not be located at the time this Summary was prepared, but Hull is searching for a copy and will issue it to IDEM for inclusion on the VFC as soon as the report can be obtained.

Soil Remediation Completion Report by KERAMIDA

In February 2005, pursuant to an Indiana Development Finance Authority (IDFA) grant from the IDFA's Petroleum Remediation Grant Incentive (PRGI) Program, Keramida Environmental, Inc. (KERAMIDA) coordinated the excavation of approximately 670 cubic yards of petroleum-impacted soils that were located east of Building 93. A copy of KERAMIDA's soil remediation report is included in Appendix H.

Studebaker Area A Demolition – Phase I by Weaver Boos et al.

During the period from January 2006 through August 2007, the City retained J&L Management Corporation of Mt. Clemens, MI (J&L) to demolish over 1.5 million square feet of the buildings comprising the former Allied/Studebaker Stamping Plant covering 39 acres of land (depicted as "Property D" on Figure 2. As demolition proceeded, Amerco, Inc. of Valparaiso, Indiana (Amerco) was on retainer to either sample certain areas of the building footprint as structures were demolished and cleared from the Site, or to respond and appropriately characterize and sample unanticipated features (e.g., orphan USTs, etc.) as they may have been encountered

during demolition. As sampling occurred at each discrete location, Wightman-Petrie Consulting Engineers and Land Surveyors was on call to survey in all sampling locations.

A formal report summarizing activities was not completed. However, all surveyed sampling locations are shown on Figure 4. Also indicated on Figure 4 are the laboratory analyses that were requested for many of the samples collected. All samples were collected as advised by Amereco and submitted to STAT Analysis Corporation of Chicago, Illinois (STAT) for the requested analyses. A QAPP governing this sampling project was submitted by Amereco, Inc.; this QAPP is stored on the IDEM's VFC as Document Number 45983233 (a QAPP Addendum is stored as Document Number 45983346). Laboratory reports generated by STAT for this phase of demolition are included on the CD enclosed as Appendix I.

In general, field documentation during this phase of demolition appears to have been incomplete, and the logic of sample numbering in some cases is unclear. Table 1 cross-references survey points, sample names, laboratory report names (on the attached CD for Appendix I), and laboratory report dates.

At any location where impacted soils were suspected, samples were collected and submitted for laboratory analyses; the sampling point was surveyed and noted as potentially in need of overexcavation; and then resampled in the event laboratory analyses indicated that 1996 VRP Tier II Nonresidential Cleanup Goals were exceeded. In these locations, if necessary additional excavation was conducted, confirmatory sampling was then completed, and the confirmatory samples were submitted to the laboratory for additional analyses. This process was repeated until laboratory results indicated that 1996 VRP Tier II Nonresidential Cleanup Goals were no longer exceeded. For example (please reference Table 1), sample number 86-13 (collected from beneath a press pit formerly located in the northern portion of Building 86) was arbitrarily labeled as survey point 5357. When the sample result was initially reported by the laboratory on January 9, 2007 on laboratory report number 06060435, a TPH-ERO concentration of 10,000 mg/kg was reported. The sample location was overexcavated (as evidenced by the change in surveyed elevation on Figure 4) and resampled, and was then reported by the laboratory on May 18, 2007 (on laboratory report number 06080575), when a TPH-ERO concentration of 6,800 mg/kg was reported. The sample location was again overexcavated and resampled, and was then reported by the laboratory on June 18, 2007 (on laboratory report number

061000508), when the TPH-ERO concentration was reported to be below laboratory detection limits.

Also, during the Phase I demolition project, the four USTs previously closed in-place along the southern portion of the west wall of Building 86 (as documented in the Spill Release Report prepared by APT in 1994) were removed and properly closed and sampled. A copy of the UST closure report prepared by Amereco in June 2006 is included in Appendix J.

Studebaker Area A Above-Grade Demolition – Phase II by J&L Management

Following acquisition of the former Huckins Tool & Die (Huckins) property (a 3-acre parcel located at the northwest portion of the Site) in May 2006, J&L demolished the Huckins structure concurrently with the Stamping Plant buildings during June and July 2006. No soil samples were collected during this stage of demolition. The structure's slab was left intact and removed when the South Bend Lathe buildings were demolished during Phase II Demolition, as described below.

In-Situ Chemical Oxidation Pilot Study and Groundwater Sampling by Weaver Boos

In January 2007, Weaver Boos submitted a report documenting a groundwater remediation pilot study funded by a U.S. EPA Brownfields Cleanup Grant awarded to the City. Following submittal of a bench-scale in-situ chemical oxidation study submitted by Weaver Boos (stored on IDEM's VFC as Document Number 45982482), Weaver Boos attempted a field-scale implementation of a potassium permanganate injection into the upper saturated unit beneath the Site to evaluate the efficacy of potassium permanganate to achieve significant contaminant destruction. The pilot study suggested that the chemistry of potassium permanganate contaminant destruction may be too short-lived to be a viable remedial approach.

Weaver Boos conducted a subsequent groundwater sampling event in September 2007 to evaluate any residual effect the pilot study may have had on the chlorinated solvents historically detected at the Site. Copies of both the pilot study and confirmatory groundwater sampling event reports are included in Appendix K.

Phase I ESA and Phase II ESA of the Former AEP Substation by Hull and J&L

In anticipation of a donation of land to the City, Hull completed a Phase I ESA of a small parcel in the north central portion of the Site that was formerly owned by Indiana & Michigan Electric

Company (an affiliate of American Electric Power (AEP)). A copy of the March 2007 Phase I ESA is included in Appendix L.

CERCLA Removal Action at South Bend Lathe Site by WESTON and U.S. EPA

During June through August 2007, U.S. EPA and the WESTON START mobilized to the South Bend Lathe portion of the Site to complete a time-critical removal action at the Site. The team and its Emergency and Rapid Response Services contractor, Environmental Quality Management, removed and arranged for the transportation and disposal of over 75,000 kilograms (kg) of liquid PCBs; 1,155 gallons of PCB-contaminated liquid; 25 kg of PCB-contaminated debris, 30 cubic yards of asbestos-containing materials; 1,300 gallons of waste flammable liquid, 1,105 gallons of waste paint-related material, 740 gallons of non-DOT/non-RCRA hazardous liquid, 50 pounds of aerosols; 75 cubic yards of oil-contaminated soil, and one gallon of elemental mercury. These activities are documented in the final report included in Appendix M.

Studebaker Area A Demolition – Phase III by J&L Management

Between March 6, 2008 and August 6, 2009, J&L, as the General Contractor, conducted demolition and site restoration activities. In accordance with the project bid specifications, J&L was responsible for the cleaning, screening, remediation, recycling, and removal of all environmental conditions and any associated impacted soil within the demolition limits. With the exception of a UST closure report (discussed further below), no summary report was prepared. However, Appendix N contains three Site plans showing the locations where samples were collected; laboratory analytical reports (including all applicable Level IV data quality packages); and the aforementioned UST closure report. The following conditions were identified during the course of the demolition which may have impacted the underlying soil:

1. Seven USTs located at the locations shown on the three Site plans included at the beginning of Appendix N;
2. A small area of buried slag and debris as shown on first of the three Site plans included in Appendix N; and
3. The aforementioned former AEP substation shown on the first of the three Site plans included in Appendix N near survey points 315, 316, and 317 (the substation had been removed by AEP prior to the demolition project).

To fulfill the project specifications, J&L was required to collect soil samples from beneath all three of these areas and have each sample analyzed for the appropriate parameters (including VOCs, SVOCs, metals, TPH, and/or PCBs). Also, J&L was required to collect one soil sample per ¼-acre from soil not located beneath a known environmental condition (such as a UST). Each of these Site-wide confirmatory samples was analyzed for VOCs, SVOCs, TPH, arsenic, barium, cadmium, chromium, selenium, silver, mercury, and lead. The main objective was to determine any potential end-use restrictions for the soil should it later be excavated and reused as backfill or stockpiled. The secondary objective was to provide the City with Site characterization information for the VRP. Accordingly, J&L was responsible for complying with VRP requirements associated with sampling and laboratory QA/QC.

J&L subcontracted with Amereco to complete the soil sampling and testing. Each sample point was subsequently surveyed by Wightman Petrie. The survey coordinates for each sampling point are provided in the first of the three Site plans included in Appendix N. Based on the laboratory reports documenting analyses of the various sampling events completed by Amereco, the COC concentrations in the soil samples were below 1996 VRP Tier II Nonresidential cleanup criteria.

As stated previously, the UST closure report documenting the removal of seven USTs is also included in Appendix N. The USTs were discovered during demolition, categorized as unregulated by Amereco, and subsequently removed during demolition efforts. The UST closure report indicates that there were analytical indications of releases in the soil samples collected from all seven UST excavations. COCs detected included benzene, several SVOCs, acetone, PCE, lead, TPH, and/or PCBs. Based on these results, multiple releases are present, albeit at low concentrations in most cases.

Former Studebaker Foundry Reservoir Characterization by Weaver Boos

During February and March 2010, Weaver Boos was retained by the City to characterize soils in the southwestern portion of the Site, in the vicinity of a former detention pond southwest of the former Studebaker Foundry (formerly and most recently occupied by Underground Pipe & Valve (UP&V)). The characterization was conducted in light of the fact that several RECs were identified in Hull's January 2001 Phase I ESA in this portion of the Site, and in preparation for a road construction and drainage improvement project slated for Cotter Street, which runs west to east south of the former Foundry/UP&V portion of the Site. Accordingly, Weaver Boos was

retained to install test pits and soil borings to characterize the nature and extent of the detention pond. Although a substantial volume of household waste material was encountered, and COCs such as arsenic, lead, and SVOCs were detected, all data collected during this assessment suggested no COCs exceeding 1996 VRP Tier II Nonresidential Cleanup Goals existed in this portion of the Site. A copy of the Weaver Boos report documenting this assessment is included in Appendix O. This portion of the Site has since been re-graded into a larger detention pond structure suitable to handle storm water runoff from the Site and from Cotter Street and Prairie Avenue.

Additional Soil Assessment at Former Huckins & South Bend Lathe Parcels by Hull

During August 2010, Hull was retained by the City to further evaluate soils at the former Huckins Tool & Die and South Bend Lathe portions of the Site, specifically in areas where petroleum impacts were noted during UST closure and demolition activities as part of Phase III Demolition. To briefly summarize this investigation, petroleum hydrocarbons (as TPH) were identified in soils but not at concentrations that would likely require additional assessment or remediation. A copy of Hull's report documenting this assessment is included as Appendix P.

ARRA-Funded Soils Remediation by Hull

Following an award of additional grant funds infused into the City's U.S. EPA Brownfield Cleanup Revolving Loan Fund through the 2009 American Recovery and Reinvestment Act, Hull and the City identified certain areas within the Site that would likely benefit from relatively limited "hot-spot" remediation by excavation and off-Site disposal. From October through December 2010, Hull coordinated the excavation, disposal, and confirmatory sampling of soils where lead and SVOC-impacted soils had been identified (in the northeast portion of the Site near former residences and a former rail spur); where SVOC-impacted soils had been identified (in the southeast portion of the Site near a former rail spur); and where VOC- and TPH-impacted soils had been identified (near the former four 4,000-gallon USTs in the southwest portion of former Building 86). A copy of Hull's January 2011 report documenting the remedial efforts is included in Appendix Q.

Studebaker Area A Demolition – Phase IV by Weaver Boos

From January 2011 through February 2012, Weaver Boos was retained by the City to oversee the sampling, characterization, and proper removal and disposal of any materials impacted by

hazardous substances or petroleum encountered during the course of demolition of the former Studebaker Foundry (the former UP&V facility) and the former Studebaker Engineering Building.

All site activities and materials removed and properly disposed from the former Studebaker Foundry portion of the Site are documented in IDEM's VFC as Document Numbers 65840785 and 65539378. Documentation (i.e., maps; laboratory reports; and a summary table) for two additional USTs closed by Weaver Boos from beneath the footprint of the former Studebaker Engineering Building (Building 92) is included in Appendix R.

Additional Phase II ESA by Hull

Following receipt and evaluation of the Phase IV Demolition data collected by Weaver Boos, and in light of the fact that all previously-installed monitoring wells had been destroyed during the various stages of demolition at the Site, Hull was retained by the City to evaluate the concentrations of COCs in groundwater on-Site, and to evaluate the concentrations of COCs in soil gas on- and off-Site. This phase of assessment was completed in several stages as discussed below.

Because of the relatively long period of time that had passed, and in consideration of the accumulation of additional data on the distribution of COCs in soil across the Site, since groundwater was last sampled at the Site, Hull recommended the installation of temporary groundwater sampling points across the Site. The primary objective of this temporary sampling event was to cost-effectively define the distribution of COCs in groundwater prior to installing a network of monitoring wells at the Site.

Prior to the commencement of any field sampling activities, because the Site is a large open parcel of land (with some road and infrastructure construction occurring generally in the southern third of the Site) with few remaining points of reference, Hull obtained coordinates of prior or known existing locations where soil and/or groundwater impacts had been identified during the assessment or remedial activities described above. These coordinates were then provided to Wightman-Petrie, who in turn surveyed and staked all requested points. The temporary sampling points are shown on Figure 5.

From April 17 through April 24, 2012, Hull directed its drilling subcontractor, D&T Drilling Company of Osceola, IN (D&T), to install temporary sampling points using direct-push

technologies (e.g., a ST-15 Hydropunch) to a shallow depth (i.e., 26 to 30 feet below ground surface (bgs)), an intermediate depth of approximately 35 to 39 feet bgs, and a deeper depth of approximately 45 to 49 feet bgs at each of fourteen (14) locations. At eight (8) additional locations, temporary screens were advanced to the shallow and intermediate depths only. The locations may have been adjusted slightly in the field based on field observations such as utility locations, etc.

At each location where groundwater sampling was conducted, the borehole was initially advanced to the deeper depth (i.e., between approximately 45 and 49 feet bgs), at which point the outer casing of the sampling system was withdrawn to expose a four foot long stainless steel wire wrapped screen. Once the screen was exposed, Hull measured the static water level and lowered a decontaminated *Waterra* foot-valve sampling pump to purge the equivalent of five well volumes of water to develop the aquifer surrounding the screen. Following extraction of each well volume, Hull measured pH, temperature and conductivity to demonstrate that representative groundwater was being sampled. After development, the temporary well was allowed rest for approximately 20 minutes prior to sample collection. Following purging, Hull collected groundwater samples that were pumped through tubing with a bladder pump at a flow rate of less than 100 ml/min. Samples were transferred directly into laboratory-preserved sample containers and placed on ice in a cooler.

Following collection of each sample, Hull retrieved and decontaminated the *Waterra* foot-valve pump and bladder pump by washing it with *Alconox* and water and rinsing it with deionized water. In addition, the sample tubing was replaced between each sampling interval.

The groundwater samples in the shallow and intermediate portions of the aquifer were collected by installing the screen to the appropriate depth and purging and collecting a groundwater sample as described above. The process for purging and collecting the shallow and intermediate groundwater samples were completed as described above. Between each of the sampling locations, the drilling rods and well screen were decontaminated by washing with *Alconox* and water solution and rinsing with deionized water.

Samples were then submitted to Pace Analytical Laboratories in Indianapolis, Indiana (Pace) for analyses based on the COCs identified at each location. Samples were analyzed for varied combinations of VOCs in accordance with EPA Method 8260; SVOCs in accordance with EPA

Method 8270/8270 SIM; total RCRA metals in accordance with EPA Method 6010/7470; dissolved RCRA metals in accordance with EPA Method 6010/7470; and/or PCBs in accordance with EPA Method 8082. Laboratory analytical results of concentrations of VOCs in groundwater collected from the temporary sampling points are summarized in Table 2. Laboratory analytical results of concentrations of metals, PCBs, and SVOCs in groundwater collected from the temporary sampling points are summarized in Table 3. Copies of the laboratory analytical reports are included in Appendix S.

Laboratory results from the temporary groundwater sampling event are shown on Figures 5 (VOCs) and 6 (metals, PCBs, and SVOCs). In general, the plume of chlorinated VOCs previously identified by prior assessment activities is still apparent from the southwest corner to the northeast corner of the Site (near the intersection of Franklin and Sample Streets). The distribution of chlorinated VOCs observed in the temporary sampling event served as the basis for the installation of a permanent monitoring well network as discussed below.

Limited concentrations of the SVOC benzo(a)anthracene and total (i.e., from unfiltered samples) arsenic and lead were detected. PCBs were not detected in groundwater at any location. Additional assessment of metals, SVOCs or PCBs did not factor into the design of the permanent monitoring well network discussed below.

Based on the results of the temporary sampling event, a network of permanent monitoring wells was designed to evaluate the distribution of chlorinated VOCs in groundwater underlying the Site. In consideration of future redevelopment plans for the planned Ignition Park, Hull was required to place the permanent monitoring wells within planned future rights-of-way. The locations of the permanent monitoring wells are shown on Figure 7, and generally follow the pattern of chlorinated VOCs observed in the temporary sampling event.

From May 21, 2012 through May 31, 2012, eight nested sets of monitoring wells were installed at the Site by D&T under the direction of Hull. A qualified Hull employee observed the well installation and logged the deepest continuously-sampled well at each location. The nested wells were installed at a deep interval (roughly 40 to 50 feet below ground surface (bgs)); an intermediate interval (roughly 30 to 40 feet bgs); and a shallow interval (roughly 20 to 30 feet bgs) at each location. At certain locations, particularly those downgradient, where it was more appropriate to evaluate the upper portions of the saturated zone (because the potentially

complete vapor intrusion pathway is the primary driver of risk at the Site), only the installation of wells to the shallow and intermediate intervals was completed. Soil boring logs and monitoring well construction diagrams for the newly-installed permanent monitoring wells are included in Appendix A.

Monitoring wells were constructed of Schedule 40 PVC slotted screens and risers. Once the targeted depth was reached, the well column was slowly lowered to the base of the borehole. A clean silica quartz sand filter pack was placed around the screen and extended no more than two feet above the top of the screen. Sodium bentonite chips or pellets were then placed on top of the sand pack. Above the chips or pellets, a thick bentonite slurry was pumped into the annular space using a tremie pipe to a depth of approximately three feet below ground surface. The remaining three feet were filled with concrete to anchor an above-ground (i.e., "stick-up") protective casing.

Monitoring wells were developed following installation to remove fines that may have entered the well screen or filter pack during installation. Well development activities continued until pH, temperature, and conductivity stabilized for three consecutive well volumes, or until five well volumes were removed, whichever was greater. Development waters were collected and stored in a DOT approved 55-gallon drum. Following installation, the ground elevation, top-of-casing elevation, and coordinates of each monitoring well were surveyed by Wightman Petrie.

Based on the detection of chlorinated VOCs in groundwater at the downgradient Site perimeter (i.e., near the intersection of Franklin and Sample Streets) at concentrations exceeding groundwater to indoor air screening levels, and under the assumption that the groundwater to indoor air exposure pathway will likely drive any remedial and/or monitoring approach recommended in the forthcoming RWP for the Site, Hull recommended sampling soil gas from the vadose zone along the rights-of-way of Sample and Franklin Streets to evaluate whether any existing or future groundwater to indoor air exposure pathway is potentially complete.

The soil gas sampling point installation was conducted using a direct push drilling unit (i.e., Geoprobe™ unit) by D&T, under the supervision of Hull. Soil borings were logged continuously to a depth of approximately 14 feet at each location and screened with a photoionization detector (PID) during installation. Soil cuttings, acetate liners, gloves, etc. were containerized in a drum onsite.

After logging, a small diameter stainless steel screen of approximately 12 inches in length, connected to a piece of flexible tubing of sufficient length to extend above ground surface and allow for sample collection, was emplaced in the borehole. The borehole surrounding the screen was filled with appropriately sized sand pack to a depth of six to 12 inches above the top of the screen. A hydrated bentonite seal was placed above the sand pack. A second shallow sampling point was similarly installed to a depth of approximately eight feet at each sampling location. The locations were sampled concurrently with the newly-installed monitoring wells as discussed below.

Groundwater samples were then collected from all newly installed monitoring wells and submitted to the laboratory for VOC analyses in accordance with U.S. EPA Method 8260.

Prior to sampling, the monitoring wells were purged until pH, temperature, and conductivity measurements stabilized, or until three well volumes were removed, whichever was greater. Following purging, groundwater was collected using low-flow methods and transferred to laboratory-preserved sample containers at rate of less than 100 ml/min and placed on ice in a cooler.

Duplicate samples were collected at randomly selected monitoring well locations. Field/equipment blanks were also collected and submitted along with a trip blank for analysis as part of QA/QC of field procedures. Purge and decontamination waters were collected and stored in U.S. DOT-approved 55-gallon drums.

Approximately 24 to 48 hours following installation of the soil vapor probes, each sampling port was purged in accordance with IDEM's Remediation Closure Guide, and a sample was collected via vacuum through a time-weighted flow regulator into a 6-L stainless steel *Summa* canister. One duplicate was also collected. The sealed soil gas samples were analyzed for volatile organic compounds (VOCs) by EPA Method TO-15.

All soil cuttings, purge water, and development water generated during the temporary and permanent drilling activities were appropriately disposed of following receipt of a "contained-in" determination letter from IDEM dated July 17, 2012.

Laboratory analytical results of the groundwater samples collected from the permanent monitoring wells are presented in Table 4 and detections are summarized on Figure 7. Groundwater elevation data, including top-of-casing elevations of the newly-installed monitoring wells are presented in Table 5. The piezometric surfaces as measured in the shallow and intermediate monitoring wells on June 5, 2012 are shown on Figures 8 and 9, respectively. Laboratory analytical reports for all permanent monitoring well and soil gas sampling events are included in Appendix T.

Results of the groundwater and soil gas sampling conducted to that point were then discussed at a July 12, 2012 meeting between the City, the City's outside counsel, IDEM, and Hull. Upon consideration of the distribution of VOCs in groundwater and soil gas at that meeting, it was agreed that additional off-Site assessment of potentially complete exposure pathways would be completed immediately. Accordingly, Hull installed four additional nested soil gas sampling points north of the St. Joseph County Jail, within City right-of-way west of Lafayette Street along an access road to a City garage, at the locations shown on Figure 10. The installation procedures for these nested soil gas sampling points were identical to those described above for the on-Site soil gas sampling points.

The results of the on- and off-site soil gas sampling event are presented in Table 6. Note that results are compared to IDEM RCG screening levels for a residential indoor air exposure, adjusted by a 0.01 attenuation factor to account for the fact that soil gas was sampled. Soil gas sample results that exceed the adjusted residential screening levels are shown on Figure 10.

Due to the compressed timeline to complete the off-Site soil gas assessment, access to the County's property (i.e., the jail) south of the jail could not be gained. However, the City is aware of the construction and configuration of the jail's HVAC system and is in the process of securing documentation that the HVAC system is a positive-pressure configuration that would preclude the migration of vapors into indoor air within the jail. This documentation will be provided to IDEM as soon as it is received.

Additionally, the City agreed to evaluate the potential use of groundwater upgradient (i.e., southwest) of the Site. A water well search of Indiana Department of Natural Resources (IDNR) well records was conducted of the corridor along Indiana Avenue south and southwest of the Site, and the surrounding ¼-mile of this corridor. No record of known wells was found. Further,

Hull was provided with a record of City water service within this corridor from the City's Geographic Information System. Although many of the homes and small businesses have been demolished, several remain. Hull verified that those remaining residences and businesses have active City water service accounts. Hull also conducted a walking survey of the remaining properties and did not note any evidence of any type of small domestic well that may be used for gardening or similar activities. Documentation of the off-Site research is included in Appendix U.

2.2.2 Ecological Assessment Results

The Site is located within the City of South Bend corporate limits in an urban (commercialized and residential) area. The stormwater runoff over the Site is largely controlled by the Site's internal drainage system. Stormwater collected by this system is then diverted to the City's combined sanitary and storm sewer system. The nearest surface water body is the St. Joseph River, which is located approximately 1.5 miles northeast of the Site. Based on relatively low concentrations of COCs in Site surface soils and the distance to which COCs in groundwater must travel before discharging (i.e., the St. Joseph River), potential threats to terrestrial and aquatic wildlife are limited.

There are no wetland areas, riparian areas, or other environmentally sensitive areas on, or adjacent to the Site. The locations of floodplain and wetland areas are described and mapped in the Phase I ESA Report. There does not appear to be threat to the local wildlife or potential endangered species.

2.2.3 Baseline Hydrogeological Assessment Results

Based on the geologic information collected from the continuously sampled soil borings and monitoring wells during the Initial Phase II ESA, the Site is underlain by brown fine to medium sand with traces of silt and clay. The geologic conditions are illustrated on the generalized geologic cross sections A-A', B-B', C-C' D-D' shown on Figure 10, 11, 12, and 13, respectively, in the Initial Phase II ESA Report. Detailed descriptions of the unconsolidated materials encountered at each location are included on the Soil borings logs provided in Appendix A in the Initial Phase II ESA Report.

As shown on the geologic cross-sections and described on the soil boring/monitoring well logs, the vadose zone ranges in thickness from approximately 20 to 27 ft. Soil samples collected

from this zone were described in the field as predominantly brown fine to medium sand with a trace of gravel and fines (silt and clay). Soil samples submitted to the geotechnical laboratory for grain-size distribution analysis indicate that materials in this zone are primarily classified as SP in accordance with Unified Soil Classification System (USCS), and are described as brown poorly sorted sands with trace to some gravel and trace to little fines.

Selected samples were also submitted to the analytical laboratory for total organic carbon (TOC) analysis – Walkley Black Method. The results of this analysis indicate that the TOC in vadose zone ranges from 0.036% to 0.18% with an average of 0.072%. This range and average appears to be typical of soil types encountered at the Site.

The unconsolidated aquifer ranges in thickness from approximately 40 ft. to greater than 100 ft. As with the vadose zone, the aquifer material was described in the field as predominantly a brown fine to medium sand with secondary percentage gravel and fines. The aquifer was also noted to contain relatively thin layers of sand and gravel and silty sand. These zones were determined to be isolated based on the fact that they were typically not encountered in adjacent soil borings/monitoring wells. These units are considered minor in terms of the overall hydraulics of the aquifer system.

Beneath the aquifer, a lower confining layer was encountered at all locations, except HMW-22D and HMW-28D. Where present, the layer was described in the field as either a very dense, damp, silt or a hard, damp, silty clay. As shown on Figure 14 in the Initial Phase II ESA Report, the top of this unit was encountered at elevations ranging from 631.1 ft. (USGS) at HMW-32D to 678.3 ft. at HMW-21D. Review of the Figure 14 in the Initial Phase II ESA Report suggests that this surface is likely an erosional surface that was created by fluvial activities prior to the depositional of the unconsolidated aquifer.

Extremely fast recovery rates limited the ability of field personnel to conduct slug tests within monitoring wells. Published hydraulic conductivity values from laboratory analyses indicate a range of conductivity values from 10^{-3} to 10^{-4} cm/sec for well-sorted sands/glacial outwash (Fetter, 1994). Single well pumping tests may need to be completed to further characterize the hydraulic conductivity of the aquifer.

Static water levels from selected monitoring wells were used to evaluate the groundwater flow conditions in the upper and lower portions of the unconsolidated aquifer. These water levels were collected prior to groundwater sampling event. As shown on Figures 15 and 16 contained in the Initial Phase II ESA Report, groundwater flow in upper and lower portions of the aquifer is to the northeast at a hydraulic gradient of 0.0007 ft/ft. The highly variable nature of the lower confining units does not appear to significantly affect the groundwater flow regime in the lower portion of the aquifer.

3.0 ADDITIONAL ASSESSMENT PLAN

3.1 Additional Off-Site Field Investigation

Additional off-Site downgradient delineation of the distribution of chlorinated VOCs is necessary. The City proposes to conduct a groundwater characterization strategy similar to that employed during the most recent groundwater characterization: temporary sampling followed by installation of permanent monitoring wells. As presented above, and consistent with IDEM's RCG, because the potentially complete groundwater to indoor air exposure pathway will likely ultimately dictate the remedy selected for the Site, sampling of only the uppermost saturated zone will be required. In general the scope of work will be conducted as follows:

1. Installation of four to eight pairs (installed in an iterative process as discussed below) of shallow temporary groundwater sampling points within the ROW in the commercial/industrial areas north of the Site;
2. Collection of groundwater samples from the temporary groundwater sampling points for the analysis of VOCs by U.S. EPA Method 8260;
3. Following receipt of the results of laboratory analyses of the groundwater samples collected from the temporary sampling points, and upon confirmation that the downgradient distribution of chlorinated VOCs has been defined, installation of nested pairs of monitoring wells located within the commercial/industrial areas; and
4. Collection of groundwater samples from the permanent nested monitoring wells and submittal for laboratory analyses of VOCs in accordance with U.S. EPA Method 8260.

Temporary groundwater sampling will be conducted within City rights-of-way along the axis of the known plume, generally between the northeast corner of the Site (i.e., at the intersection of Sample and Lafayette Streets) and the location of the library north-northeast of the Site as shown on Figure 1. Temporary sampling will be conducted as described above in the most recent groundwater sampling event; laboratory analytical results will be requested within 24-48 hours of collection to allow for timely decisions on the necessity of installing additional temporary sampling points further downgradient. Once the downgradient extent of chlorinated VOCs has been defined, permanent monitoring wells will be installed at or in the immediate vicinity of the temporary sampling points.

Although it is acknowledged that the downgradient sampling location proposed is relatively large and vague, Hull and the City's Redevelopment Commission have experience (at the nearby

Oliver site) working with the City's Board of Public Works to determine rights-of-way that are favorable (in terms of access, traffic patterns, and other similar characteristics) for installation of temporary and permanent sampling points.

Once the downgradient extent of chlorinated VOCs is defined through sampling of a permanent monitoring well network, the City will evaluate the necessity to conduct vapor intrusion sampling (to include exterior soil gas, sub-slab, or indoor air sampling) and complete said sampling as appropriate and feasible.

3.2 Schedule

As agreed to in correspondence dated August 1, 2012 from the City, a final RWP will be submitted to the City by January 15, 2013, subject to a reasonably timely review of this Summary and agreement from IDEM on the approach to complete off-Site downgradient delineation of chlorinated VOCs. Based on this assumption, it is estimated that temporary sampling can be scheduled in early October 2012. Temporary sampling can feasibly be completed within one to two weeks. Installation of permanent monitoring wells can be completed within another one to two weeks. Assuming that concentrations of chlorinated VOCs downgradient of the Site have attenuated sufficiently such that off-Site vapor sampling will not be required, it is reasonable to assume that all field work and data collection can be completed by the end of November 2012. Given these assumptions, the City maintains that a January 15, 2013 deadline to propose a final RWP is reasonable and attainable.

TABLES

**COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA**

TABLE 1

**SAMPLE NAMES, LOCATIONS, AND SURVEY POINTS
FOR STUDEBAKER STAMPING PLANT DEMOLITION PHASE 1**

Laboratory Report Date	Laboratory Report File Name	Amereco Sample #	Survey Point #	Additional Notation
11/13/2006	06090249 (Amereco)-Level 4	86-10	5368	2nd description not listed
11/13/2006	06090249 (Amereco)-Level 4	86-10	5368	
12/4/2006	06080217 (Amereco)-Level 4	86WRR001	5445	soil sample 86wrr01
12/4/2006	06080217 (Amereco)-Level 4	86WRR002	5446	soil sample 86wrr01
12/4/2006	06080217 (Amereco)-Level 4	86WRR003	5447	soil sample 86wrr01
12/4/2006	06080217 (Amereco)-Level 4	86WRR004	5449	soil sample 86wrr01
12/4/2006	06080217 (Amereco)-Level 4	86WRR005	5450	soil sample 86wrr01
1/8/2007	06050815 (Amereco)-Level 4	01-A	5185	soil sample 1a
1/8/2007	06050815 (Amereco)-Level 4	01-A		
1/8/2007	06050815 (Amereco)-Level 4	01-B	5186	soil sample 1b
1/8/2007	06050815 (Amereco)-Level 4	01-B		
1/8/2007	06050815 (Amereco)-Level 4	01-C	5187	soil sample 1c
1/8/2007	06050815 (Amereco)-Level 4	01-C		
1/8/2007	06050815 (Amereco)-Level 4	01-D	5188	soil sample 1d
1/8/2007	06050815 (Amereco)-Level 4	01-D		
1/8/2007	06050815 (Amereco)-Level 4	01-E	5189	soil sample 1e
1/8/2007	06050815 (Amereco)-Level 4	01-E		
1/9/2007	06060435 (Amereco)-Level 4	86-01	5369	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-01		
1/9/2007	06060435 (Amereco)-Level 4	86-02	5362	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-02		
1/9/2007	06060435 (Amereco)-Level 4	86-03	5361	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-03		
1/9/2007	06060435 (Amereco)-Level 4	86-04	5360	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-04		
1/9/2007	06060435 (Amereco)-Level 4	86-05	5363	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-05		
1/9/2007	06060435 (Amereco)-Level 4	86-06	5364	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-06		
1/9/2007	06060435 (Amereco)-Level 4	86-07	5365	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-07		
1/9/2007	06060435 (Amereco)-Level 4	86-08	5366	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-08		
1/9/2007	06060435 (Amereco)-Level 4	86-09	5367	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-09		
1/9/2007	06060435 (Amereco)-Level 4	86-10	5368	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-10		
1/9/2007	06060435 (Amereco)-Level 4	86-11	5359	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-11		
1/9/2007	06060435 (Amereco)-Level 4	86-12	5358	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-12		
1/9/2007	06060435 (Amereco)-Level 4	86-13	5357	soil sample 86-01
1/9/2007	06060435 (Amereco)-Level 4	86-13		
3/23/2007	06080577 (Amereco)-Level IV	80WRR001	5471	soil sample 80wrr01
3/23/2007	06080577 (Amereco)-Level IV	80WRR002	5470	soil sample 80wrr02
3/23/2007	06080577 (Amereco)-Level IV	80WRR003	5469	soil sample 80wrr03
3/26/2007	06110147 (Amereco)-Level 4	BS-01	5772	soil sample bs-01
5/7/2007	H9-27-STAT-07040733-Level 4	H9-27	9168	soil sample h9-27
5/7/2007	H9-27-STAT-07040733-Level 4	H9-28	9167	soil sample h9-28
5/7/2007	H9-27-STAT-07040733-Level 4	H9-29	9166	soil sample h9-29
5/7/2007	H9-27-STAT-07040733-Level 4	H10-30	9169	soil sample h9-30
5/7/2007	H9-27-STAT-07040733-Level 4	H10-31	9170	soil sample h9-31
5/7/2007	H9-27-STAT-07040733-Level 4	H10-32	9171	soil sample h9-32

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Laboratory Report Date	Laboratory Report File Name	Amereco Sample #	Survey Point #	Additional Notation
5/7/2007	H9-27-STAT-07040733-Level 4	H11-33	9182	soil sample h9-33
5/7/2007	H9-27-STAT-07040733-Level 4	H11-34	9181	soil sample h9-34
5/7/2007	H9-27-STAT-07040733-Level 4	H11-35	9180	soil sample h9-35
5/7/2007	H9-27-STAT-07040733-Level 4	H11-36	9180	soil sample h9-36
5/7/2007	H9-27-STAT-07040733-Level 4	78RR-01	9500	soil sample 78rr-01
5/7/2007	H9-27-STAT-07040733-Level 4	78RR-02	9501	soil sample 78rr-02
5/7/2007	H9-27-STAT-07040733-Level 4	78RR-03	9502	soil sample 78rr-03
5/7/2007	House-Lead-STAT-07040732	H1-01	9062	soil samples h1-01
5/7/2007	House-Lead-STAT-07040732	H1-02	9061	soil samples h1-02
5/7/2007	House-Lead-STAT-07040732	H1-03	9060	soil samples h1-03
5/7/2007	House-Lead-STAT-07040732	H2-04	9063	soil samples h1-04
5/7/2007	House-Lead-STAT-07040732	H2-05	9064	soil samples h1-05
5/7/2007	House-Lead-STAT-07040732	H2-06	9065	soil samples h1-06
5/7/2007	House-Lead-STAT-07040732	H3-07	9077	soil samples h1-07
5/7/2007	House-Lead-STAT-07040732	H3-08	9079	soil samples h1-08
5/7/2007	House-Lead-STAT-07040732	H3-09	9078	soil samples h1-09
5/7/2007	House-Lead-STAT-07040732	H3-010	9078	soil samples h1-10
5/7/2007	House-Lead-STAT-07040732	H4-011	9081	soil samples h1-11
5/7/2007	House-Lead-STAT-07040732	H4-012	9082	soil samples h1-12
5/7/2007	House-Lead-STAT-07040732	H4-013	9080	soil samples h1-13
5/7/2007	House-Lead-STAT-07040732	H5-014	9092	soil samples h1-14
5/7/2007	House-Lead-STAT-07040732	H5-015	9091	soil samples h1-15
5/7/2007	House-Lead-STAT-07040732	H6-016	9093	soil samples h1-16
5/7/2007	House-Lead-STAT-07040732	H6-017	9127	soil samples h1-17
5/7/2007	House-Lead-STAT-07040732	H6-018	9126	soil samples h1-18
5/7/2007	House-Lead-STAT-07040732	H6-019	9128	soil samples h1-19
5/7/2007	House-Lead-STAT-07040732	H7-020	9115	soil samples h1-20
5/7/2007	House-Lead-STAT-07040732	H7-021	9116	soil samples h1-21
5/7/2007	House-Lead-STAT-07040732	H7-022	9117	soil samples h1-22
5/7/2007	House-Lead-STAT-07040732	H8-023	9114	soil samples h1-23
5/7/2007	House-Lead-STAT-07040732	H8-024	9113	soil samples h1-24
5/7/2007	House-Lead-STAT-07040732	H8-025	9112	soil samples h1-25
5/7/2007	House-Lead-STAT-07040732	H8-026	9112	soil samples h1-26
5/7/2007	House-Lead-STAT-07040732	78TA-001	9136	soil samples 78ta-01/02
5/7/2007	House-Lead-STAT-07040732	78TA-002	9136	soil samples 78ta-01/02
5/7/2007	House-Lead-STAT-07040732	78TA-003	9135	soil samples 78ta-03
5/7/2007	House-Lead-STAT-07040732	78TA-004	9153	soil samples 78ta-04
5/7/2007	House-Lead-STAT-07040732	78TA-005	9130	soil samples 78ta-05
5/7/2007	House-Lead-STAT-07040732	78TA-006	9129	soil samples 78ta-06
5/7/2007	House-Lead-STAT-07040732	78TA-007	9133	soil samples 78ta-07
5/7/2007	House-Lead-STAT-07040732	78TA-008	9131	soil samples 78ta-08
5/7/2007	House-Lead-STAT-07040732	78TA-009	9132	soil samples 78ta-09
5/7/2007	House-Lead-STAT-07040732	78TA-010	9134	soil samples 78ta-10
5/18/2007	06080575 (Amereco)-Level 4	86-06	5364	2nd description not listed
5/18/2007	06080575 (Amereco)-Level 4	86-07	5365	2nd description not listed
5/18/2007	06080575 (Amereco)-Level 4	86-08	5366	2nd description not listed
5/18/2007	06080575 (Amereco)-Level 4	86-09	5367	2nd description not listed
5/18/2007	06080575 (Amereco)-Level 4	86-10	5368	2nd description not listed
5/18/2007	06080575 (Amereco)-Level 4	86-13	5357	2nd description not listed
5/18/2007	06080575 (Amereco)-Level 4	86-14	5467	soil sample 86-14
5/18/2007	06080575 (Amereco)-Level 4	86-15	5468	soil sample 86-15
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-01	5242	soil sample s01
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-02	5241	soil sample s02

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Laboratory Report Date	Laboratory Report File Name	Amereco Sample #	Survey Point #	Additional Notation
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-03	5243	soil sample s03
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-04	5240	soil sample s04
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-05	5244	soil sample s05
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-06	5238	soil sample s06
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-07	5237	soil sample s07
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-08	5239	soil sample s08
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-09	5236	soil sample s09
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-10	5251	soil sample s10
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-11	5257	soil sample s11
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-12	5252	soil sample s12
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-13	5255	soil sample s13
6/1/2007	UST NW Building 86-STAT-06110311-Level 4	S-14	5254	soil sample s14
6/18/2007	79CT-STAT-07010615- Level 4	79CT01	6270	soil sample s-79ct01
6/18/2007	79CT-STAT-07010615- Level 4	79CT02	6271	soil sample s-79ct02
6/18/2007	79CT-STAT-07010615- Level 4	79CT03	6272	soil sample s-79ct03
6/18/2007	80IRR-STAT-0701616-Level 4	80IRR01	6273	soil sample s-80i rr 01
6/18/2007	80IRR-STAT-0701616-Level 4	80IRR02	6274	soil sample s-80i rr 02
6/18/2007	80IRR-STAT-0701616-Level 4	80IRR03	6275	soil sample s-80i rr 03/04
6/18/2007	80IRR-STAT-0701616-Level 4	80IRR04	6275	soil sample s-80i rr 03/04
6/18/2007	06100508 (Amereco)-Level 4	1019068613	5357	2nd description not listed
6/18/2007	06100508 (Amereco)-Level 4	1019068613	5357	
6/18/2007	06100508 (Amereco)-Level 4	1019068615	5468	2nd description not listed
6/19/2007	80P-STAT-07020136-Level 4	80P02	6367	soil sample 80p02
6/19/2007	80P-STAT-07020136-Level 4	80P03	6387	soil sample 80p03
6/19/2007	80P-STAT-07020136-Level 4	80P04	6372	soil sample 80p04
6/19/2007	80P-STAT-07020136-Level 4	80P05	6377	soil sample 80p05
6/19/2007	80P-STAT-07020136-Level 4	80P06	6382	soil sample 80p06-07
6/19/2007	80P-STAT-07020136-Level 4	80P07	6382	soil sample 80p06-07
6/19/2007	80P-STAT-07020136-Level 4	830RR02	6389	soil sample 83orr02
6/19/2007	ACP10-STAT-07020024-Level 4	80P01	6293	soil sample 80p01
6/19/2007	ACP10-STAT-07020024-Level 4	83IRR01	6300	soil sample 83irr01
6/19/2007	ACP10-STAT-07020024-Level 4	83IRR02	6301	soil sample 83irr 02/03
6/19/2007	ACP10-STAT-07020024-Level 4	80V01	6292	soil sample 80v01
6/19/2007	ACP10-STAT-07020024-Level 4	83IRR03	6301	soil sample 83irr 02/03
6/30/2007	06110751 (Amereco)-Level 4	S001	6016	soil sample s-001
6/30/2007	06110751 (Amereco)-Level 4	S002	6017	soil sample s-002
6/30/2007	06110751 (Amereco)-Level 4	S003	6018	soil sample s-003
6/30/2007	06110751 (Amereco)-Level 4	S004	6034	soil sample s-004
6/30/2007	06110751 (Amereco)-Level 4	S005	6036	soil sample s-005
6/30/2007	06110751 (Amereco)-Level 4	S006	6037	soil sample s-006
6/30/2007	06110751 (Amereco)-Level 4	S010	5251	
7/5/2007	71ET-STAT-07010320 (Amereco) Level 4	71ET01	6247	soil sample 71et01
7/5/2007	71ET-STAT-07010320 (Amereco) Level 4	71ET02	6248	soil sample 71et02
7/5/2007	71ET-STAT-07010320 (Amereco) Level 4	71ET03	6249	soil sample 71et01
7/5/2007	71ET-STAT-07010320 (Amereco) Level 4	71ET04	6249	soil sample 71et02
7/5/2007	71ET-STAT-07010320 (Amereco) Level 4	71ET05	6268	soil sample 71et01
7/5/2007	71ET-STAT-07010320 (Amereco) Level 4	71ET06	6250	soil sample 71et02
7/5/2007	78-TRS-STAT-07050665 (Amereco) Level 4	78-TRS-01S	10774	sb/t8trs-01s
7/5/2007	78-TRS-STAT-07050665 (Amereco) Level 4	78-TRS-02S	10775	sb/t8trs-02s
7/5/2007	78-TRS-STAT-07050665 (Amereco) Level 4	78-TRS-03S	10776	sb/t8trs-03s&4s
7/5/2007	78-TRS-STAT-07050665 (Amereco) Level 4	78-TRS-04S	10776	sb/t8trs-03s&4s
7/9/2007	OS-001C-06120562-Level 4	OS-001C	10731	sb/os001c
7/26/2007	H9-27-STAT-07040733-Level 4	H9-27	9168	soil sample h9-27

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Laboratory Report Date	Laboratory Report File Name	Amereco Sample #	Survey Point #	Additional Notation
7/26/2007	H9-27-STAT-07040733-Level 4	H9-28	9167	soil sample h9-28
7/26/2007	H9-27-STAT-07040733-Level 4	H9-29	9166	soil sample h9-29
7/26/2007	H9-27-STAT-07040733-Level 4	H10-30	9169	soil sample h9-30
7/26/2007	H9-27-STAT-07040733-Level 4	H10-31	9170	soil sample h9-31
7/26/2007	H9-27-STAT-07040733-Level 4	H10-32	9171	soil sample h9-32
7/26/2007	H9-27-STAT-07040733-Level 4	H11-33	9182	soil sample h9-33
7/26/2007	H9-27-STAT-07040733-Level 4	H11-34	9181	soil sample h9-34
7/26/2007	H9-27-STAT-07040733-Level 4	H11-35	9180	soil sample h9-35
7/26/2007	H9-27-STAT-07040733-Level 4	H11-36	9180	soil sample h9-36
7/26/2007	H9-27-STAT-07040733-Level 4	78RR-01	9500	soil sample 78rr-01
7/26/2007	H9-27-STAT-07040733-Level 4	78RR-02	9501	soil sample 78rr-02
7/26/2007	H9-27-STAT-07040733-Level 4	78RR-03	9502	soil sample 78rr-03
8/1/2007	831RR-04STAT-07030534-Level 4	83IRR-04	7954	soil sample 83irr-04
8/1/2007	831RR-04STAT-07030534-Level 4	83IRR-05	7955	soil sample 83irr-05
8/1/2007	831RR-04STAT-07030534-Level 4	83ORR-03	7957	soil sample 83orr-03
8/1/2007	831RR-04STAT-07030534-Level 4	83ORR-04	7956	soil sample 83-orr-04
8/1/2007	831RR-04STAT-07030534-Level 4	80-P-08	7953	soil sample 80-p-8
8/1/2007	831RR-04STAT-07030534-Level 4	80-P-09	7952	soil sample 80-p-9/10
8/1/2007	831RR-04STAT-07030534-Level 4	80-P-10	7952	soil sample 80-p-9/10
8/1/2007	831RR-04STAT-07030534-Level 4	80-P-11	7951	soil sample 80-p-11
8/1/2007	831RR-04STAT-07030534-Level 4	80-P-12	7950	soil sample 80-p-12
8/23/2007	79CTCS-STAT-07020340-Level 4	79CTCS-001	6664	soil sample 79ctcs001
8/23/2007	79CTCS-STAT-07020340-Level 4	79CTCS-002	6665	soil sample 79ctcs002/03
8/23/2007	79CTCS-STAT-07020340-Level 4	79CTCS-003	6665	soil sample 79ctcs002/03
8/23/2007	79CTCS-STAT-07020340-Level 4	79CTCS-004	6666	soil sample 79ctcs004
8/23/2007	79CTCS-STAT-07020340-Level 4	79CTCS-005	6667	soil sample 79ctcs005
8/23/2007	79CTCS-STAT-07020340-Level 4	79CTCS-006	6668	soil sample 79ctcs006

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TABLE 2

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - VOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB1S	HTB1S	HTB1I	HTB2S	HTB2I	HTB3S	HTB3I	HTB4S	HTB4I	HTB5S
			SBI067:HTB1:G260300	SBI067:HTB1:G260300A ^b	SBI067:HTB1:G350390	SBI067:HTB2:G260300	SBI067:HTB2:G350390	SBI067:HTB3:G260300	SBI067:HTB3:G350390	SBI067:HTB4:G260300	SBI067:HTB4:G350390	SBI067:HTB5:G260300
			4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012
VOCs (Method EPA 8260)												
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trimethyl-benzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Isopropylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Naphthalene	1216	4088	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5	56.1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	1000	20440	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Trichloroethene	5	260	<5	5.5^c	5	7.4	7.5	<5	<5	<5	<5	6.4
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

a. NS - no standard
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 2

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - VOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB5S	HTB5I	HTB6S	HTB6I	HTB7S	HTB7S	HTB7I	HTB8S	HTB8I	HTB8D
			SBI067:HTB5:G260300A 4/20/2012	SBI067:HTB5:G350390 4/20/2012	SBI067:HTB6:G260300 4/19/2012	SBI067:HTB6:G350390 4/19/2012	SBI067:HTB7:G260300 4/19/2012	SBI067:HTB7:G260300A 4/19/2012	SBI067:HTB7:G350390 4/19/2012	SBI067:HTB8:G260300 4/23/2012	SBI067:HTB8:G350390 4/23/2012	SBI067:HTB8:G450490 4/23/2012
VOCs (Method EPA 8260)												
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trimethyl-benzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Isopropylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Naphthalene	1216	4088	<5	<5	<5	7.4	<5	<5	<5	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5	56.1	<5	<5	<5	<5	<5	<5	<5	77.6	71	15.9
Toluene	1000	20440	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Trichloroethene	5	260	5.8	6.4	<5	<5	5	7.9	5.2	<5	<5	<5
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

a. NS - no standard
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 2

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - VOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB9S	HTB9I	HTB9D	HTB10S	HTB10I	HTB10D	HTB11S	HTB11I	HTB11D	HTB12S
			SBI067:HTB9:G260300 4/18/2012	SBI067:HTB9:G350390 4/18/2012	SBI067:HTB9:G450490 4/18/2012	SBI067:HTB10:G260300 4/23/2012	SBI067:HTB10:G350390 4/23/2012	SBI067:HTB10:G450490 4/23/2012	SBI067:HTB11:G260300 4/24/2012	SBI067:HTB11:G350390 4/24/2012	SBI067:HTB11:G450490 4/24/2012	SBI067:HTB12:G260300 4/23/2012
VOCs (Method EPA 8260)												
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	8	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trimethyl-benzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Isopropylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Naphthalene	1216	4088	6	<5	6.4	<5	<5	<5	<5	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5	56.1	<5	6.5	5	8	<5	<5	6.9	<5	<5	<5
Toluene	1000	20440	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Trichloroethene	5	260	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

a. NS - no standard
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 2

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - VOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB12S	HTB12I	HTB12D	HTB13S	HTB13I	HTB13I	HTB13D	HTB14S	HTB14I	HTB14D
			SBI067:HTB12:G260300A 4/23/2012	SBI067:HTB12:G350390 4/23/2012	SBI067:HTB12:G450490 4/23/2012	SBI067:HTB13:G260300 4/24/2012	SBI067:HTB13:G350390 4/24/2012	SBI067:HTB13:G350390A 4/24/2012	SBI067:HTB13:G450490 4/24/2012	SBI067:HTB14:G260300 4/20/2012	SBI067:HTB14:G350390 4/20/2012	SBI067:HTB14:G450490 4/20/2012
VOCs (Method EPA 8260)												
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trimethyl-benzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	<5	7.4	<5	<5	<5	<5	<5	<5	19.7	<5
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Isopropylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Naphthalene	1216	4088	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5	56.1	<5	<5	23.4	40.9	447	579	138	<5	<5	<5
Toluene	1000	20440	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Trichloroethene	5	260	<5	10.3	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

a. NS - no standard
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 2

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - VOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB15S	HTB15I	HTB15D	HTB16S	HTB16I	HTB16D	HTB17S	HTB17I	HTB18S	HTB18I
			SBI067:HTB15:G260300 4/23/2012	SBI067:HTB15:G350390 4/23/2012	SBI067:HTB15:G450490 4/23/2012	SBI067:HTB16:G260300 4/24/2012	SBI067:HTB16:G350390 4/24/2012	SBI067:HTB16:G450490 4/24/2012	SBI067:HTB17:G260300 4/19/2012	SBI067:HTB17:G350390 4/19/2012	SBI067:HTB18:G260300 4/19/2012	SBI067:HTB18:G350390 4/19/2012
VOCs (Method EPA 8260)												
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trimethyl-benzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	5.5	<5	<5	<5	<5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Isopropylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Naphthalene	1216	4088	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	<5	<5	<5	8.8	<5	<5	<5	<5	<5	<5
Styrene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5	56.1	76	616	95.3	20.1	206	6	<5	<5	<5	<5
Toluene	1000	20440	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Trichloroethene	5	260	<5	<5	<5	54.1	9.2	<5	8.2	7.3	<5	<5
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

a. NS - no standard
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 2

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - VOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB18D	HTB19S	HTB19I	HTB19D	HTB20S	HTB20I	HTB20I	HTB20D	HTB21S	HTB21I
			SBI067:HTB18:G450490 4/19/2012	SBI067:HTB19:G260300 4/17/2012	SBI067:HTB19:G350390 4/17/2012	SBI067:HTB19:G450490 4/17/2012	SBI067:HTB20:G260300 4/18/2012	SBI067:HTB20:G350390 4/18/2012	SBI067:HTB20:G350390A 4/18/2012	SBI067:HTB20:G450490 4/18/2012	SBI067:HTB21:G260300 4/18/2012	SBI067:HTB21:G350390 4/18/2012
VOCs (Method EPA 8260)												
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trimethyl-benzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25	<25	27.4	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5	<5	6.4	6.1	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	<5	<5	13.7	13	5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	<5	<5	<5	<5	<5	14.5	13.7	<5	<5	6.8
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexane	NS	NS	<5	<5	<5	<5	62.2	254	231	49.9	<5	15.9
Isopropylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
Naphthalene	1216	4088	<5	<5	<5	<5	<5	7.9	8	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	18	16.9	<5	<5	<5
Styrene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5	56.1	<5	<5	<5	<5	38.8	<5	<5	8.6	82.8	102
Toluene	1000	20440	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Trichloroethene	5	260	<5	<5	<5	<5	<5	<5	<5	8	7.5	16.2
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2	6.7	6.1	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10

a. NS - no standard
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 2

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - VOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB21D	HTB22S	HTB22I	HTB22D
			SBI067:HTB21:G450490 4/18/2012	SBI067:HTB22:G260300 4/24/2012	SBI067:HTB22:G350390 4/24/2012	SBI067:HTB22:G450490 4/24/2012
VOCs (Method EPA 8260)						
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5
1,2,4-Trimethyl-benzene	NS	NS	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	115	<5	<5	<5
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5
Hexane	NS	NS	<5	<5	<5	<5
Isopropylbenzene	NS	NS	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4
Naphthalene	1216	4088	<5	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	<5	<5	<5	<5
Styrene	NS	NS	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5
Tetrachloroethene	5	56.1	<5	53.2	1350	970
Toluene	1000	20440	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100
Trichloroethene	5	260	6.4	<5	<5	<5
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10

a. NS - no standard
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 3

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - METALS, PCBs, CPAHs, AND SVOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB1S	HTB1S	HTB1I	HTB2S	HTB2I	HTB3S	HTB3I	HTB4S	HTB4I	HTB5S
			SBI067:HTB1:G260300	SBI067:HTB1:G260300 ^b	SBI067:HTB1:G350390	SBI067:HTB2:G260300	SBI067:HTB2:G350390	SBI067:HTB3:G260300	SBI067:HTB3:G350390	SBI067:HTB4:G260300	SBI067:HTB4:G350390	SBI067:HTB5:G260300
			4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/18/2012	4/18/2012	4/20/2012
Metals, Dissolved (Method EPA 6010/7470)												
Arsenic	50	50	NT	NT	NT	NT	NT	NT	NT	<10	<10	NT
Barium	2000	7154	NT	NT	NT	NT	NT	NT	NT	<100	<100	NT
Cadmium	5	51.1	NT	NT	NT	NT	NT	NT	NT	<5	<5	NT
Chromium	NS ^a	NS	NT	NT	NT	NT	NT	NT	NT	<10	<10	NT
Lead	15	15	NT	NT	NT	NT	NT	NT	NT	<5	<5	NT
Mercury	2	6.1	NT	NT	NT	NT	NT	NT	NT	<2	<2	NT
Selenium	50	511	NT	NT	NT	NT	NT	NT	NT	<10	<10	NT
Silver	152	511	NT	NT	NT	NT	NT	NT	NT	<50	<50	NT
Metals, Total (Method EPA 6010/7470)												
Arsenic	50	50	NT	NT	NT	NT	NT	NT	NT	<10	28	NT
Barium	2000	7154	NT	NT	NT	NT	NT	NT	NT	<100	140	NT
Cadmium	5	51.1	NT	NT	NT	NT	NT	NT	NT	<5	<5	NT
Chromium	NS	NS	NT	NT	NT	NT	NT	NT	NT	<10	100	NT
Lead	15	15	NT	NT	NT	NT	NT	NT	NT	<10	26	NT
Mercury	2	6.1	NT	NT	NT	NT	NT	NT	NT	<2	<2	NT
Selenium	50	511	NT	NT	NT	NT	NT	NT	NT	<10	<10	NT
Silver	152	511	NT	NT	NT	NT	NT	NT	NT	<50	<50	NT
PCBs (Method EPA 8082)												
Aroclor 1016	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1221	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1232	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1242	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1248	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1254	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1260	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PAHs (Method EPA 8270 by SIM)												
2-Methylnaphthalene	NS	NS	<1	<1	<1	<1.1	<1	<1.1	<1	NT	NT	<1
Acenaphthene	1824	6132	<1	<1	<1	<1.1	<1	<1.1	<1	NT	NT	<1
Acenaphthylene	NS	NS	<1	<1	<1	<1.1	<1	<1.1	<1	NT	NT	<1
Anthracene	9120	30660	<0.1	<0.1	<0.1	<0.11	<0.1	<0.11	<0.1	NT	NT	<0.1
Benzo(a)anthracene	0.1	10	<0.1	<0.1	<0.1	<0.11	<0.1	<0.11	<0.1	NT	NT	<0.1
Benzo(a)pyrene	0.2	10	<0.1	<0.1	<0.1	<0.11	<0.1	<0.11	<0.1	NT	NT	<0.1
Benzo(b)fluoranthene	0.2	10	<0.1	<0.1	<0.1	<0.11	<0.1	<0.11	<0.1	NT	NT	<0.1
Benzo(g,h,i)perylene	NS	NS	<0.1	<0.1	<0.1	<0.11	<0.1	<0.11	<0.1	NT	NT	<0.1
Benzo(k)fluoranthene	0.2	39.2	<0.1	<0.1	<0.1	<0.11	<0.1	<0.11	<0.1	NT	NT	<0.1
Chrysene	0.2	391.8	<0.52	<0.52	<0.52	<0.53	<0.51	<0.53	<0.52	NT	NT	<0.51
Dibenz(a,h)anthracene	0.3	10	<0.1	<0.1	<0.1	<0.11	<0.1	<0.11	<0.1	NT	NT	<0.1
Fluoranthene	243.2	817.6	<1	<1	<1	<1.1	<1	<1.1	<1	NT	NT	<1
Fluorene	1216	4088	<1	<1	<1	<1.1	<1	<1.1	<1	NT	NT	<1
Indeno(1,2,3-cd)pyrene	0.4	10	<0.1	<0.1	<0.1	<0.11	<0.1	<0.11	<0.1	NT	NT	<0.1
Naphthalene	1216	4088	<1	<1	<1	<1.1	<1	<1.1	<1	NT	NT	<1
Phenanthrene	NS	NS	<1	<1	<1	<1.1	<1	<1.1	<1	NT	NT	<1
Pyrene	912	3066	<1	<1	<1	<1.1	<1	<1.1	<1	NT	NT	<1
SVOCs (Method EPA 8270)												
2,4,5-Trichlorophenol	3040	10220	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
2,4,6-Trichlorophenol	10	260	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
2,4-Dichlorophenol	91.2	306.6	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
2,4-Dimethylphenol	NS	NS	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
2,4-Dinitrophenol	60.8	204.4	<52.1	<51.5	<52.1	<52.6	<50.5	<52.6	<52.1	NT	NT	<51
2,4-Dinitrotoluene	60.8	204.4	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
2,6-Dinitrotoluene	NS	NS	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
2-Chloronaphthalene	2432	8176	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
2-Chlorophenol	152	511	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
2-Methyl-4,6-dinitrophenol	NS	NS	<52.1	<51.5	<52.1	<52.6	<50.5	<52.6	<52.1	NT	NT	<51
2-Methylphenol	1520	5110	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
3 & 4 Methylphenol	NS	NS	<20.8	<20.6	<20.8	<21.1	<20.2	<21.1	<20.8	NT	NT	<20.4
3,3-Dichlorobenzidine	20	20	<20.8	<20.6	<20.8	<21.1	<20.2	<21.1	<20.8	NT	NT	<20.4
4-Bromophenyl Phenyl Ether	NS	NS	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
4-Chloro-3-methyl Phenol	NS	NS	<20.8	<20.6	<20.8	<21.1	<20.2	<21.1	<20.8	NT	NT	<20.4
4-Chloroaniline	121.6	408.8	<20.8	<20.6	<20.8	<21.1	<20.2	<21.1	<20.8	NT	NT	<20.4
4-Chlorophenyl-phenyl Ether	NS	NS	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2

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Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB1S	HTB1S	HTB1I	HTB2S	HTB2I	HTB3S	HTB3I	HTB4S	HTB4I	HTB5S
			SBI067:HTB1:G260300	SBI067:HTB1:G260300A ^b	SBI067:HTB1:G350390	SBI067:HTB2:G260300	SBI067:HTB2:G350390	SBI067:HTB3:G260300	SBI067:HTB3:G350390	SBI067:HTB4:G260300	SBI067:HTB4:G350390	SBI067:HTB5:G260300
			4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/17/2012	4/18/2012	4/17/2012	4/18/2012	4/20/2012
4-Nitroaniline	NS	NS	<52.1	<51.5	<52.1	<52.6	<50.5	<52.6	<52.1	NT	NT	<51
4-Nitrophenol	NS	NS	<52.1	<51.5	<52.1	<52.6	<50.5	<52.6	<52.1	NT	NT	<51
Benzyl Alcohol	9120	30660	<20.8	<20.6	<20.8	<21.1	<20.2	<21.1	<20.8	NT	NT	<20.4
Benzyl Butyl Phthalate	100	20440	<10.4	<10.3	<10.4	<10.3	<10.1	<10.5	<10.4	NT	NT	<10.2
Bis(2-chloro-1-methylethyl)ether	10	40.9	<5.2	<5.2	<5.2	<5.3	<5.1	<5.3	<5.2	NT	NT	<5.1
Bis(2-chloroethoxy) Methane	NS	NS	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Bis(2-chloroethyl) Ether	10	10	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Bis(2-ethylhexyl) Phthalate	6	204.3	<5.2	<5.2	<5.2	<5.3	<5.1	<5.3	<5.2	NT	NT	<5.1
Dibenzofuran	NS	NS	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Diethyl Phthalate	24320	81760	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Dimethyl Phthalate	304000	1022000	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Di-n-butyl Phthalate	608	2044	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Di-n-octyl Phthalate	608	2044	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Di-n-propylnitrosamine	10	10	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Hexachloro-1,3-butadiene	10	36.7	<5.2	<5.2	<5.2	<5.3	<5.1	<5.3	<5.2	NT	NT	<5.1
Hexachlorobenzene	1	10	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Hexachloroethane	10	20.4	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Hexachloropentadiene	50	715.4	<26	<25.8	<26	<26.3	<25.3	<26.3	<26	NT	NT	<25.5
Isophorone	89.47	3010.5	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
m-Nitroaniline	NS	NS	<52.1	<51.5	<52.1	<52.6	<50.5	<52.6	<52.1	NT	NT	<51
Nitrobenzene	15.2	51.1	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
n-Nitroso-di-phenylamine	17.35	583.7	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
o-Nitroaniline	50	50	<52.1	<51.5	<52.1	<52.6	<50.5	<52.6	<52.1	NT	NT	<51
o-Nitrophenol	NS	NS	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2
Pentachlorophenol	1	50	<52.1	<51.5	<52.1	<52.6	<50.5	<52.6	<52.1	NT	NT	<51
Phenol	3648	12264	<10.4	<10.3	<10.4	<10.5	<10.1	<10.5	<10.4	NT	NT	<10.2

Notes:

NS - No Standard

BOLD & highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

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Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB5S	HTB5I	HTB6S	HTB6I	HTB7S	HTB7S	HTB7I	HTB8S	HTB8I	HTB8D
			SBI067:HTB5:G260300A	SBI067:HTB5:G350390	SBI067:HTB6:G260300	SBI067:HTB6:G350390	SBI067:HTB7:G260300	SBI067:HTB7:G260300A	SBI067:HTB7:G350390	SBI067:HTB8:G260300	SBI067:HTB8:G350390	SBI067:HTB8:G450490
			4/20/2012	4/20/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012	4/23/2012	4/23/2012	4/23/2012
Metals, Dissolved (Method EPA 6010/7470)												
Arsenic	50	50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	2000	7154	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	5	51.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NS ^a	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	15	15	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	2	6.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Selenium	50	511	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	152	511	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Metals, Total (Method EPA 6010/7470)												
Arsenic	50	50	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	2000	7154	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	5	51.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	15	15	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	2	6.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Selenium	50	511	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	152	511	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PCBs (Method EPA 8082)												
Aroclor 1016	NS	NS	NT	NT	<0.54	<0.53	<0.53	<0.53	<0.54	NT	NT	NT
Aroclor 1221	NS	NS	NT	NT	<0.54	<0.53	<0.53	<0.53	<0.54	NT	NT	NT
Aroclor 1232	NS	NS	NT	NT	<0.54	<0.53	<0.53	<0.53	<0.54	NT	NT	NT
Aroclor 1242	NS	NS	NT	NT	<0.54	<0.53	<0.53	<0.53	<0.54	NT	NT	NT
Aroclor 1248	NS	NS	NT	NT	<0.54	<0.53	<0.53	<0.53	<0.54	NT	NT	NT
Aroclor 1254	NS	NS	NT	NT	<0.54	<0.53	<0.53	<0.53	<0.54	NT	NT	NT
Aroclor 1260	NS	NS	NT	NT	<0.54	<0.53	<0.53	<0.53	<0.54	NT	NT	NT
PAHs (Method EPA 8270 by SIM)												
2-Methylnaphthalene	NS	NS	<1	<1	NT	NT	NT	NT	NT	<1.1	<1	<1
Acenaphthene	1824	6132	<1	<1	NT	NT	NT	NT	NT	<1.1	<1	<1
Acenaphthylene	NS	NS	<1	<1	NT	NT	NT	NT	NT	<1.1	<1	<1
Anthracene	9120	30660	<0.1	<0.1	NT	NT	NT	NT	NT	<0.11	<0.1	<0.1
Benzo(a)anthracene	0.1	10	<0.1	<0.1	NT	NT	NT	NT	NT	<0.11	<0.1	<0.1
Benzo(a)pyrene	0.2	10	<0.1	<0.1	NT	NT	NT	NT	NT	<0.11	<0.1	<0.1
Benzo(b)fluoranthene	0.2	10	<0.1	<0.1	NT	NT	NT	NT	NT	<0.11	<0.1	<0.1
Benzo(g,h,i)perylene	NS	NS	<0.1	<0.1	NT	NT	NT	NT	NT	<0.11	<0.1	<0.1
Benzo(k)fluoranthene	0.2	39.2	<0.1	<0.1	NT	NT	NT	NT	NT	<0.11	<0.1	<0.1
Chrysene	0.2	391.8	<0.51	<0.52	NT	NT	NT	NT	NT	<0.53	<0.52	<0.52
Dibenz(a,h)anthracene	0.3	10	<0.1	<0.1	NT	NT	NT	NT	NT	<0.11	<0.1	<0.1
Fluoranthene	243.2	817.6	<1	<1	NT	NT	NT	NT	NT	<1.1	<1	<1
Fluorene	1216	4088	<1	<1	NT	NT	NT	NT	NT	<1.1	<1	<1
Indeno(1,2,3-cd)pyrene	0.4	10	<0.1	<0.1	NT	NT	NT	NT	NT	<0.11	<0.1	<0.1
Naphthalene	1216	4088	<1	<1	NT	NT	NT	NT	NT	<1.1	<1	<1
Phenanthrene	NS	NS	<1	<1	NT	NT	NT	NT	NT	<1.1	<1	<1
Pyrene	912	3066	<1	<1	NT	NT	NT	NT	NT	<1.1	<1	<1
SVOCs (Method EPA 8270)												
2,4,5-Trichlorophenol	3040	10220	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
2,4,6-Trichlorophenol	10	260	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
2,4-Dichlorophenol	91.2	306.6	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
2,4-Dimethylphenol	NS	NS	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
2,4-Dinitrophenol	60.8	204.4	<50.5	<52.1	NT	NT	NT	NT	NT	<53.2	<52.1	<52.1
2,4-Dinitrotoluene	60.8	204.4	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
2,6-Dinitrotoluene	NS	NS	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
2-Chloronaphthalene	2432	8176	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
2-Chlorophenol	152	511	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
2-Methyl-4,6-dinitrophenol	NS	NS	<50.5	<52.1	NT	NT	NT	NT	NT	<53.2	<52.1	<52.1
2-Methylphenol	1520	5110	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
3 & 4 Methylphenol	NS	NS	<20.2	<20.8	NT	NT	NT	NT	NT	<21.3	<20.8	<20.8
3,3-Dichlorobenzidine	20	20	<20.2	<20.8	NT	NT	NT	NT	NT	<21.3	<20.8	<20.8
4-Bromophenyl Phenyl Ether	NS	NS	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
4-Chloro-3-methyl Phenol	NS	NS	<20.2	<20.8	NT	NT	NT	NT	NT	<21.3	<20.8	<20.8
4-Chloroaniline	121.6	408.8	<20.2	<20.8	NT	NT	NT	NT	NT	<21.3	<20.8	<20.8
4-Chlorophenyl-phenyl Ether	NS	NS	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4

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Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB5S	HTB5I	HTB6S	HTB6I	HTB7S	HTB7S	HTB7I	HTB8S	HTB8I	HTB8D
			SBI067:HTB5:G260300A	SBI067:HTB5:G350390	SBI067:HTB6:G260300	SBI067:HTB6:G350390	SBI067:HTB7:G260300	SBI067:HTB7:G260300A	SBI067:HTB7:G350390	SBI067:HTB8:G260300	SBI067:HTB8:G350390	SBI067:HTB8:G450490
			4/20/2012	4/20/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012	4/23/2012	4/23/2012	4/23/2012
4-Nitroaniline	NS	NS	<50.5	<52.1	NT	NT	NT	NT	NT	<53.2	<52.1	<52.1
4-Nitrophenol	NS	NS	<50.5	<52.1	NT	NT	NT	NT	NT	<53.2	<52.1	<52.1
Benzyl Alcohol	9120	30660	<20.2	<20.8	NT	NT	NT	NT	NT	<21.3	<20.8	<20.8
Benzyl Butyl Phthalate	100	20440	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Bis(2-chloro-1-methylethyl)ether	10	40.9	<5.1	<5.2	NT	NT	NT	NT	NT	<5.3	<5.2	<5.2
Bis(2-chloroethoxy) Methane	NS	NS	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Bis(2-chloroethyl) Ether	10	10	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Bis(2-ethylhexyl) Phthalate	6	204.3	<5.1	<5.2	NT	NT	NT	NT	NT	<5.3	<5.2	<5.2
Dibenzofuran	NS	NS	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Diethyl Phthalate	24320	81760	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Dimethyl Phthalate	304000	1022000	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Di-n-butyl Phthalate	608	2044	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Di-n-octyl Phthalate	608	2044	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Di-n-propyl nitrosamine	10	10	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Hexachloro-1,3-butadiene	10	36.7	<5.1	<5.2	NT	NT	NT	NT	NT	<5.3	<5.2	<5.2
Hexachlorobenzene	1	10	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Hexachloroethane	10	20.4	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Hexachloropentadiene	50	715.4	<25.3	<26	NT	NT	NT	NT	NT	<26.6	<26	<26
Isophorone	89.47	3010.5	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
m-Nitroaniline	NS	NS	<50.5	<52.1	NT	NT	NT	NT	NT	<53.2	<52.1	<52.1
Nitrobenzene	15.2	51.1	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
n-Nitroso-di-phenylamine	17.35	583.7	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
o-Nitroaniline	50	50	<50.5	<52.1	NT	NT	NT	NT	NT	<53.2	<52.1	<52.1
o-Nitrophenol	NS	NS	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4
Pentachlorophenol	1	50	<50.5	<52.1	NT	NT	NT	NT	NT	<53.2	<52.1	<52.1
Phenol	3648	12264	<10.1	<10.4	NT	NT	NT	NT	NT	<10.6	<10.4	<10.4

Notes:

NS - No Standard

BOLD & highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 3

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - METALS, PCBs, CPAHs, AND SVOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB8D	HTB9S	HTB9I	HTB9D	HTB9D	HTB10S	HTB10I	HTB10D	HTB12S	HTB12S
			SBI067:HTB8:G450490A 4/23/2012	SBI067:HTB9:G260300 4/18/2012	SBI067:HTB9:G350390 4/18/2012	SBI067:HTB9:G450490 4/18/2012	SBI067:HTB9:G450490A 4/18/2012	SBI067:HTB10:G260300 4/23/2012	SBI067:HTB10:G350390 4/23/2012	SBI067:HTB10:G450490 4/23/2012	SBI067:HTB12:G260300 4/23/2012	SBI067:HTB12:G260300A 4/23/2012
Metals, Dissolved (Method EPA 6010/7470)												
Arsenic	50	50	NT	<10	<10	<10	<10	<10	<10	<10	<10	<10
Barium	2000	7154	NT	<100	<100	<100	<100	<100	<100	<100	<100	<100
Cadmium	5	51.1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chromium	NS ^a	NS	NT	<10	<10	<10	<10	<10	<10	<10	<10	<10
Lead	15	15	NT	<5	<5	<5	<5	<5	<5	<5	<5	<5
Mercury	2	6.1	NT	<2	<2	<2	<2	<2	<2	<2	<2	<2
Selenium	50	511	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Silver	152	511	NT	<50	<50	<50	<50	<50	<50	<50	<50	<50
Metals, Total (Method EPA 6010/7470)												
Arsenic	50	50	NT	27	36	120 ^c	100	<10	18	120	<10	<10
Barium	2000	7154	NT	140	210	440	410	<100	110	470	<100	<100
Cadmium	5	51.1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chromium	NS	NS	NT	58	77	190	170	<10	46	210	<10	<10
Lead	15	15	NT	14	20	64	58	<10	<10	110	<10	<10
Mercury	2	6.1	NT	<2	<2	<2	<2	<2	<2	<2	<2	<2
Selenium	50	511	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Silver	152	511	NT	<50	<50	<50	<50	<50	<50	<50	<50	<50
PCBs (Method EPA 8082)												
Aroclor 1016	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1221	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1232	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1242	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1248	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1254	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Aroclor 1260	NS	NS	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PAHs (Method EPA 8270 by SIM)												
2-Methylnaphthalene	NS	NS	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acenaphthene	1824	6132	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acenaphthylene	NS	NS	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	9120	30660	<0.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	0.1	10	<0.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	0.2	10	<0.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	0.2	10	<0.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NS	NS	<0.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	0.2	39.2	<0.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	0.2	391.8	<0.52	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenz(a,h)anthracene	0.3	10	<0.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	243.2	817.6	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	1216	4088	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	0.4	10	<0.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	1216	4088	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NS	NS	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	912	3066	<1	NT	NT	NT	NT	NT	NT	NT	NT	NT
SVOCs (Method EPA 8270)												
2,4,5-Trichlorophenol	3040	10220	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4,6-Trichlorophenol	10	260	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4-Dichlorophenol	91.2	306.6	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4-Dimethylphenol	NS	NS	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4-Dinitrophenol	60.8	204.4	<52.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,4-Dinitrotoluene	60.8	204.4	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
2,6-Dinitrotoluene	NS	NS	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Chloronaphthalene	2432	8176	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Chlorophenol	152	511	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methyl-4,6-dinitrophenol	NS	NS	<52.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
2-Methylphenol	1520	5110	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
3 & 4 Methylphenol	NS	NS	<20.8	NT	NT	NT	NT	NT	NT	NT	NT	NT
3,3-Dichlorobenzidine	20	20	<20.8	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Bromophenyl Phenyl Ether	NS	NS	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Chloro-3-methyl Phenol	NS	NS	<20.8	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Chloroaniline	121.6	408.8	<20.8	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Chlorophenyl-phenyl Ether	NS	NS	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 3

SUMMARY OF LABORATORY ANALYSES OF TEMPORARY GROUNDWATER SAMPLING POINTS - METALS, PCBs, CPAHs, AND SVOCs, APRIL 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB8D	HTB9S	HTB9I	HTB9D	HTB9D	HTB10S	HTB10I	HTB10D	HTB12S	HTB12S
			SBI067:HTB8:G450490A	SBI067:HTB9:G260300	SBI067:HTB9:G350390	SBI067:HTB9:G450490	SBI067:HTB9:G450490A	SBI067:HTB10:G260300	SBI067:HTB10:G350390	SBI067:HTB10:G450490	SBI067:HTB12:G260300	SBI067:HTB12:G260300A
			4/23/2012	4/18/2012	4/18/2012	4/18/2012	4/18/2012	4/23/2012	4/23/2012	4/23/2012	4/23/2012	4/23/2012
4-Nitroaniline	NS	NS	<52.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Nitrophenol	NS	NS	<52.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzyl Alcohol	9120	30660	<20.8	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzyl Butyl Phthalate	100	20440	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bis(2-chloro-1-methylethyl)ether	10	40.9	<5.2	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bis(2-chloroethoxy) Methane	NS	NS	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bis(2-chloroethyl) Ether	10	10	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bis(2-ethylhexyl) Phthalate	6	204.3	<5.2	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NS	NS	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Diethyl Phthalate	24320	81760	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dimethyl Phthalate	304000	1022000	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butyl Phthalate	608	2044	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octyl Phthalate	608	2044	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-propylnitrosamine	10	10	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Hexachloro-1,3-butadiene	10	36.7	<5.2	NT	NT	NT	NT	NT	NT	NT	NT	NT
Hexachlorobenzene	1	10	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Hexachloroethane	10	20.4	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Hexachloropentadiene	50	715.4	<26	NT	NT	NT	NT	NT	NT	NT	NT	NT
Isophorone	89.47	3010.5	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
m-Nitroaniline	NS	NS	<52.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Nitrobenzene	15.2	51.1	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
n-Nitroso-di-phenylamine	17.35	583.7	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
o-Nitroaniline	50	50	<52.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
o-Nitrophenol	NS	NS	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pentachlorophenol	1	50	<52.1	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenol	3648	12264	<10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:

NS - No Standard

BOLD & highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

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Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB12I	HTB12D	HTB17S	HTB17I	HTB18S	HTB18I	HTB18I	HTB18D
			SBI067:HTB12:G350390	SBI067:HTB12:G450490	SBI067:HTB17:G260300	SBI067:HTB17:G350390	SBI067:HTB18:G260300	SBI067:HTB18:G350390	SBI067:HTB18:G350390A	SBI067:HTB18:G450490
			4/23/2012	4/23/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012
Metals, Dissolved (Method EPA 6010/7470)										
Arsenic	50	50	<10	<10	NT	NT	NT	NT	NT	NT
Barium	2000	7154	<100	<100	NT	NT	NT	NT	NT	NT
Cadmium	5	51.1	<5	<5	NT	NT	NT	NT	NT	NT
Chromium	NS ^a	NS	<10	<10	NT	NT	NT	NT	NT	NT
Lead	15	15	<5	<5	NT	NT	NT	NT	NT	NT
Mercury	2	6.1	<2	<2	NT	NT	NT	NT	NT	NT
Selenium	50	511	<10	<10	NT	NT	NT	NT	NT	NT
Silver	152	511	<50	<50	NT	NT	NT	NT	NT	NT
Metals, Total (Method EPA 6010/7470)										
Arsenic	50	50	<10	45	NT	NT	NT	NT	NT	NT
Barium	2000	7154	<100	120	NT	NT	NT	NT	NT	NT
Cadmium	5	51.1	<5	<5	NT	NT	NT	NT	NT	NT
Chromium	NS	NS	<10	130	NT	NT	NT	NT	NT	NT
Lead	15	15	<10	11	NT	NT	NT	NT	NT	NT
Mercury	2	6.1	<2	<2	NT	NT	NT	NT	NT	NT
Selenium	50	511	<10	<10	NT	NT	NT	NT	NT	NT
Silver	152	511	<50	<50	NT	NT	NT	NT	NT	NT
PCBs (Method EPA 8082)										
Aroclor 1016	NS	NS	NT	NT	<0.52	<0.52	<0.51	<0.52	NT	<0.51
Aroclor 1221	NS	NS	<0.52	<0.52	<0.52	<0.52	<0.51	<0.52	NT	<0.51
Aroclor 1232	NS	NS	NT	NT	<0.52	<0.52	<0.51	<0.52	NT	<0.51
Aroclor 1242	NS	NS	NT	NT	<0.52	<0.52	<0.51	<0.52	NT	<0.51
Aroclor 1248	NS	NS	NT	NT	<0.52	<0.52	<0.51	<0.52	NT	<0.51
Aroclor 1254	NS	NS	<0.52	<0.52	<0.52	<0.52	<0.51	<0.52	NT	<0.51
Aroclor 1260	NS	NS	NT	NT	<0.52	<0.52	<0.51	<0.52	NT	<0.51
PAHs (Method EPA 8270 by SIM)										
2-Methylnaphthalene	NS	NS	NT	NT	NT	NT	<1	<1	<1	<1.1
Acenaphthene	1824	6132	NT	NT	NT	NT	<1	<1	<1	<1.1
Acenaphthylene	NS	NS	NT	NT	NT	NT	<1	<1	<1	<1.1
Anthracene	9120	30660	NT	NT	NT	NT	<0.1	<0.1	<0.1	<0.11
Benzo(a)anthracene	0.1	10	NT	NT	NT	NT	<0.1	<0.1	0.12	<0.11
Benzo(a)pyrene	0.2	10	NT	NT	NT	NT	<0.1	<0.1	<0.1	<0.11
Benzo(b)fluoranthene	0.2	10	NT	NT	NT	NT	<0.1	<0.1	0.11	<0.11
Benzo(g,h,i)perylene	NS	NS	NT	NT	NT	NT	<0.1	<0.1	0.13	<0.11
Benzo(k)fluoranthene	0.2	39.2	NT	NT	NT	NT	<0.1	0.1	0.15	<0.11
Chrysene	0.2	391.8	NT	NT	NT	NT	<0.52	<0.52	<0.51	<0.53
Dibenz(a,h)anthracene	0.3	10	NT	NT	NT	NT	<0.1	<0.1	0.13	<0.11
Fluoranthene	243.2	817.6	NT	NT	NT	NT	<1	<1	<1	<1.1
Fluorene	1216	4088	NT	NT	NT	NT	<1	<1	<1	<1.1
Indeno(1,2,3-cd)pyrene	0.4	10	NT	NT	NT	NT	<0.1	<0.1	0.13	<0.11
Naphthalene	1216	4088	NT	NT	NT	NT	<1	<1	<1	<1.1
Phenanthrene	NS	NS	NT	NT	NT	NT	<1	<1	<1	<1.1
Pyrene	912	3066	NT	NT	NT	NT	<1	<1	<1	<1.1
SVOCs (Method EPA 8270)										
2,4,5-Trichlorophenol	3040	10220	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
2,4,6-Trichlorophenol	10	260	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
2,4-Dichlorophenol	91.2	306.6	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
2,4-Dimethylphenol	NS	NS	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
2,4-Dinitrophenol	60.8	204.4	NT	NT	NT	NT	<52.1	<51.5	<51	<52.6
2,4-Dinitrotoluene	60.8	204.4	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
2,6-Dinitrotoluene	NS	NS	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
2-Chloronaphthalene	2432	8176	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
2-Chlorophenol	152	511	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
2-Methyl-4,6-dinitrophenol	NS	NS	NT	NT	NT	NT	<52.1	<51.5	<51	<52.6
2-Methylphenol	1520	5110	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
3 & 4 Methylphenol	NS	NS	NT	NT	NT	NT	<20.8	<20.6	<20.4	<21.1
3,3-Dichlorobenzidine	20	20	NT	NT	NT	NT	<20.8	<20.6	<20.4	<21.1
4-Bromophenyl Phenyl Ether	NS	NS	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
4-Chloro-3-methyl Phenol	NS	NS	NT	NT	NT	NT	<20.8	<20.6	<20.4	<21.1
4-Chloroaniline	121.6	408.8	NT	NT	NT	NT	<20.8	<20.6	<20.4	<21.1
4-Chlorophenyl-phenyl Ether	NS	NS	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5

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 FORMER STUDEBAKER SITE
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Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non-Residential Cleanup Goals (ug/L)	HTB12I	HTB12D	HTB17S	HTB17I	HTB18S	HTB18I	HTB18I	HTB18D
			SBI067:HTB12:G350390	SBI067:HTB12:G450490	SBI067:HTB17:G260300	SBI067:HTB17:G350390	SBI067:HTB18:G260300	SBI067:HTB18:G350390	SBI067:HTB18:G350390A	SBI067:HTB18:G450490
			4/23/2012	4/23/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012	4/19/2012
4-Nitroaniline	NS	NS	NT	NT	NT	NT	<52.1	<51.5	<51	<52.6
4-Nitrophenol	NS	NS	NT	NT	NT	NT	<52.1	<51.5	<51	<52.6
Benzyl Alcohol	9120	30660	NT	NT	NT	NT	<20.8	<20.6	<20.4	<21.1
Benzyl Butyl Phthalate	100	20440	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Bis(2-chloro-1-methylethyl)ether	10	40.9	NT	NT	NT	NT	<5.2	<5.2	<5.1	<5.3
Bis(2-chloroethoxy) Methane	NS	NS	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Bis(2-chloroethyl) Ether	10	10	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Bis(2-ethylhexyl) Phthalate	6	204.3	NT	NT	NT	NT	<5.2	<5.2	<5.1	<5.3
Dibenzofuran	NS	NS	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Diethyl Phthalate	24320	81760	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Dimethyl Phthalate	304000	1022000	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Di-n-butyl Phthalate	608	2044	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Di-n-octyl Phthalate	608	2044	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Di-n-propylnitrosamine	10	10	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Hexachloro-1,3-butadiene	10	36.7	NT	NT	NT	NT	<5.2	<5.2	<5.1	<5.3
Hexachlorobenzene	1	10	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Hexachloroethane	10	20.4	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Hexachloropentadiene	50	715.4	NT	NT	NT	NT	<26	<25.8	<25.5	<26.3
Isophorone	89.47	3010.5	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
m-Nitroaniline	NS	NS	NT	NT	NT	NT	<52.1	<51.5	<51	<52.6
Nitrobenzene	15.2	51.1	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
n-Nitroso-di-phenylamine	17.35	583.7	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
o-Nitroaniline	50	50	NT	NT	NT	NT	<52.1	<51.5	<51	<52.6
o-Nitrophenol	NS	NS	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5
Pentachlorophenol	1	50	NT	NT	NT	NT	<52.1	<51.5	<51	<52.6
Phenol	3648	12264	NT	NT	NT	NT	<10.4	<10.3	<10.2	<10.5

Notes:

NS - No Standard

BOLD & highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 4

SUMMARY OF LABORATORY ANALYSES OF PERMANENT MONITORING WELLS - VOCs, JUNE 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non- Residential Cleanup Goals (ug/L)	AMW1D	AMW1I	AMW1I	AMW1S	AMW2D	AMW2I	AMW2I	AMW2S	AMW3D
			SBI068:AMW1D:G060612 6/6/2012	SBI068:AMW1I:G060612 6/6/2012	SBI068:AMW1I:G060612A 6/6/2012	SBI068:AMW1S:G060612 6/6/2012	SBI068:AMW2D:G060712 6/7/2012	SBI068:AMW2I:G060712 6/7/2012	SBI068:AMW2I:G060712A ^b 6/7/2012	SBI068:AMW2S:G060712 6/7/2012	SBI068:AMW3D:G060612 6/6/2012
VOCs (Method EPA 8260)											
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Isopropylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4	<4	<4	<4	<4	<4
Naphthalene	1216	4088	<5	<5	<5	<5	<5	<5	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5	56.1	179^c	1540	1540	1080	851	596	581	499	31.3
Toluene	1000	20440	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100
Trichloroethene	5	260	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10	<10	<10	<10	<10	<10

a. NS - no standard
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 4

SUMMARY OF LABORATORY ANALYSES OF PERMANENT MONITORING WELLS - VOCs, JUNE 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non- Residential Cleanup Goals (ug/L)	AMW3I	AMW3S	AMW4D	AMW4I	AMW4S	AMW5D	AMW5I	AMW5S	AMW6I
			SBI068:AMW3I:G060612 6/6/2012	SBI068:AMW3S:G060612 6/6/2012	SBI068:AMW4D:G060612 6/6/2012	SBI068:AMW4I:G060612 6/6/2012	SBI068:AMW4S:G060612 6/6/2012	SBI068:AMW5D:G060512 6/5/2012	SBI068:AMW5I:G060512 6/5/2012	SBI068:AMW5S:G060612 6/6/2012	SBI068:AMW6I:G060512 6/5/2012
VOCs (Method EPA 8260)											
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2,4-Trimethyl-benzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25	<25	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5	<5	<5	<5	<5	<5
Hexane	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	19.1
Isopropylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4	<4	<4	<4	<4	<4
Naphthalene	1216	4088	<5	<5	<5	<5	<5	<5	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	7.9
Styrene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5	56.1	43	<5	<5	<5	<5	73.9	123	15.3	<5
Toluene	1000	20440	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100	<100	<100	<100	<100	<100
Trichloroethene	5	260	<5	<5	<5	<5	<5	<5	<5	<5	<5
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50	<50	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2	<2	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10	<10	<10	<10	<10	<10

a. NS - no standard
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 4

SUMMARY OF LABORATORY ANALYSES OF PERMANENT MONITORING WELLS - VOCs, JUNE 2012 (ug/L)

Sample Location Sample Identification Sample Date	1996 VRP Residential Cleanup Goals (ug/L)	1996 VRP Non- Residential Cleanup Goals (ug/L)	AMW6I	AMW6S	AMW7I	AMW7S	AMW8I	AMW8S
			SBI068:AMW6I:G060512A 6/5/2012	SBI068:AMW6S:G060512 6/5/2012	SBI068:AMW7I:G060512 6/5/2012	SBI068:AMW7S:G060512 6/5/2012	SBI068:AMW8I:G060512 6/5/2012	SBI068:AMW8S:G060512 6/5/2012
VOCs (Method EPA 8260)								
1,1,1,2-Tetrachloroethane	5	110	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	200	9198	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5	14.3	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5	50.2	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	640	10220	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	7	7	<5	<5	<5	<5	<5	<5
1,1-Dichloropropene	NS ^a	NS	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	NS	NS	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	70	1022	<5	<5	<5	<5	<5	<5
1,2,4-Trimethyl-benzene	NS	NS	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	NS	NS	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	600	9198	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	5	31.4	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	NS	NS	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	600	NS	<5	<5	<5	<5	<5	<5
1,3-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	75	119.2	<5	<5	<5	<5	<5	<5
2,2-Dichloropropane	NS	NS	<5	<5	<5	<5	<5	<5
2-Butanone	917.72	5110	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5
2-Hexanone	NS	NS	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	NS	NS	<5	<5	<5	<5	<5	<5
4-Isopropyltoluene	NS	NS	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	1520	5110	<25	<25	<25	<25	<25	<25
Acetone	3040	10220	<100	<100	<100	<100	<100	<100
Acrolein	NS	NS	<100	<100	<100	<100	<100	<100
Acrylonitrile	NS	NS	<100	<100	<100	<100	<100	<100
Benzene	5	98.6	<5	<5	<5	<5	<5	<5
Bromobenzene	NS	NS	<5	<5	<5	<5	<5	<5
Bromochloromethane	NS	NS	<5	<5	<5	<5	<5	<5
Bromodichloromethane	NS	NS	<5	<5	<5	<5	<5	<5
Bromoform	NS	NS	<5	<5	<5	<5	<5	<5
Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5
Carbon Disulfide	NS	NS	<10	<10	<10	<10	<10	<10
Carbon Tetrachloride	NS	NS	<5	<5	<5	<5	<5	<5
Chlorobenzene	NS	NS	<5	<5	<5	<5	<5	<5
Chloroethane	23160.75	NS	<5	<5	<5	<5	<5	<5
Chloroform	100	468.9	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	70	1022	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5
Dibromochloromethane (chlorodibromomethane)	NS	NS	<5	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon-12)	NS	NS	<5	<5	<5	<5	<5	<5
Ethyl Methacrylate	NS	NS	<100	<100	<100	<100	<100	<100
Ethylbenzene	700	10220	<5	<5	<5	<5	<5	<5
Hexachloro-1,3-butadiene	10	36.7	<5	<5	<5	<5	<5	<5
Hexane	NS	NS	17.7	<5	<5	<5	<5	<5
Isopropylbenzene	NS	NS	<5	<5	<5	<5	<5	<5
Methyl Bromide	NS	NS	<5	<5	<5	<5	<5	<5
Methyl Chloride	NS	NS	<5	<5	<5	<5	<5	<5
Methyl Iodide	NS	NS	<10	<10	<10	<10	<10	<10
Methylene Bromide	NS	NS	<5	<5	<5	<5	<5	<5
Methylene Chloride	NS	NS	<5	<5	<5	<5	<5	<5
Methyl-tert-butyl-ether	NS	NS	<4	<4	<4	<4	<4	<4
Naphthalene	1216	4088	<5	<5	<5	<5	<5	<5
n-Propylbenzene	NS	NS	<5	<5	<5	<5	<5	<5
sec-Butylbenzene	NS	NS	7.4	<5	<5	<5	<5	<5
Styrene	NS	NS	<5	<5	<5	<5	<5	<5
tert-Butylbenzene	NS	NS	<5	<5	<5	<5	<5	<5
Tetrachloroethene	5	56.1	<5	<5	92.5	71.5	8.8	7.6
Toluene	1000	20440	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	NS	NS	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	NS	NS	<5	<5	<5	<5	<5	<5
trans-1,4-Dichloro-2-butene	NS	NS	<100	<100	<100	<100	<100	<100
Trichloroethene	5	260	<5	<5	11.1	6.2	<5	<5
Trichlorofluoromethane (Freon-11)	NS	NS	<5	<5	<5	<5	<5	<5
Vinyl Acetate	NS	NS	<50	<50	<50	<50	<50	<50
Vinyl Chloride	2	10	<2	<2	<2	<2	<2	<2
Xylene	10000	204400	<10	<10	<10	<10	<10	<10

a. NS - no standard

b. "A" in sample identification number denotes a duplicate sample.

c. **Bold** and highlighted results exceed 1996 VRP Tier II Residential Cleanup Goals.

**COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA**

TABLE 5

GROUNDWATER ELEVATION DATA - JUNE 5, 2012

Well ID	Date Gauged	Northing (NAD 1983)	Easting (NAD 1983)	Ground Elevation (ft., NAVD 1988)	Top of Casing Elevation (ft., NAVD 1988)	Depth to Water (ft.)	Depth to Bottom (ft.)	Water Elevation (ft., NAVD 1988)
AMW-1S	6/5/2012	2335732.427	166186.291	730.12	732.44	22.47	30.02	709.97
AMW-1I	6/5/2012	2335732.086	166190.052	730.12	732.40	22.44	41.25	709.96
AMW-1D	6/5/2012	2335731.467	166193.993	730.12	732.41	22.43	52.90	709.98
AMW-2S	6/5/2012	2336140.385	166313.443	728.44	730.70	22.40	30.04	708.30
AMW-2I	6/5/2012	2336141.292	166310.690	728.36	730.73	22.41	41.48	708.32
AMW-2D	6/5/2012	2336142.123	166308.400	728.32	730.66	22.33	53.15	708.33
AMW-3S	6/5/2012	2336129.754	166691.046	727.54	729.18	21.51	28.45	707.67
AMW-3I	6/5/2012	2336130.476	166694.226	727.65	729.27	21.61	40.20	707.66
AMW-3D	6/5/2012	2336131.335	166697.736	727.73	729.18	21.54	51.08	707.64
AMW-4S	6/5/2012	2336390.209	166075.485	728.49	730.77	22.88	30.06	707.89
AMW-4I	6/5/2012	2336392.158	166079.932	728.33	730.49	22.61	41.05	707.88
AMW-4D	6/5/2012	2336393.497	166084.042	727.90	729.95	22.10	53.36	707.85
AMW-5S	6/5/2012	2336870.031	166630.928	729.40	731.67	25.88	32.80	705.79
AMW-5I	6/5/2012	2336867.865	166633.913	729.36	731.49	25.69	45.08	705.80
AMW-5D	6/5/2012	2336865.353	166636.868	729.36	731.60	25.81	50.02	705.79
AMW-6S	6/5/2012	2337587.817	167346.309	726.69	728.85	26.03	31.95	702.82
AMW-6I	6/5/2012	2337584.605	167346.874	726.70	728.84	26.03	44.75	702.81
AMW-7S	6/5/2012	2337822.318	167344.658	726.02	728.37	26.20	32.45	702.17
AMW-7I	6/5/2012	2337822.492	167340.111	726.08	728.63	25.96	44.88	702.67
AMW-8S	6/5/2012	2337821.539	166949.629	725.08	727.55	24.44	31.30	703.11
AMW-8I	6/5/2012	2337821.642	166953.335	725.08	727.38	24.30	43.80	703.08

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 6

SUMMARY OF ON- AND OFF-SITE SOIL GAS RESULTS (ug/m³)

Sample Location Sample Identification	IN 2012 Residential Indoor Air Screening Levels	IN 2012 Commercial/ Industrial Indoor Air Screening Levels	Calculated Residential Soil Gas Screening Levels ^a	Calculated Commerical/Industrial Soil Gas Screening Levels ^a	Reporting Units	ASGP1D	ASGP1S	ASGP2D	ASGP2S	ASGP3D	ASGP3D
						ASGP1D:A060512	ASGP1S:A060512	ASGP2D:A060512	ASGP2S:A060512	ASGP3D:A060512	ASGP3D:A060512 ^b
						6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012	6/5/2012
TO-15											
1,1,1-Trichloroethane	5200	22000	520,000	2,200,000	ug/m3	1710	2310	64.2	58.4	<33.6	<41.5
1,1,2,2-Tetrachloroethane	0.42	2.1	42	210	ug/m3	<12.6	<21.1	<1.3	<6.3	<21.1	<26.1
1,1,2-Trichloroethane	0.21	0.88	21	88	ug/m3	<9.9	<16.6	<0.99	<5	<16.6	<20.6
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	31000	130000	3,100,000	13,000,000	ug/m3	<28.8	<48.4	<2.9	<14.4	<48.4	<59.8
1,1-Dichloroethane	15	77	1,500	7,700	ug/m3	<14.8	<24.8	<1.5	<7.4	<24.8	<30.7
1,1-Dichloroethene	210	880	21,000	88,000	ug/m3	<14.6	<24.5	<1.5	<7.3	<24.5	<30.3
1,2,4-Trichlorobenzene	2.1	8.8	210	880	ug/m3	<17.8	<29.9	<1.8	<8.9	<29.9	<37
1,2,4-Trimethyl-benzene	7.3	31	730	3,100	ug/m3	<18	<30.2	4.1	<9	<30.2	<37.4
1,2-Dibromoethane	0.041	0.2	4.1	20	ug/m3	<28.1^c	<47.2	<2.8	<14	<47.2	<58.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon-114)	NS	NS	NS	NS	ug/m3	<25.6	<42.9	<2.6	<12.8	<42.9	<53.1
1,2-Dichlorobenzene	210	880	21,000	88,000	ug/m3	<22	<36.9	<2.2	<11	<36.9	<45.6
1,2-Dichloroethane	0.94	4.7	94	470	ug/m3	<7.4	<12.4	<0.74	<3.7	<12.4	<15.3
1,2-Dichloropropane	2.4	12	2,400	1,200	ug/m3	<16.9	<28.4	<1.7	<8.5	<28.4	<35.2
1,3,5-Trimethylbenzene	NS	NS	NS	NS	ug/m3	<18	<30.2	<1.8	<9	<30.2	<37.4
1,3-Butadiene	0.81	4.1	81	410	ug/m3	<8.1	<13.6	<0.81	<4	<13.6	<16.8
1,3-Dichlorobenzene	NS	NS	NS	NS	ug/m3	<22	<36.9	<2.2	<11	<36.9	<45.6
1,4-Dichlorobenzene	2.2	11	220	1,100	ug/m3	<22	<36.9	<2.2	<11	<36.9	<45.6
1-Ethyl-4-methyl-benzene	NS	NS	NS	NS	ug/m3	<18	<30.2	<1.8	<9	<30.2	<37.4
2-Butanone	5200	22000	520,000	2,200,000	ug/m3	<10.8	<18.1	16.6	9	<18.1	<22.4
2-Hexanone	31	130	3,100	13,000	ug/m3	<14.9	<25.1	<1.5	<7.5	<25.1	<31
4-Methyl-2-pentanone	3100	13000	310,000	1,300,000	ug/m3	<14.9	<25.1	<1.5	<7.5	<25.1	<31
Acetone	32000	140000	3,200,000	14,000,000	ug/m3	681	149	69.3	75.2	92.2	<18
Benzene	3.1	16	310	1,600	ug/m3	<5.8	<9.8	<0.58	<2.9	<9.8	<12.2
Benzyl Chloride	0.5	2.5	50	250	ug/m3	<18.9	<31.8	<1.9	<9.4	<31.8	<39.3
Bromodichloromethane	0.66	3.3	66	330	ug/m3	<24.5	<41.1	7.1	<12.2	<41.1	<50.9
Bromoform	22	110	2,200	11,000	ug/m3	<37.8	<63.5	<3.8	<18.9	<63.5	<78.5
Carbon Disulfide	730	3100	73,000	310,000	ug/m3	<11.3	20.9	20	82.6	<19.1	<23.6
Carbon Tetrachloride	4.1	20	410	2,000	ug/m3	<11.5	<19.4	1.6	<5.8	<19.4	<23.9
Chlorobenzene	52	220	5,200	22,000	ug/m3	<16.9	<28.4	<1.7	<8.5	<28.4	<35.2
Chloroethane	10000	44000	1,000,000	4,400,000	ug/m3	<9.7	<16.3	<0.97	<4.9	<16.3	<20.2
Chloroform	1.1	5.3	110	530	ug/m3	<17.8	<29.9	12.5	<8.9	<29.9	<37
cis-1,2-Dichloroethene	NS	NS	NS	NS	ug/m3	<14.6	<24.5	<1.5	<7.3	<24.5	<30.3
cis-1,3-Dichloropropene	NS	NS	NS	NS	ug/m3	<16.6	<27.8	<1.7	<8.3	<27.8	<34.4
Cyclohexane	6300	26000	630,000	2,600,000	ug/m3	<12.2	<20.6	<1.2	<6.1	<20.6	<25.4
Dibromochloromethane (chlorodibromomethane)	0.9	4.5	90	450	ug/m3	<31.1	<52.3	<3.1	<15.6	<52.3	<64.7
Dichlorodifluoromethane (Freon-12)	100	440	10,000	44,000	ug/m3	<18.2	<30.5	<1.8	<9.1	<30.5	<37.8
Ethanol	NS	NS	NS	NS	ug/m3	210	<11.5	<0.68	<3.4	55.4	<14.2
Ethyl Acetate	NS	NS	NS	NS	ug/m3	<13.1	<22.1	<1.3	<6.6	<22.1	<27.3
Ethylbenzene	9.7	49	970	4,900	ug/m3	33	29.4	3.3	<7.9	<26.6	<32.9
Heptane	NS	NS	NS	NS	ug/m3	<14.9	<25.1	<1.5	<7.5	<25.1	<31
Hexachloro-1,3-butadiene	1.1	5.6	110	560	ug/m3	<39.6	<66.5	<4	<19.8	<66.5	<82.3
Hexane	730	3100	73,000	310,000	ug/m3	42.4	<21.8	9.9	<6.5	<21.8	<26.9
Isopropyl Alcohol	7300	31000	730,000	3,100,000	ug/m3	<45	<75.6	<4.5	<22.5	<75.6	<93.5
m,p-Xylenes	NS	NS	NS	NS	ug/m3	145	133	16.3	<15.8	<53.2	<65.8
Methyl Bromide	5.2	22	520	2,200	ug/m3	<14.2	<23.9	<1.4	<7.1	<23.9	<29.5
Methyl Chloride	94	390	9,400	39,000	ug/m3	<7.6	<12.7	<0.76	<3.8	<12.7	<15.7
Methylene Chloride	52	260	5,200	26,000	ug/m3	<12.8	<21.5	<1.3	<6.4	360	<26.6
Methyl-tert-butyl-ether	94	470	9,400	47,000	ug/m3	<13.1	<22.1	<1.3	<6.6	<22.1	<27.3
Naphthalene	0.72	3.6	72	360	ug/m3	<19.3	<32.4	<1.9	<9.6	<32.4	<40
o-Xylene	100	440	10,000	44,000	ug/m3	<15.8	<26.6	1.6	<7.9	<26.6	<32.9
Propene	3100	13000	310,000	1,300,000	ug/m3	<6.3	<10.6	<0.63	<3.2	<10.6	<13.1
Styrene	1000	4400	10,000	44,000	ug/m3	<15.7	<26.3	<1.6	<7.8	<26.3	<32.5
Tetrachloroethene	4.1	21	410	2,100	ug/m3	<12.4	<20.8	167	477	2610	7100
Tetrahydrofuran	NS	NS	NS	NS	ug/m3	<10.8	<18.1	<1.1	<5.4	<18.1	<22.4
Toluene	5200	22000	520,000	2,200,000	ug/m3	354	483	85.6	145	265	218
trans-1,2-Dichloroethene	63	260	6,300	26,000	ug/m3	<14.6	<24.5	<1.5	<7.3	<24.5	<30.3
trans-1,3-Dichloropropene	NS	NS	NS	NS	ug/m3	<16.6	<27.8	<1.7	<8.3	<27.8	<34.4
Trichloroethene	2.1	8.8	210	880	ug/m3	<9.9	<16.6	<0.99	<5	206	775
Trichlorofluoromethane (Freon-11)	730	3100	73,000	310,000	ug/m3	1280	1090	165	197	120	261
Vinyl Acetate	210	880	21,000	88,000	ug/m3	<12.8	<21.5	<1.3	<6.4	<21.5	<26.6
Vinyl Chloride	1.6	28	160	2,800	ug/m3	<4.7	<7.9	<0.47	<2.3	<7.9	<9.7

a. Per IDEM's current RCG, these values are calculated using a conservative 0.01 attenuation factor.
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed calculated residential soil gas screening levels.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

TABLE 6

SUMMARY OF ON- AND OFF-SITE SOIL GAS RESULTS (ug/m³)

Sample Location Sample Identification	IN 2012 Residential Indoor Air Screening Levels	IN 2012 Commercial/ Industrial Indoor Air Screening Levels	Calculated Residential Soil Gas Screening Levels ^a	Calculated Commerical/Industrial Soil Gas Screening Levels ^a	Reporting Units	ASGP3S	ASGP4D	ASGP4S	ASGP5D	ASGP5S	ASGP6D
						ASGP3S:A060512	ASGP4D:A060512	ASGP4S:A060512	ASGP5D:A081612	ASGP5S:A081612	ASGP6D:A081612
						6/5/2012	6/5/2012	6/5/2012	8/16/2012	8/16/2012	8/16/2012
TO-15											
1,1,1-Trichloroethane	5200	22000	520,000	2,200,000	ug/m3	<160	16.7	<40	<22.4	2.4	<21.5
1,1,2,2-Tetrachloroethane	0.42	2.1	42	210	ug/m3	<101	<6.5	<25.1	<14.1	<1.4	<13.5
1,1,2-Trichloroethane	0.21	0.88	21	88	ug/m3	<79.2	<5.1	<19.8	<11.1	<1.1	<10.7
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	31000	130000	3,100,000	13,000,000	ug/m3	<230	<15	<57.6	<32.3	<3.1	<31
1,1-Dichloroethane	15	77	1,500	7,700	ug/m3	<118	<7.7	<29.5	<16.6	<1.6	<15.9
1,1-Dichloroethene	210	880	21,000	88,000	ug/m3	<117	<7.6	<29.2	<16.4	<1.6	<15.7
1,2,4-Trichlorobenzene	2.1	8.8	210	880	ug/m3	<143	<9.3	<35.6	<30.5	<2.9	<29.3
1,2,4-Trimethyl-benzene	7.3	31	730	3,100	ug/m3	<144	<9.3	<36	67.3	31.6	<19.4
1,2-Dibromoethane	0.041	0.2	4.1	20	ug/m3	<225	<14.6	<56.2	<31.5	<3	<30.3
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon-114)	NS	NS	NS	NS	ug/m3	<204	<13.3	<51.1	<28.7	<2.8	<27.5
1,2-Dichlorobenzene	210	880	21,000	88,000	ug/m3	<176	<11.4	<43.9	<24.6	<2.4	<23.7
1,2-Dichloroethane	0.94	4.7	94	470	ug/m3	<59	<3.8	<14.8	<8.3	<0.8	<8
1,2-Dichloropropane	2.4	12	2,400	1,200	ug/m3	<135	<8.8	<33.8	<19	<1.8	<18.2
1,3,5-Trimethylbenzene	NS	NS	NS	NS	ug/m3	<144	<9.3	<36	<20.2	8.7	<19.4
1,3-Butadiene	0.81	4.1	81	410	ug/m3	<64.8	<4.2	<16.2	<9.1	<0.87	<8.7
1,3-Dichlorobenzene	NS	NS	NS	NS	ug/m3	<176	<11.4	<43.9	<24.6	<2.4	<23.7
1,4-Dichlorobenzene	2.2	11	220	1,100	ug/m3	<176	<11.4	<43.9	<24.6	<2.4	<23.7
1-Ethyl-4-methyl-benzene	NS	NS	NS	NS	ug/m3	<144	<9.4	<36	29.6	10	<19.4
2-Butanone	5200	22000	520,000	2,200,000	ug/m3	<227	<5.6	129	27	40	32.4
2-Hexanone	31	130	3,100	13,000	ug/m3	<120	<7.8	<29.9	<16.8	<1.6	<16.1
4-Methyl-2-pentanone	3100	13000	310,000	1,300,000	ug/m3	<120	<7.8	<29.9	<16.8	11.8	<16.1
Acetone	32000	140000	3,200,000	14,000,000	ug/m3	6660	34.4	524	174	285	429
Benzene	3.1	16	310	1,600	ug/m3	<46.8	<3	<11.7	<6.6	4.4	<6.3
Benzyl Chloride	0.5	2.5	50	250	ug/m3	<151	<9.8	<37.8	<21.2	<2	<20.4
Bromodichloromethane	0.66	3.3	66	330	ug/m3	<196	<12.7	<49	<27.5	<2.6	<26.4
Bromoform	22	110	2,200	11,000	ug/m3	<302	<19.6	<75.6	<42.4	<4.1	<40.7
Carbon Disulfide	730	3100	73,000	310,000	ug/m3	<90.7	<5.9	<22.7	21	17.6	18.3
Carbon Tetrachloride	4.1	20	410	2,000	ug/m3	<92.2	6.6	<23	13	7.9	<12.4
Chlorobenzene	52	220	5,200	22,000	ug/m3	<135	<8.8	<33.8	<19	<1.8	<18.2
Chloroethane	10000	44000	1,000,000	4,400,000	ug/m3	<77.8	<5	<19.4	<10.9	<1	<10.5
Chloroform	1.1	5.3	110	530	ug/m3	<143	<9.3	<35.6	<20	2.5	<19.2
cis-1,2-Dichloroethene	NS	NS	NS	NS	ug/m3	<117	<7.6	<29.2	<16.4	<1.6	<15.7
cis-1,3-Dichloropropene	NS	NS	NS	NS	ug/m3	<132	<8.6	<33.1	<18.6	<1.8	<17.8
Cyclohexane	6300	26000	63,000	2,600,000	ug/m3	<97.9	<6.4	<24.5	<14.1	10.5	<13.6
Dibromochloromethane (chlorodibromomethane)	0.9	4.5	90	450	ug/m3	<249	<16.2	<62.3	<34.9	<3.4	<33.6
Dichlorodifluoromethane (Freon-12)	100	440	10,000	44,000	ug/m3	<145	<9.4	<36.4	<20.4	3.6	<19.6
Ethanol	NS	NS	NS	NS	ug/m3	1190	<3.6	<13.7	72.1	97.1	187
Ethyl Acetate	NS	NS	NS	NS	ug/m3	<105	<6.8	<26.3	<14.7	<1.4	<14.2
Ethylbenzene	9.7	49	970	4,900	ug/m3	<127	<8.2	<31.7	<17.8	15.1	<17.1
Heptane	NS	NS	NS	NS	ug/m3	<120	<7.8	<29.9	<16.8	6.7	<16.1
Hexachloro-1,3-butadiene	1.1	5.6	110	560	ug/m3	<317	<20.6	<79.2	<44.4	<4.3	<42.7
Hexane	730	3100	73,000	310,000	ug/m3	121	<6.7	45.5	<14.5	53.4	16.2
Isopropyl Alcohol	7300	31000	73,000	3,100,000	ug/m3	<360	<23.4	<90	<10.1	7.8	12.6
m,p-Xylenes	NS	NS	NS	NS	ug/m3	<253	<16.5	<63.4	56.6	48.8	<34.1
Methyl Bromide	5.2	22	520	2,200	ug/m3	<114	<7.4	<28.4	<16	<1.5	<15.3
Methyl Chloride	94	390	9,400	39,000	ug/m3	<60.5	<3.9	<15.1	26.5	<0.81	<8.1
Methylene Chloride	52	260	5,200	26,000	ug/m3	<102	<6.6	<25.6	<14.3	<1.4	<13.8
Methyl-tert-butyl-ether	94	470	9,400	47,000	ug/m3	<105	<6.8	<26.3	<14.7	<1.4	<14.2
Naphthalene	0.72	3.6	72	360	ug/m3	<154	<10	<38.5	66.6	<2.1	<20.8
o-Xylene	100	440	10,000	44,000	ug/m3	<127	<8.2	<31.7	25.6	20.4	<17.1
Propene	3100	13000	31,000	1,300,000	ug/m3	<50.4	<3.3	<12.6	<7.1	<0.68	<6.8
Styrene	1000	4400	10,000	44,000	ug/m3	<125	<8.1	<31.3	<17.6	<1.7	<16.9
Tetrachloroethene	4.1	21	410	2,100	ug/m3	19700	168	34.8	26.8	51.7	14.6
Tetrahydrofuran	NS	NS	NS	NS	ug/m3	<86.4	<5.6	<21.6	<12.1	<1.2	<11.6
Toluene	5200	22000	52,000	2,200,000	ug/m3	188	107	3340	287	117	827
trans-1,2-Dichloroethene	63	260	6,300	26,000	ug/m3	<117	<7.6	<29.2	<16.4	<1.6	<15.7
trans-1,3-Dichloropropene	NS	NS	NS	NS	ug/m3	<132	<8.6	<33.1	<18.6	<1.8	<17.8
Trichloroethene	2.1	8.8	210	880	ug/m3	820	<5.1	<19.8	<11.1	<1.1	<10.7
Trichlorofluoromethane (Freon-11)	730	3100	73,000	310,000	ug/m3	320	508	935	<23	5	<22.1
Vinyl Acetate	210	880	21,000	88,000	ug/m3	<102	<6.6	<25.6	<14.5	<1.4	<13.9
Vinyl Chloride	1.6	28	160	2,800	ug/m3	<37.4	<2.4	<9.4	<5.3	<0.5	<5

- a. Per IDEM's current RCG, these values are calculated using a conservative 0.01 attenuation factor.
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed calculated residential soil gas screening levels.

COMPREHENSIVE ENVIRONMENTAL SUMMARY REPORT
FORMER STUDEBAKER SITE
VRP SITE #6020803
CITY OF SOUTH BEND, INDIANA

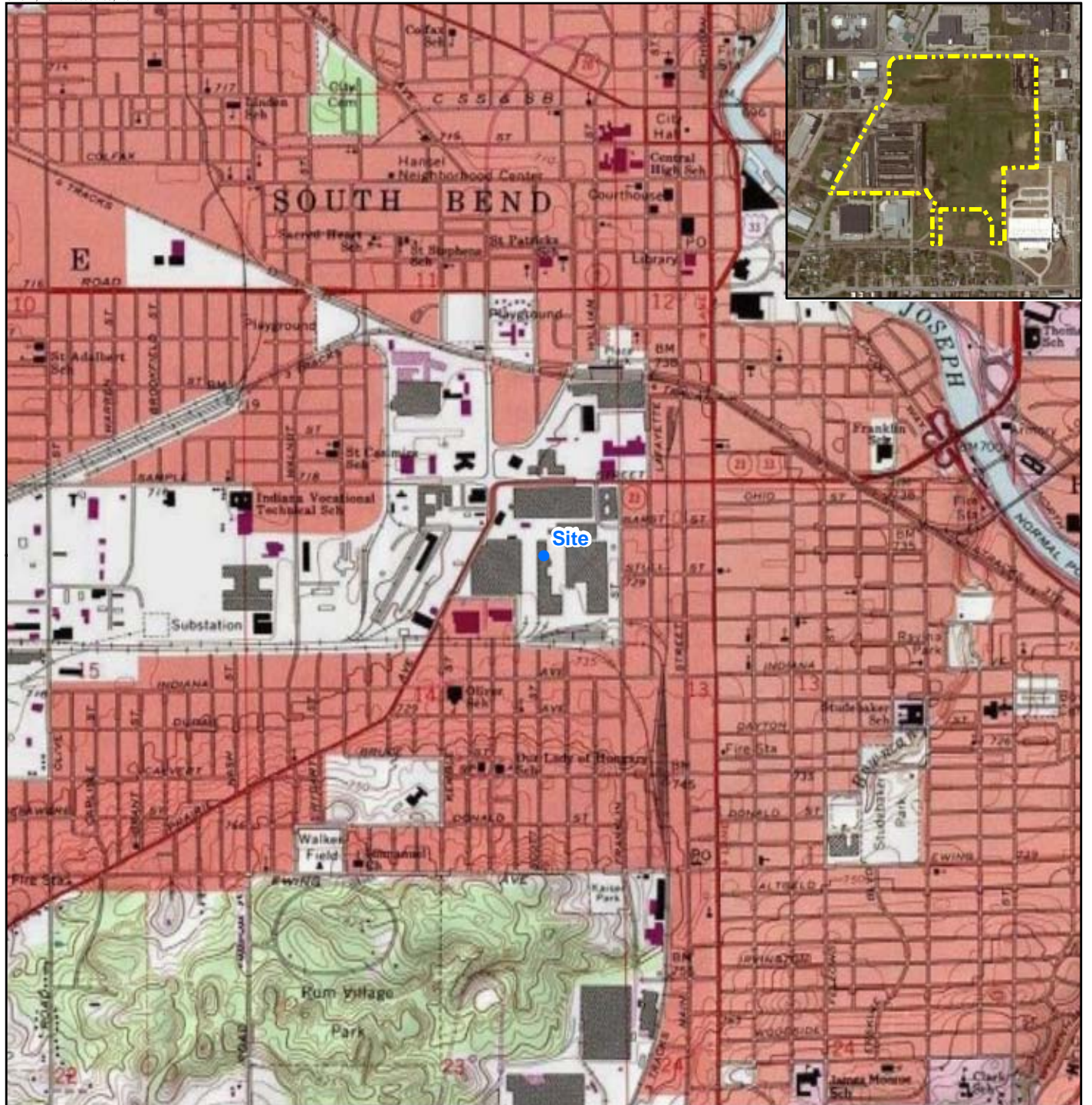
TABLE 6

SUMMARY OF ON- AND OFF-SITE SOIL GAS RESULTS (ug/m³)

Sample Location Sample Identification	IN 2012 Residential Indoor Air Screening Levels	IN 2012 Commercial/ Industrial Indoor Air Screening Levels	Calculated Residential Soil Gas Screening Levels ^a	Calculated Commerical/Industrial Soil Gas Screening Levels ^a	Reporting Units	ASGP6D	ASGP6S	ASGP7D	ASGP7S	ASGP8D	ASGP8S
						ASGP6D:A081612A	ASGP6S:A081612	ASGP7D:A081612	ASGP7S:A081612	ASGP8D:A081612	ASGP8S:A081612
						8/16/2012	8/16/2012	8/16/2012	8/16/2012	8/16/2012	8/16/2012
TO-15											
1,1,1-Trichloroethane	5200	22000	520,000	2,200,000	ug/m3	<21.5	<20.8	<21.5	<20.8	<20	<20.8
1,1,2,2-Tetrachloroethane	0.42	2.1	42	210	ug/m3	<13.5	<13.1	<13.5	<13.1	<12.6	<13.1
1,1,2-Trichloroethane	0.21	0.88	21	88	ug/m3	<10.7	<10.3	<10.7	<10.3	<9.9	<10.3
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)	31000	130000	3,100,000	13,000,000	ug/m3	<31	<29.9	<31	<29.9	<28.8	<29.9
1,1-Dichloroethane	15	77	1,500	7,700	ug/m3	<15.9	<15.3	<15.9	<15.3	<14.8	<15.3
1,1-Dichloroethene	210	880	21,000	88,000	ug/m3	<15.7	<15.1	<15.7	<15.1	<14.6	<15.1
1,2,4-Trichlorobenzene	2.1	8.8	210	880	ug/m3	<29.3	<28.2	<29.3	<28.2	<27.2	<28.2
1,2,4-Trimethyl-benzene	7.3	31	730	3,100	ug/m3	<19.4	35.8	<19.4	19.1	22.3	<18.7
1,2-Dibromoethane	0.041	0.2	4.1	20	ug/m3	<30.3	<29.2	<30.3	<29.2	<28.1	<29.2
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon-114)	NS	NS	NS	NS	ug/m3	<27.5	<26.6	<27.5	<26.6	<25.6	<26.6
1,2-Dichlorobenzene	210	880	21,000	88,000	ug/m3	<23.7	<22.8	<23.7	<22.8	<22	<22.8
1,2-Dichloroethane	0.94	4.7	94	470	ug/m3	<8	<7.7	<8	<7.7	<7.4	<7.7
1,2-Dichloropropane	2.4	12	2,400	1,200	ug/m3	<18.2	<17.6	<18.2	<17.6	<16.9	<17.6
1,3,5-Trimethylbenzene	NS	NS	NS	NS	ug/m3	<19.4	<18.7	<19.4	<18.7	<18	<18.7
1,3-Butadiene	0.81	4.1	81	410	ug/m3	<8.7	<8.4	<8.7	<8.4	<8.1	<8.4
1,3-Dichlorobenzene	NS	NS	NS	NS	ug/m3	<23.7	<22.8	<23.7	<22.8	<22	<22.8
1,4-Dichlorobenzene	2.2	11	220	1,100	ug/m3	<23.7	<22.8	<23.7	<22.8	<22	<22.8
1-Ethyl-4-methyl-benzene	NS	NS	NS	NS	ug/m3	<19.4	<18.7	<19.4	<18.7	<18	<18.7
2-Butanone	5200	22000	520,000	2,200,000	ug/m3	<11.6	17.7	22.9	28.9	44.5	66.2
2-Hexanone	31	130	3,100	13,000	ug/m3	<16.1	<15.5	<16.1	<15.5	<14.9	<15.5
4-Methyl-2-pentanone	3100	13000	310,000	1,300,000	ug/m3	<16.1	<15.5	<16.1	<15.5	18	<15.5
Acetone	32000	140000	3,200,000	14,000,000	ug/m3	128	407	129	228	701	759
Benzene	3.1	16	310	1,600	ug/m3	<6.3	<6.1	<6.3	<6.1	6.4	<6.1
Benzyl Chloride	0.5	2.5	50	250	ug/m3	<20.4	<19.6	<20.4	<19.6	<18.9	<19.6
Bromodichloromethane	0.66	3.3	66	330	ug/m3	<26.4	<25.4	<26.4	<25.4	<24.5	<25.4
Bromoform	22	110	2,200	11,000	ug/m3	<40.7	<39.3	<40.7	<39.3	<37.8	<39.3
Carbon Disulfide	730	3100	73,000	310,000	ug/m3	13.5	26.8	<12.2	13.5	22.6	30.6
Carbon Tetrachloride	4.1	20	410	2,000	ug/m3	<12.4	<12	<12.4	<12	12.9	63.7
Chlorobenzene	52	220	5,200	22,000	ug/m3	<18.2	<17.6	<18.2	<17.6	<16.9	<17.6
Chloroethane	10000	44000	1,000,000	4,400,000	ug/m3	<10.5	<10.1	<10.5	<10.1	<9.7	<10.1
Chloroform	1.1	5.3	110	530	ug/m3	<19.2	<18.5	<19.2	<18.5	<17.8	<18.5
cis-1,2-Dichloroethene	NS	NS	NS	NS	ug/m3	<15.7	<15.1	<15.7	<15.1	<14.6	<15.1
cis-1,3-Dichloropropene	NS	NS	NS	NS	ug/m3	<17.8	<17.2	<17.8	<17.2	<16.6	<17.2
Cyclohexane	6300	26000	630,000	2,600,000	ug/m3	<13.6	<13.1	<13.6	<13.1	<12.6	<13.1
Dibromochloromethane (chlorodibromomethane)	0.9	4.5	90	450	ug/m3	<33.6	<32.4	<33.6	<32.4	<31.1	<32.4
Dichlorodifluoromethane (Freon-12)	100	440	10,000	44,000	ug/m3	<19.6	<18.9	<19.6	<18.9	<18.2	<18.9
Ethanol	NS	NS	NS	NS	ug/m3	59.5	90.8	165	73.3	316	300
Ethyl Acetate	NS	NS	NS	NS	ug/m3	<14.2	<13.7	<14.2	<13.7	<13.1	<13.7
Ethylbenzene	9.7	49	970	4,900	ug/m3	<17.1	<16.5	<17.1	<16.5	16.5	<16.5
Heptane	NS	NS	NS	NS	ug/m3	<16.1	<15.5	<16.1	<15.5	<14.9	<15.5
Hexachloro-1,3-butadiene	1.1	5.6	110	560	ug/m3	<42.7	<41.1	<42.7	<41.1	<39.6	<41.1
Hexane	730	3100	73,000	310,000	ug/m3	<14	20.3	<14	<13.5	33.4	45.7
Isopropyl Alcohol	7300	31000	730,000	3,100,000	ug/m3	<9.7	<9.4	17.4	<9.4	<9	20.8
m,p-Xylenes	NS	NS	NS	NS	ug/m3	37	41.5	<34.1	43	54.1	44.3
Methyl Bromide	5.2	22	520	2,200	ug/m3	<15.3	<14.8	<15.3	<14.8	<14.2	<14.8
Methyl Chloride	94	390	9,400	39,000	ug/m3	<8.1	<7.9	<8.1	<7.9	<7.6	<7.9
Methylene Chloride	52	260	5,200	26,000	ug/m3	<13.8	<13.3	<13.8	<13.3	<12.8	<13.3
Methyl-tert-butyl-ether	94	470	9,400	47,000	ug/m3	<14.2	<13.7	<14.2	<13.7	<13.1	<13.7
Naphthalene	0.72	3.6	72	360	ug/m3	<20.8	<20	<20.8	<20	<19.3	<20
o-Xylene	100	440	10,000	44,000	ug/m3	<17.1	19.5	<17.1	17.7	<15.8	18.1
Propene	3100	13000	310,000	1,300,000	ug/m3	<6.8	<6.5	<6.8	<6.5	<6.3	<6.5
Styrene	1000	4400	10,000	44,000	ug/m3	<16.9	<16.3	<16.9	<16.3	<15.7	<16.3
Tetrachloroethene	4.1	21	410	2,100	ug/m3	74.6	60	14.7	25.2	<12.4	<12.9
Tetrahydrofuran	NS	NS	NS	NS	ug/m3	<11.6	<11.2	<11.6	<11.2	<10.8	<11.2
Toluene	5200	22000	520,000	2,200,000	ug/m3	385	688	437	756	1430	2310
trans-1,2-Dichloroethene	63	260	6,300	26,000	ug/m3	<15.7	<15.1	<15.7	<15.1	<14.6	<15.1
trans-1,3-Dichloropropene	NS	NS	NS	NS	ug/m3	<17.8	<17.2	<17.8	<17.2	<16.6	<17.2
Trichloroethene	2.1	8.8	210	880	ug/m3	<10.7	<10.3	<10.7	<10.3	<9.9	<10.3
Trichlorofluoromethane (Freon-11)	730	3100	73,000	310,000	ug/m3	<22.1	<21.3	<22.1	<21.3	<20.5	<21.3
Vinyl Acetate	210	880	21,000	88,000	ug/m3	<13.9	<13.4	<13.9	<13.4	<12.9	<13.4
Vinyl Chloride	1.6	28	160	2,800	ug/m3	<5	<4.9	<5	<4.9	<4.7	<4.9

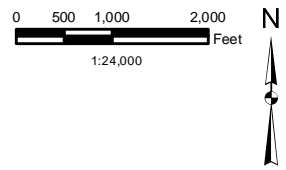
- a. Per IDEM's current RCG, these values are calculated using a conservative 0.01 attenuation factor.
b. "A" in sample identification number denotes a duplicate sample.
c. **Bold** and highlighted results exceed calculated residential soil gas screening levels.

FIGURES



Legend
 ● Site Location

Source: The topographic map was acquired through the USGS Topographic Map web service. Topo quadrangle date not provided.
 The aerial photo in the inset was acquired through the Microsoft Virtual Earth Aerial Photography web service. Aerial photography date not provided.



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City of South Bend
 Comprehensive Environmental Summary
 Studebaker Area A

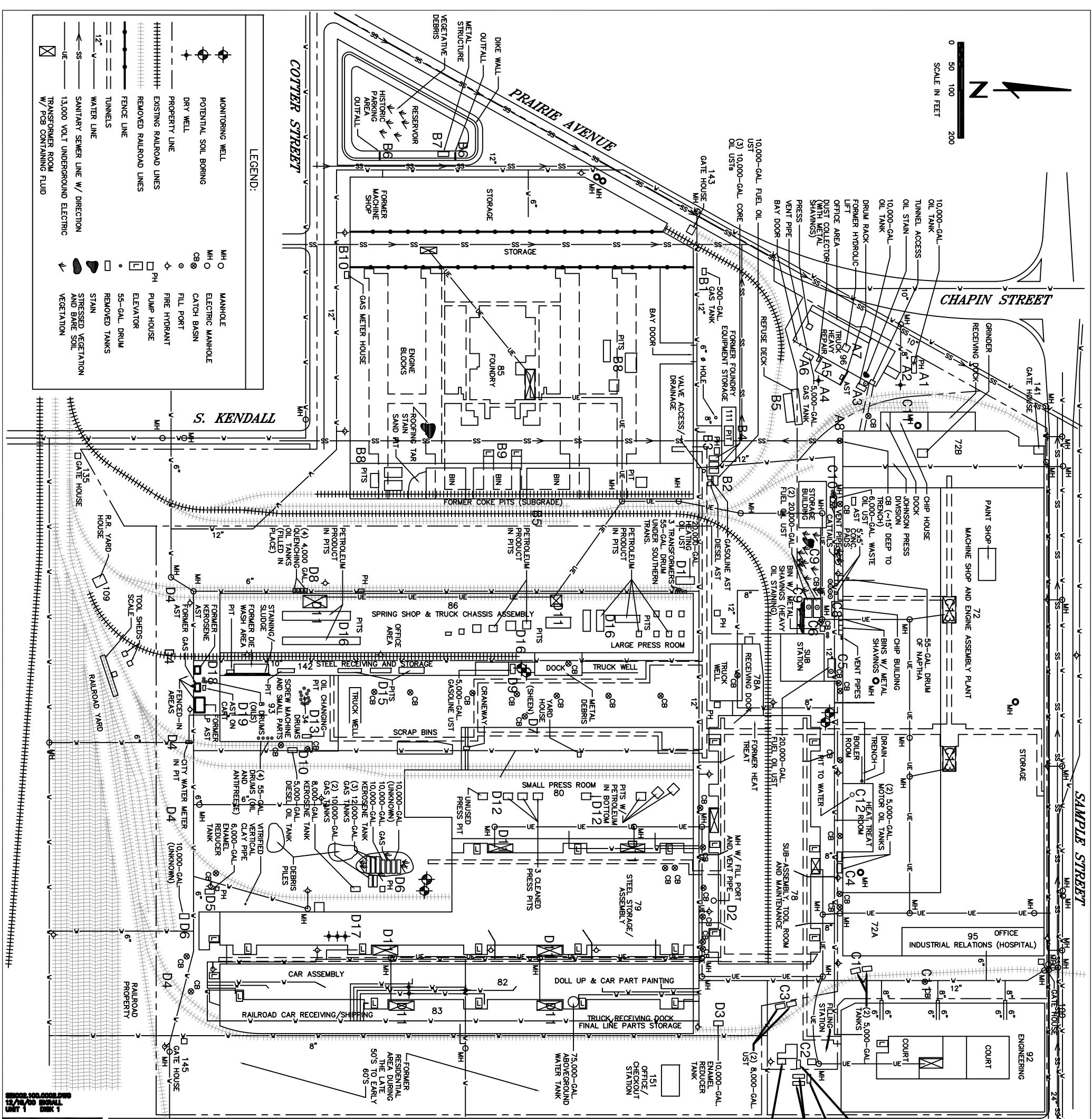
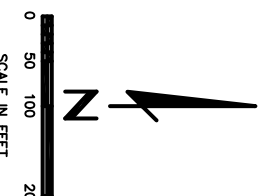
Site Location Map

South Bend, Saint Joseph County, Indiana

Date:
September 2012

File Name:
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 Edited: 9/7/2012 By: jslifer

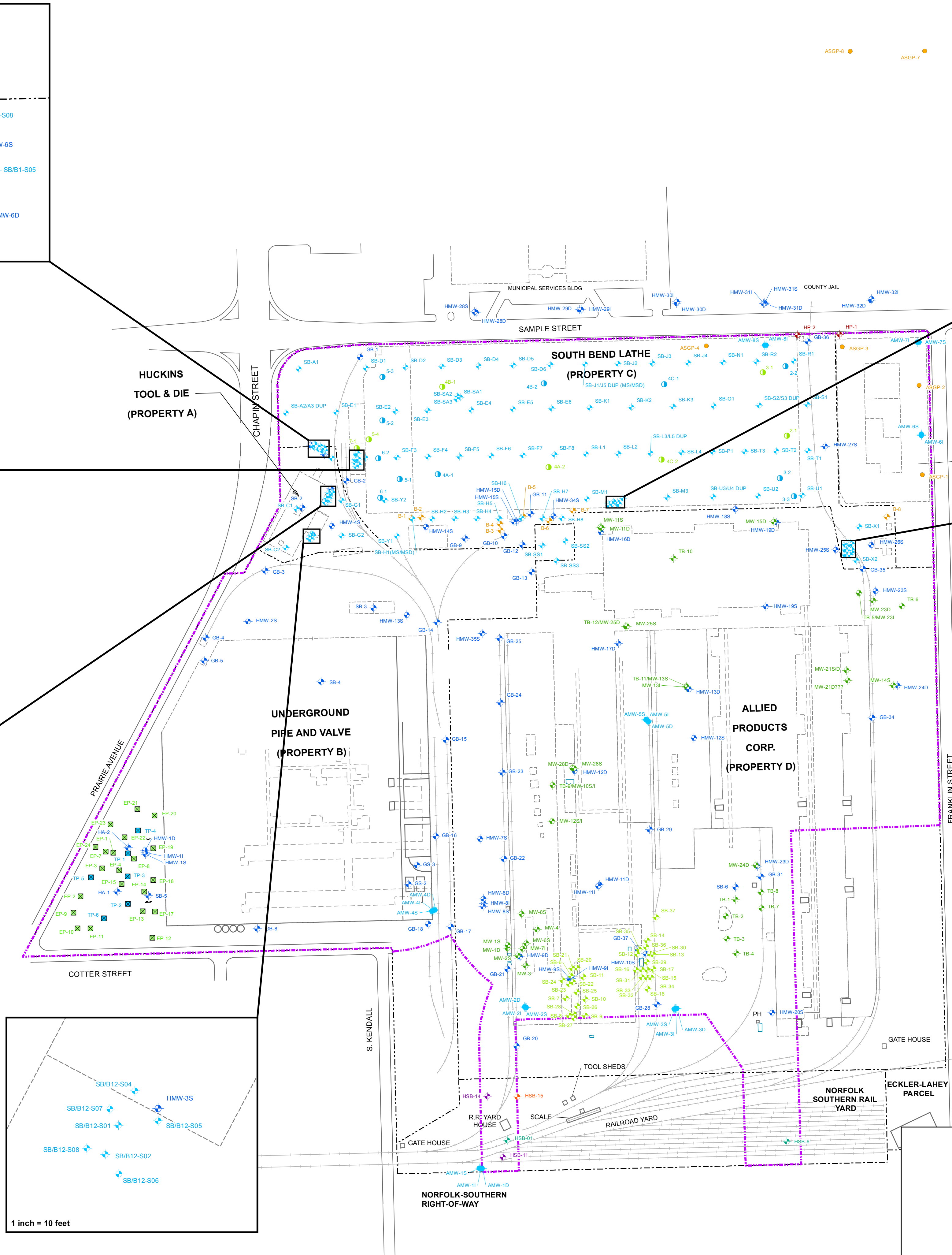
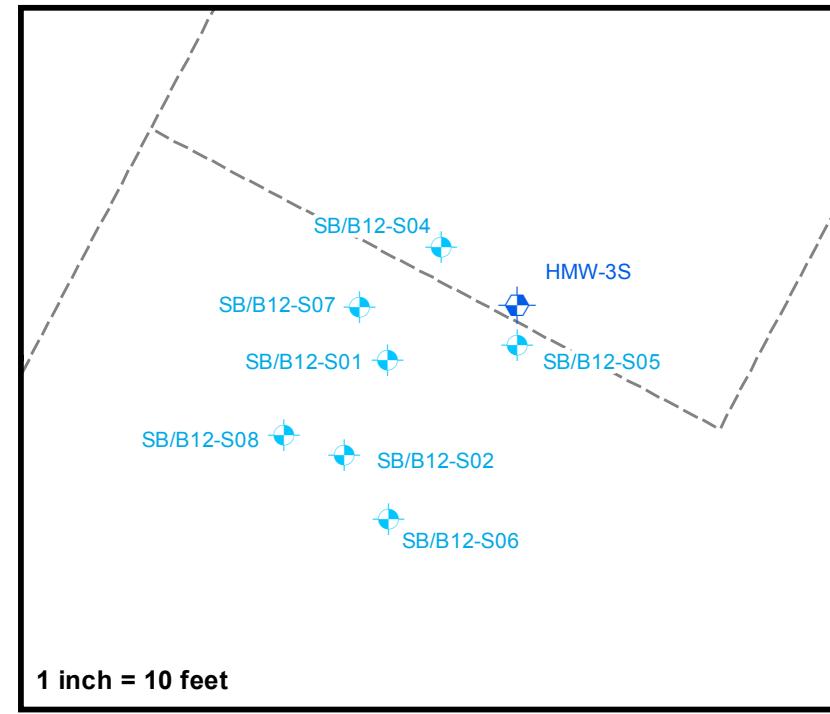
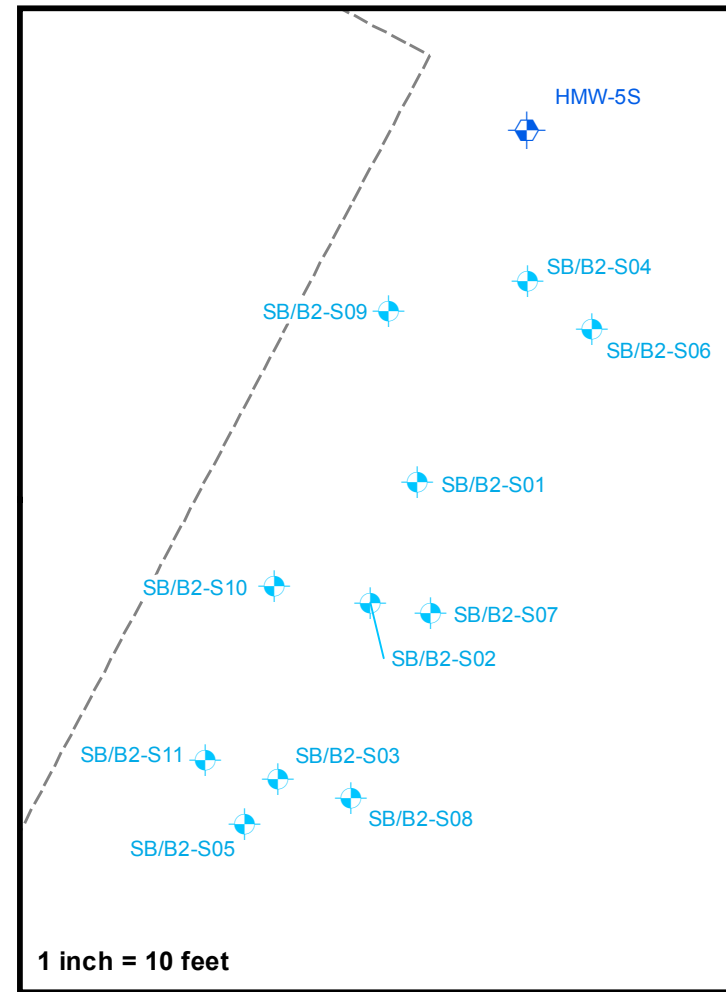
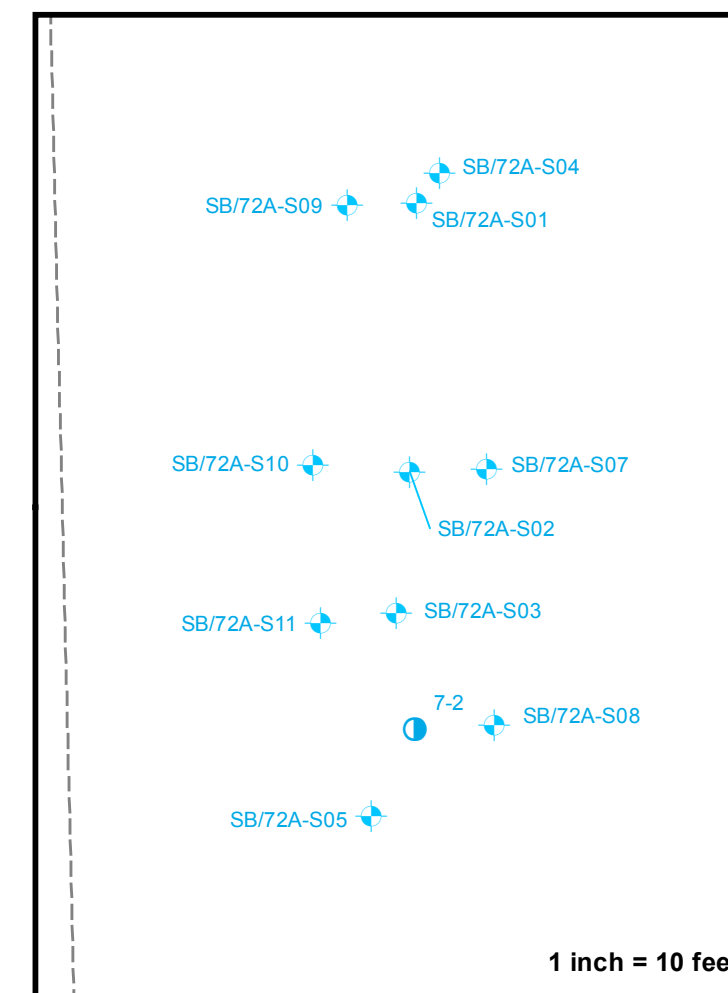
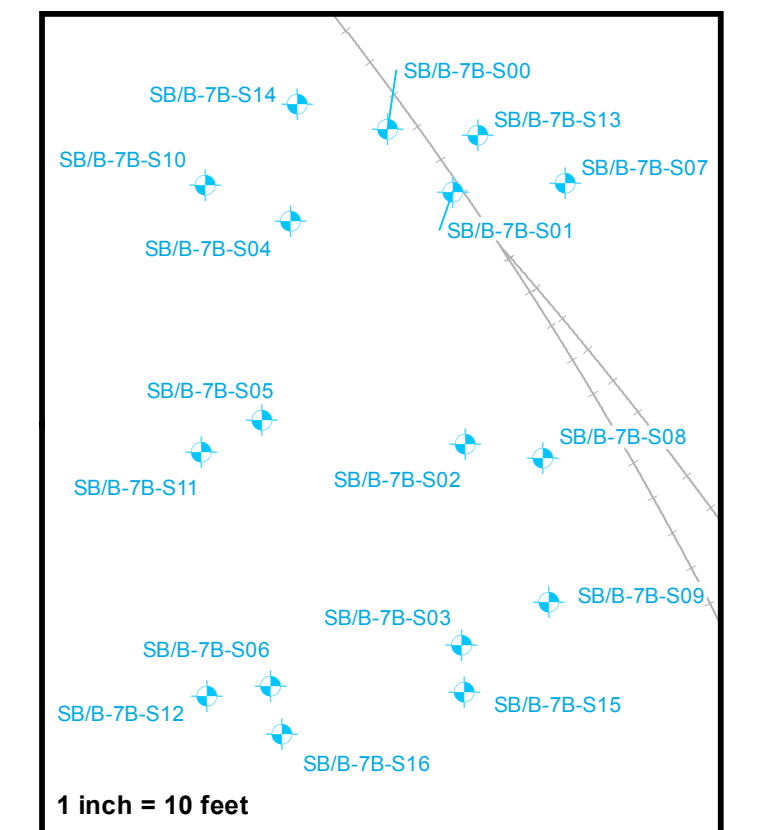
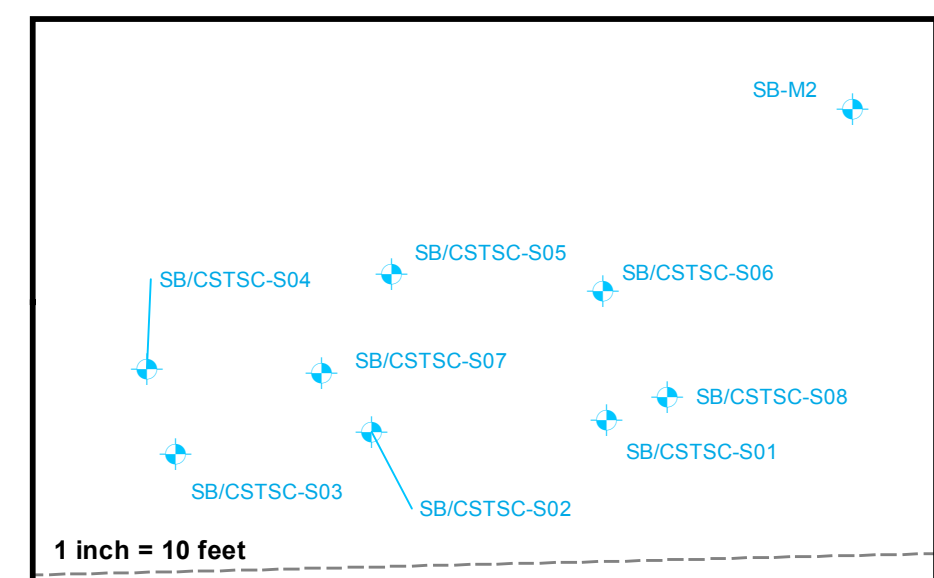
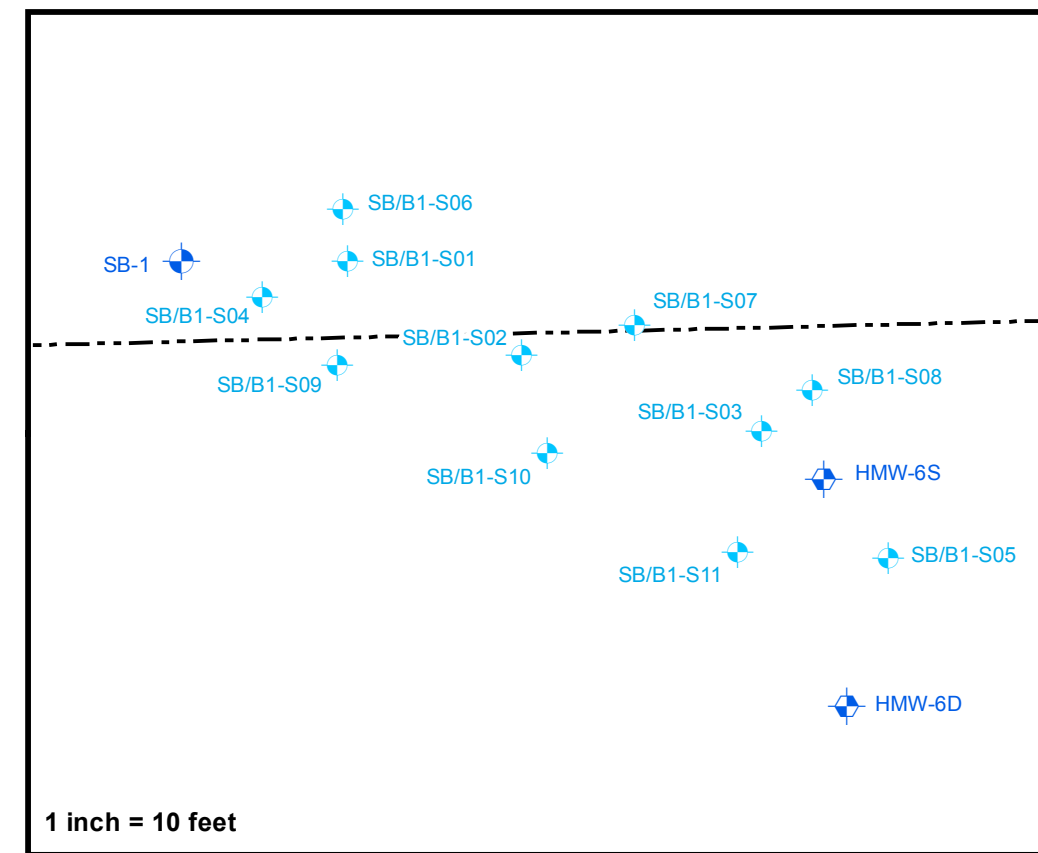
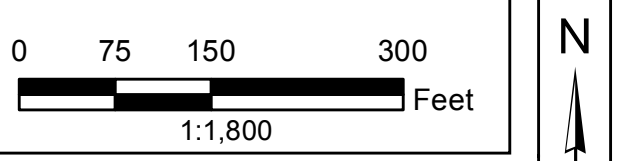
Figure
1



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NOTE
 THIS SITE MAP WAS CREATED FROM DRAWINGS PROVIDED BY C. RIGHTLEY, C.A. MCCARRISON (DRAWING #56652, 6/48), AND THE SIBWELL COMPANY. ALL INFORMATION REPRESENTED ON THIS DRAWING IS APPROXIMATE AND SHOULD BE USED FOR GENERAL PURPOSES ONLY.

(REC)	(REC) RECOGNIZED ENVIRONMENTAL CONDITION ITEM
A1	HUCKONS TOOL & DIE PROPERTY (PROPERTY A) 10,000-GALLON UST REPORTEDLY STORED OIL WAS LOCATED ON THE NORTH PORTION OF THE HUCKONS PROPERTY
A2	DRYWELL LOCATED NORTH OF THE HUCKONS PROPERTY
A3	10,000-GALLON UST REPORTEDLY STORED OIL WAS LOCATED NEAR THE EXTERIOR NORTHEAST CORNER OF THE HUCKONS PROPERTY
A4	DRYWELL LOCATED EAST OF THE EAST BUILDING ADDITION
A5	DUST COLLECTOR AND METAL SHAVINGS LOCATED AT THE EXTERIOR SOUTHWEST CORNER OF THE EAST BUILDING ADDITION
A6	5,000-GALLON UST REPORTEDLY STORED GASOLINE IS LOCATED IN THE SOUTH PORTION OF THE BUILDING
A7	FORMER HYDRAULIC LIFT LOCATED CENTRALLY IN THE HUCKONS BUILDING
A8	FORMER RAILS LOCATED ON THE EAST PORTION OF THE PROPERTY UNDERGROUND PIPE & VALVE PROPERTY (PROPERTY B)
B1	500-GALLON UST REPORTEDLY STORED GAS, LOCATED NORTH OF THE WEST PORTION OF THE MAIN BUILDING
B2	10,000 GALLON UST REPORTEDLY STORED FUEL OIL, LOCATED NORTH OF THE EAST PORTION OF THE MAIN BUILDING
B3	THREE 10,000-GALLON CORE OIL TANKS LOCATED NORTH OF THE EAST PORTION OF THE MAIN BUILDING
B4	A PIT WITH STEEL-PLATE COVER LOCATED NORTHWEST OF THE FORMER PUMP HOUSE
B5	FORMER RAILS LOCATED ON THE EAST AND NORTH PORTIONS OF THE PROPERTY
B6	TWO OUTFALLS FROM THE DIRECTION OF THE FACILITY TO THE RESERVOIR LOCATED ON THE SOUTHWEST PORTION OF THE PROPERTY
B7	HALF-BURIED METAL STRUCTURE (POTENTIAL TANK) LOCATED IN THE EAST WALL OF THE RESERVOIR
B8	NUMEROUS PITS LOCATED INSIDE THE FOUNDRY FILLED WITH WOOD AND METAL DEBRIS
B9	BINS WITH SAND AND POTENTIAL HISTORIC COKE PITS LOCATED AT THE EASTERN PORTION OF THE U & V BUILDING
B10	FOUR HISTORIC ASTs LOCATED AT THE SOUTH END OF THE BUILDING
C1	SOUTH BEND LATHE PROPERTY (PROPERTY C) TWO 5,000-GALLON USTs WITH UNKNOWN CONTENTS LOCATED EAST OF THE SOUTHERN PORTION OF THE BUILDING
C2	3,000-GALLON GAS TANK LOCATED SOUTH OF THE ENGINEERING BUILDING
C3	TWO 8,000-GALLON USTs OF UNKNOWN CONTENTS LOCATED SOUTH OF THE ENGINEERING BUILDING
C4	TWO 5,000 GALLON USTs REPORTEDLY CONTAINING MOTOR OIL, LOCATED SOUTH OF THE EASTERN PORTION OF THE BUILDING
C5	20,000-GALLON UST REPORTEDLY CONTAINING FUEL OIL, LOCATED NORTH OF THE AEP PROPERTY
C6	TWO 20,000-GALLON USTs REPORTEDLY CONTAINING FUEL OIL, LOCATED WEST OF THE AEP PROPERTY
C7	HEAVY OIL STAINING BY THE TRASH BIN CONTAINING METAL SHAVINGS AND ASSOCIATED CATCH BASIN
C8	OIL STAINING BY THE WOOD BINS LOCATED EAST OF THE CHIP HOUSE ON THE SOUTH SIDE OF THE MAIN BUILDING AND ASSOCIATED CATCH BASIN
C9	AREAS OF STRESSED VEGETATION AND BARE SOIL LOCATED BETWEEN THE AEP PROPERTY AND THE METAL STORAGE BUILDING
C10	6,000-GALLON UST REPORTEDLY CONTAINING WASTE OIL, LOCATED SOUTH OF THE WEST PORTION OF THE BUILDING
C11	FORMER RAILS LOCATED ON THE WEST AND EAST PORTIONS OF THE PROPERTY
C12	PIT LOCATED IN THE HEAT TREAT ROAD LOCATED IN THE SOUTH PORTION OF THE MAIN BUILDING
C13	POTENTIAL RELEASES FROM THE PGB-CONTAINING TRANSFORMERS LOCATED IN THE BUILDING
D1	20,000-GALLON UST REPORTEDLY CONTAINING HEATING OIL LOCATED NEAR THE NORTHWEST CORNER OF BUILDING 78
D2	POTENTIAL UST OF UNKNOWN SIZE AND CONTENTS LOCATED SOUTH OF BUILDING 78 APPROX. 130 FEET WEST OF THE SOUTHEAST CORNER OF THE BUILDING
D3	10,000-GALLON ENAMEL REDUCER TANK (REMOVED), LOCATED ON THE NORTHEAST PORTION OF THE PROPERTY
D4	FORMER AND CURRENT RAILS LOCATED ON THE PROPERTY
D5	6,000-GALLON ENAMEL REDUCER TANK, LOCATED WEST OF THE SOUTH END OF BUILDING 79
D6	TANK FARM FORMERLY COMPRESSED TEN USTs REPORTEDLY CONTAINING GASOLINE AND KEROSENE
D7	CATCH BASIN WITH AN OILY SHEEN LOCATED WEST OF BUILDING 80
D8	FOUR 4,000-GALLON USTs REPORTEDLY CONTAINING TCE AND FUEL OIL LOCATED WEST OF BUILDING 86
D9	5,000-GALLON UST REPORTEDLY CONTAINING GASOLINE, LOCATED EAST OF THE CENTRAL PORTION OF BUILDING 86
D10	5,000-GALLON UST REPORTEDLY CONTAINING DIESEL FUEL, LOCATED EAST OF BUILDING 93
D11	POTENTIAL RELEASES FROM PGB-CONTAINING TRANSFORMERS
D12	PRESS PITS WITH PETROLEUM PRODUCT LOCATED INSIDE BUILDING 80
D13	OIL CHANGE PIT LOCATED NEAR THE NORTHEAST CORNER OF BUILDING 83
D14	FORMER DIE WASH AREA LOCATED AT THE SOUTH END OF BUILDING 80
D15	PRESS PITS WITH PETROLEUM PRODUCT LOCATED INSIDE BUILDING 142
D16	PRESS PITS WITH PETROLEUM PRODUCT LOCATED INSIDE BUILDING 88
D17	THREE POTENTIAL DRYWELLS LOCATED IN THE SOUTHERN PORTION OF BUILDING 79
D18	POTENTIAL RELEASES FROM ASTs AND 55-GALLON DRUMS LOCATED SOUTH OF BUILDING 93
D19	POTENTIAL RELEASES FROM SOLVENT ASTs HISTORICALLY LOCATED AT THE SOUTH END OF BUILDING 93



Legend

- Project Boundaries
- Property Line
- Building
- Former Building
- Roads
- Railroad - Removed
- Tanks
- Tunnel

Area A - Pre-2002 Assessments

- 7/1992 Soil Borings and Monitoring Wells Installed by EIS (B-#)
- 5/1995 Monitoring Wells Installed by APT, Inc. (TB-#, MW-#/S/D)
- 5/1995 Soil Borings Installed by APT, Inc. (HP-#)
- Direct-Push Groundwater Sampling Location (HP-#)

Area A - Hull Soil Borings and Monitoring Wells

- Deep Monitoring Well Locations (HMW-#D)
- Monitoring Well Nest Locations, S=Shallow, I=Intermediate (HMW-#/S/I)
- Soil Boring to 4 Feet (GB-#)
- Soil Boring to 25 Feet (SB-#)
- Grab Sample Locations (GS-#)
- Soil Boring (July 2003)

Norfolk Southern Phase II ESA Sampling Locations

- Shallow Soil Boring (HSB-#)
- Shallow Soil Boring/Groundwater Sampling (HSB-#)
- Groundwater Sampling (HSB-#)

Weaver-Boos Sample Locations

- Approximate Core Location with Core Only (March 2008 through August 2009)
- Approximate Core Location with Boring (March 2008 through August 2009)
- Approximate Location of Exploratory Pit (February 2010)
- Approximate Location of Test Pit (February 2010)
- Weaver Boos (SB-A#) Huckings/S.B. Lathe Soil Borings

Area A - 6/2012 Groundwater and Soil Gas Sampling Locations

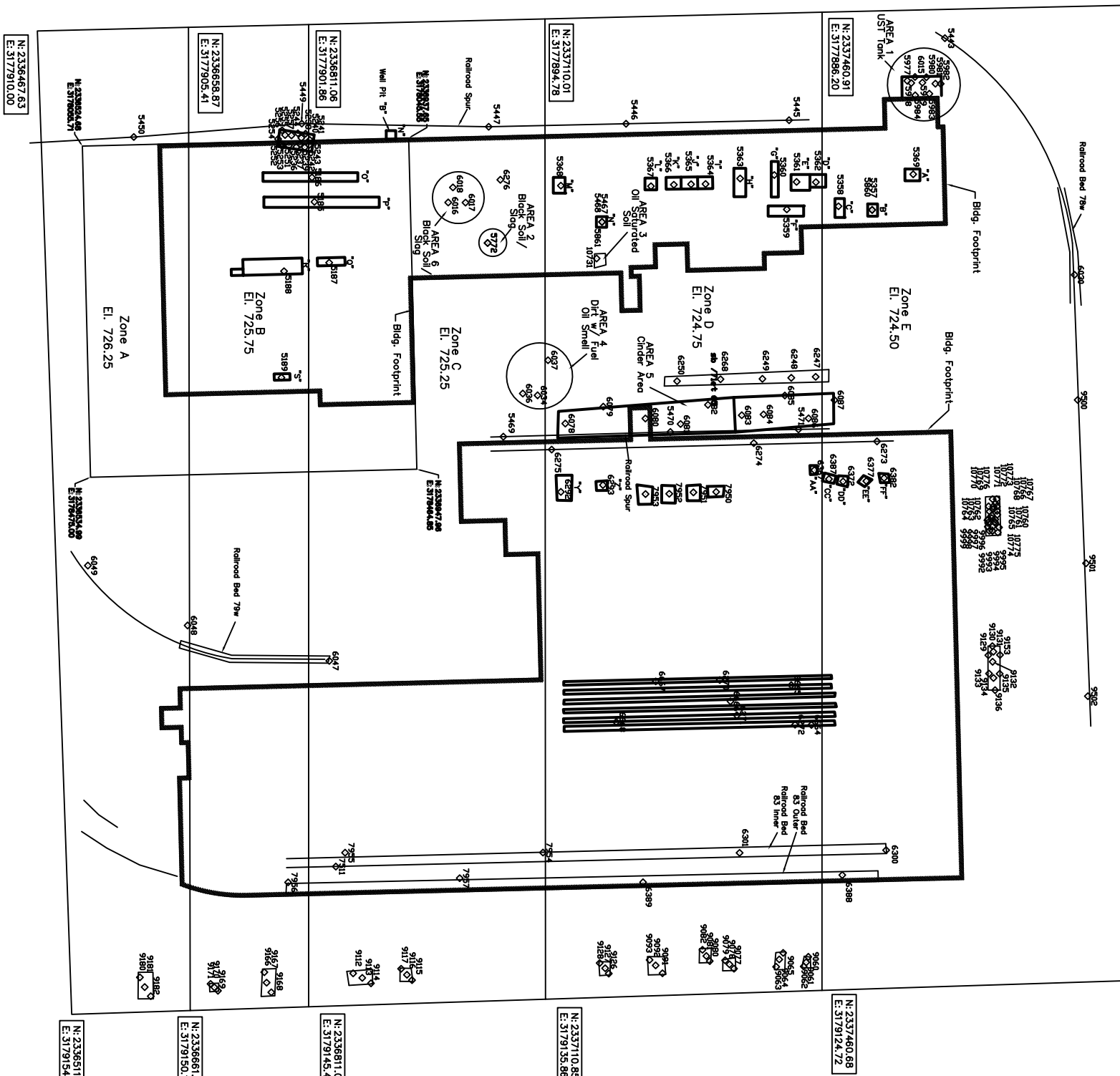
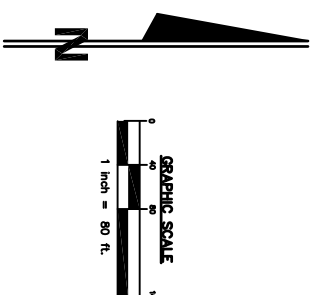
- Monitoring Well Nest Locations, S=Shallow, I=Intermediate (AMW-#/S/I/D)
- Soil Gas Sampling Locations

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September 2012
 Comprehensive Environmental Summary
 Studebaker Area A
**Site Plan and Historical
 Sample Locations**
 South Bend, Saint Joseph County, Indiana

Studebaker Area "A" Demolition Phase I

Press Pit & Soil Sample Locations



Point No.	Northings (N)	Eastings (E)	Elev (Z)	Description	Analysis
5877	2337568.878	3177973.097	721.13	soil sample -13	THP, PMA, BTEX
5878	2337573.117	3177978.883	718.92	soil sample -10	THP, PMA, BTEX
5879	2337573.117	3177978.883	718.92	soil sample -10	THP, PMA, BTEX
5880	2337282.484	3172288.582	720.84	soil sample -10/0/0/0	THP, PMA, BTEX
5881	2337604.434	3177978.882	720.25	soil sample -10	THP, PMA, BTEX
5882	2337604.434	3177978.882	720.25	soil sample -10	THP, PMA, BTEX
5883	2337604.434	3177978.882	720.25	soil sample -10	THP, PMA, BTEX
5884	2337578.705	3177991.504	720.43	soil sample -17/2/0	THP, PMA, BTEX
5885	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5886	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5887	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5888	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5889	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5890	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5891	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5892	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5893	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5894	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5895	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5896	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5897	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5898	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5899	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5900	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX

Point No.	Northings (N)	Eastings (E)	Elev (Z)	Description	Analysis
5901	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5902	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5903	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5904	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5905	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5906	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5907	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5908	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5909	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5910	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5911	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5912	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5913	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5914	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5915	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5916	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5917	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5918	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5919	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX
5920	2337578.705	3177991.504	720.43	soil sample -10	THP, PMA, BTEX

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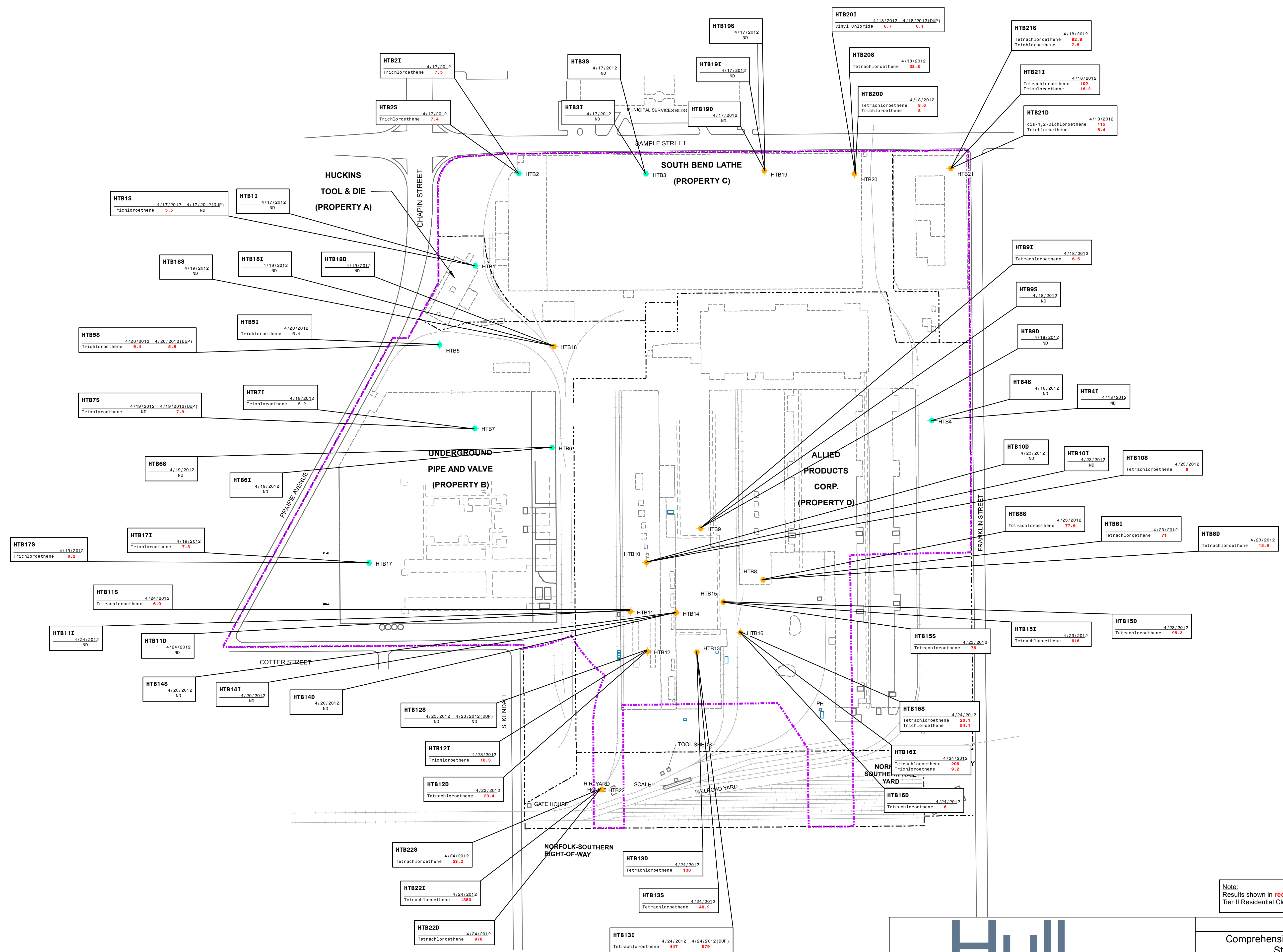
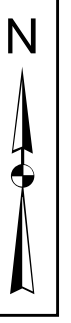
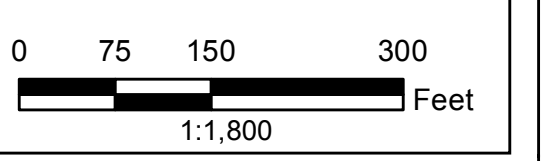
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COMPREHENSIVE ENVIRONMENTAL SUMMARY
STUDEBAKER AREA A

FIGURE 4
DEMOLITION PHASE I SAMPLING LOCATIONS

SOUTH BEND, ST. JOSEPH COUNTY, INDIANA

PROJECT NO: SB1068
SUBMITTAL DATE: SEPT. 2012
CAD DWG FILE: SB1068.DWG
PLOT DATE: 8/30/12



Note:
Results shown in red exceed 1996 VRP
Tier II Residential Cleanup Goals.

Legend

- Project Boundaries
- Property Line
- Building
- Former Building
- Roads
- Railroad - Removed
- Tanks
- Tunnel
- Temporary Sample Locations
- Shallow & Intermediate Only
- Shallow, Intermediate and Deep

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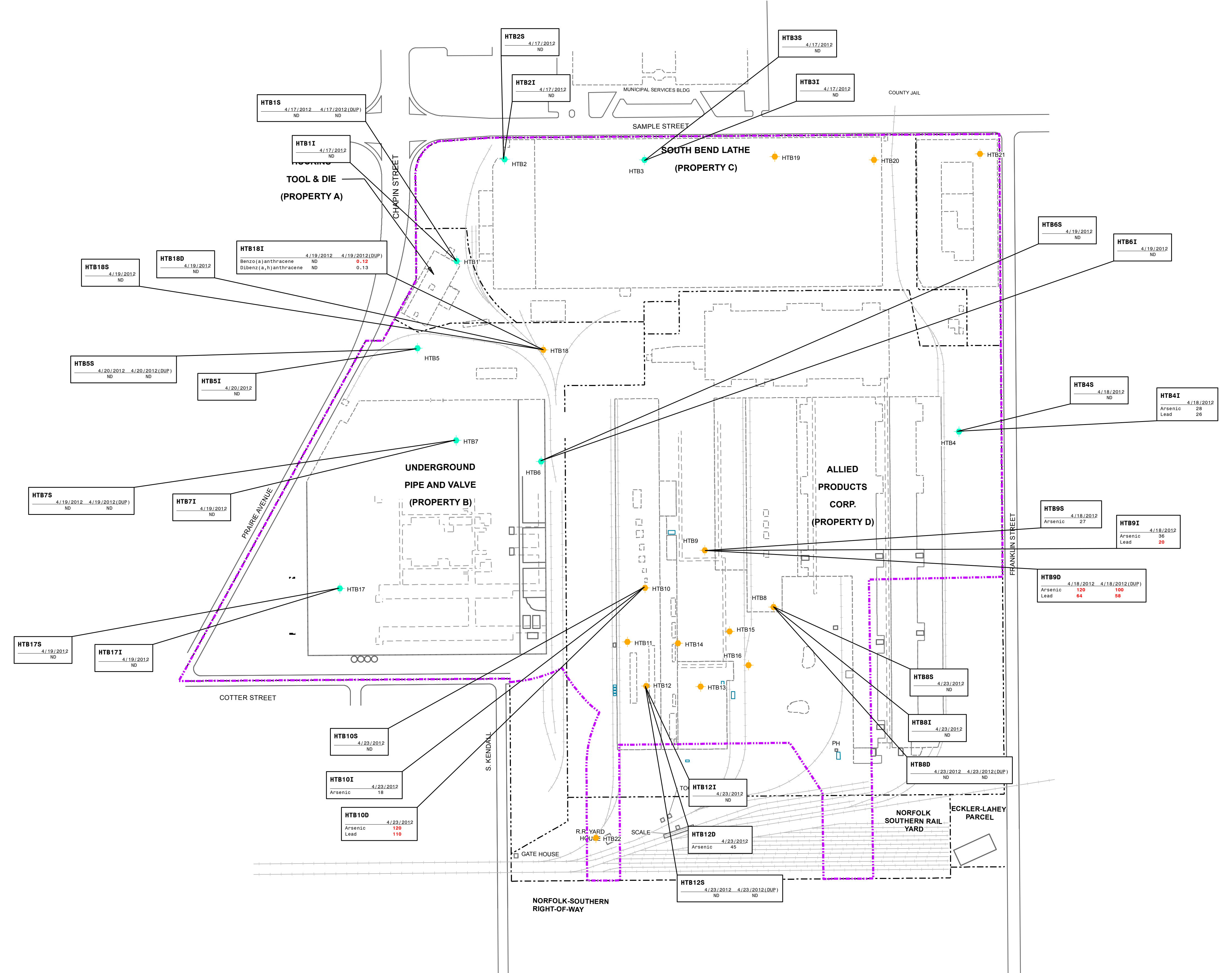
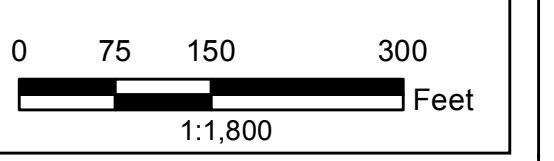
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September 2012
Comprehensive Environmental Summary
Studebaker Area A

Figure
5

Summary of Detected VOCs
from Temporary Sampling Points

South Bend, Saint Joseph County, Indiana



Legend

- Project Boundaries
- Property Line
- Building
- Former Building
- Roads
- Railroad - Removed
- Tanks
- Tunnel
- Temporary Sample Locations**
- Shallow & Intermediate Only
- Shallow, Intermediate and Deep

Note:
Results shown in red exceed 1996 VRP Tier II Residential Cleanup Goals.

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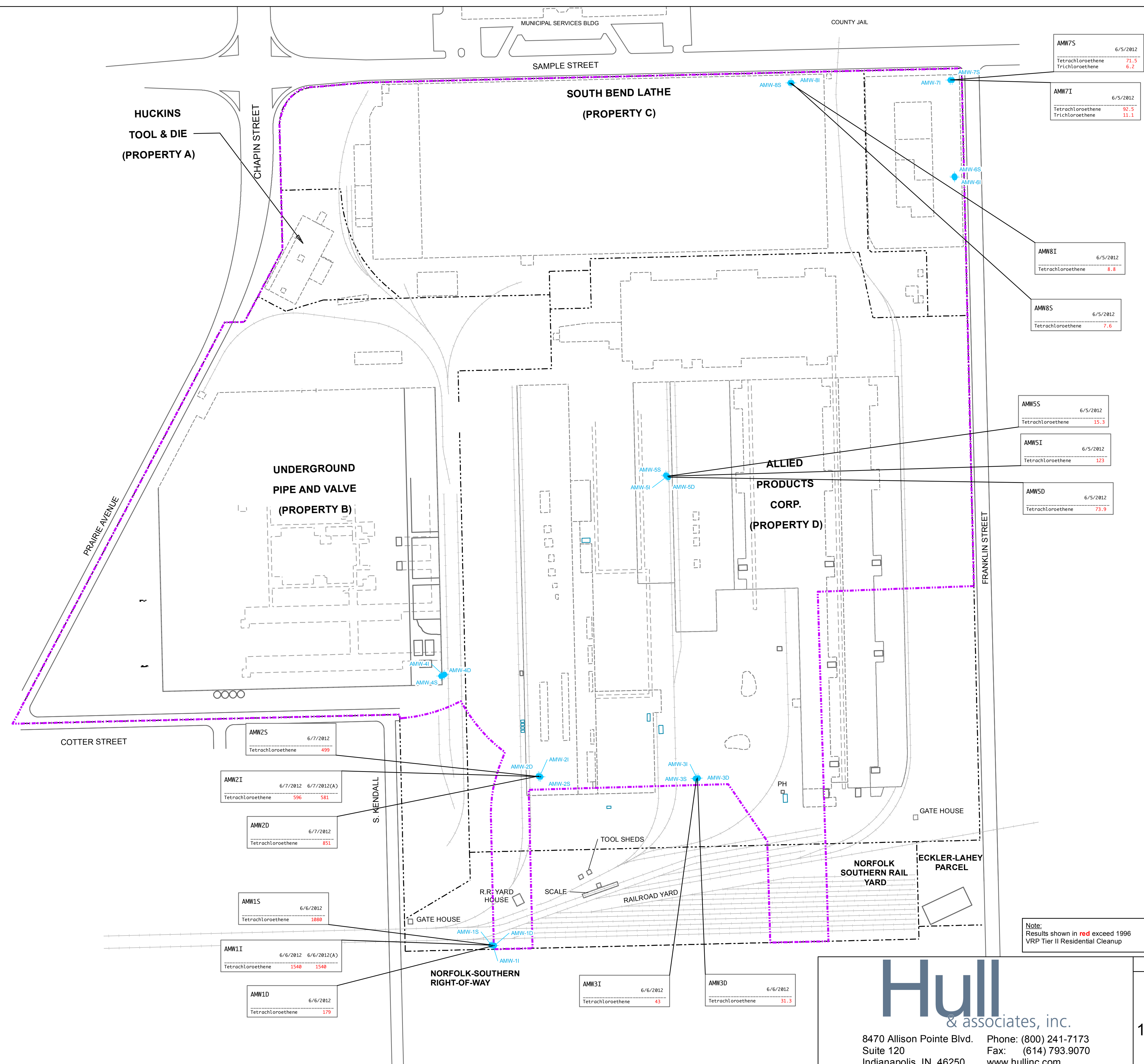
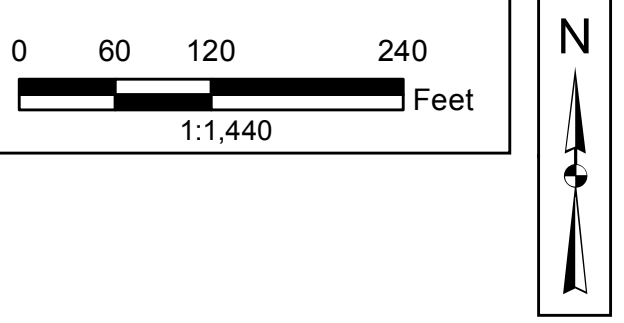
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September 2012
Comprehensive Environmental Summary
Studebaker Area A

Summary of Detected Metals, PCBs and
SVOCs from Temporary Sampling Points

South Bend, Saint Joseph County, Indiana

Figure
6



AMW7S	6/5/2012
Tetrachloroethene	71.5
Trichloroethene	6.2

AMW7I	6/5/2012
Tetrachloroethene	92.5
Trichloroethene	11.1

AMW8I	6/5/2012
Tetrachloroethene	8.8

AMW8S	6/5/2012
Tetrachloroethene	7.6

AMW5S	6/5/2012
Tetrachloroethene	15.3

AMW5I	6/5/2012
Tetrachloroethene	123

AMW5D	6/5/2012
Tetrachloroethene	73.9

AMW2S	6/7/2012
Tetrachloroethene	499

AMW2I	6/7/2012	6/7/2012(A)
Tetrachloroethene	596	581

AMW2D	6/7/2012
Tetrachloroethene	851

AMW1S	6/6/2012
Tetrachloroethene	1889

AMW1I	6/6/2012	6/6/2012(A)
Tetrachloroethene	1548	1540

AMW1D	6/6/2012
Tetrachloroethene	179

AMW3I	6/6/2012
Tetrachloroethene	43

AMW3D	6/6/2012
Tetrachloroethene	31.3

Legend

- Project Boundaries
- Property Line
- Building
- Former Building
- Roads
- Railroad - Removed
- Tanks
- Tunnel

Note:
Results shown in red exceed 1996 VRP Tier II Residential Cleanup

Area A - 6/2012 Groundwater and Soil Gas Sampling Locations(
Monitoring Well Nest Locations, S=Shallow, I=Intermediate, D=Deep (AMW-#S/I/D)

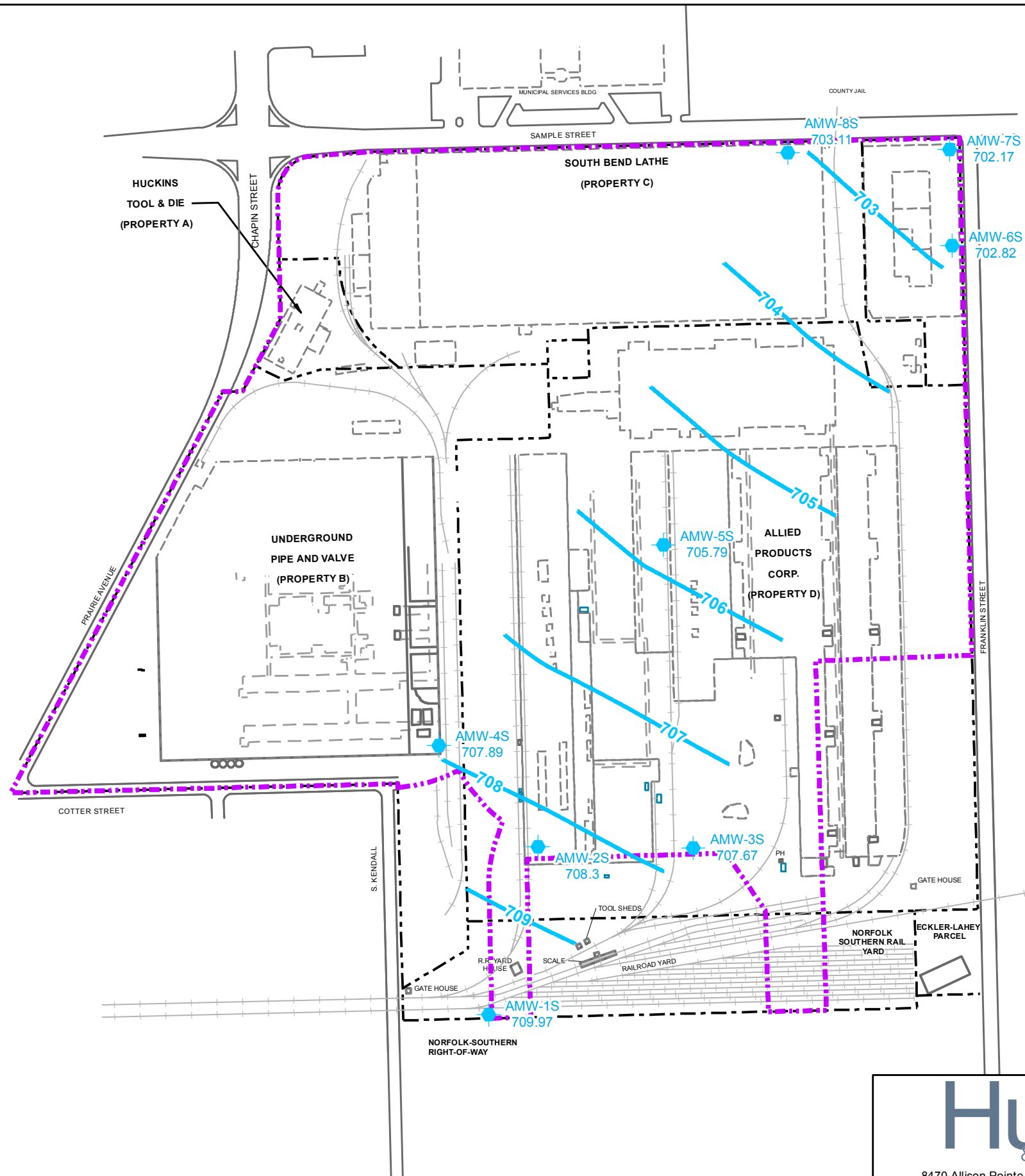
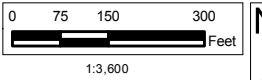
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September 2012
Comprehensive Environmental Summary
Studebaker Area A

**VOC Detections Exceeding
1996 VRP Residential Standards**

South Bend, Saint Joseph County, Indiana



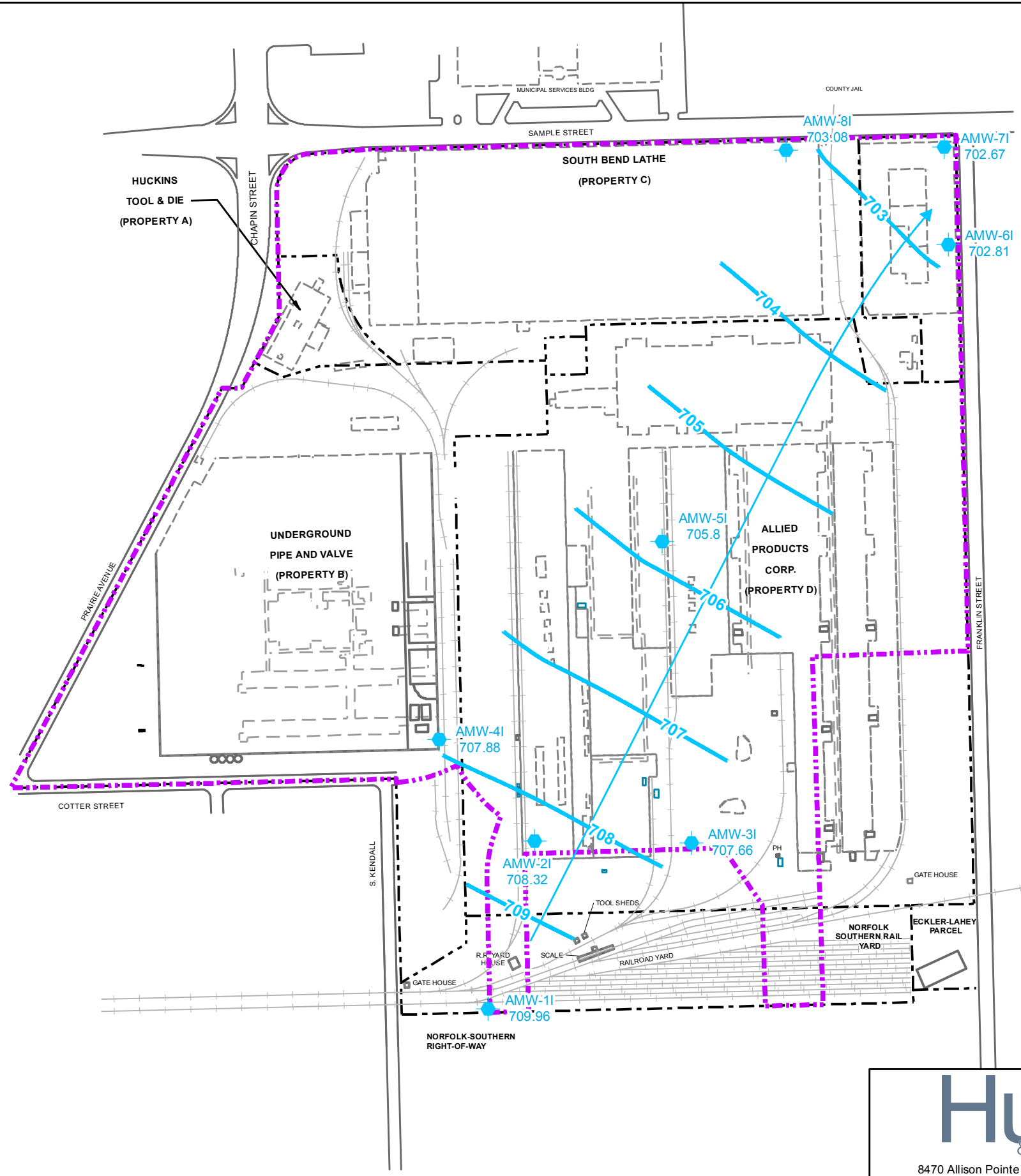
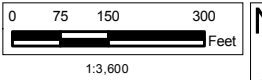
Legend

- Project Boundaries
- Monitoring Well Nest Locations, S=Shallow, I=Intermediate (AMW-#S/I/D)
- Property Line
- Building
- Former Building
- Roads
- Railroad - Removed
- Tanks
- Tunnel

Potentiometric Contours

- Calculated
- Flow Direction

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	Comprehensive Environmental Summary Studebaker Area A	Figure
	Piezometer Surface Map Shallow Wells - 6/5/12	8
South Bend, Saint Joseph County, Indiana		File Name: SBI068_03_Fig08_PSM060512S.mxd Edited: 9/7/2012 By: jsf#r



Legend

- Project Boundaries
- Monitoring Well Nest Locations, S=Shallow, I=Intermediate (AMW-#S/I/D)
- Property Line
- Building
- Former Building
- Roads
- Railroad - Removed
- Tanks
- Tunnel

Potentiometric Contours

- Calculated
- Flow Direction

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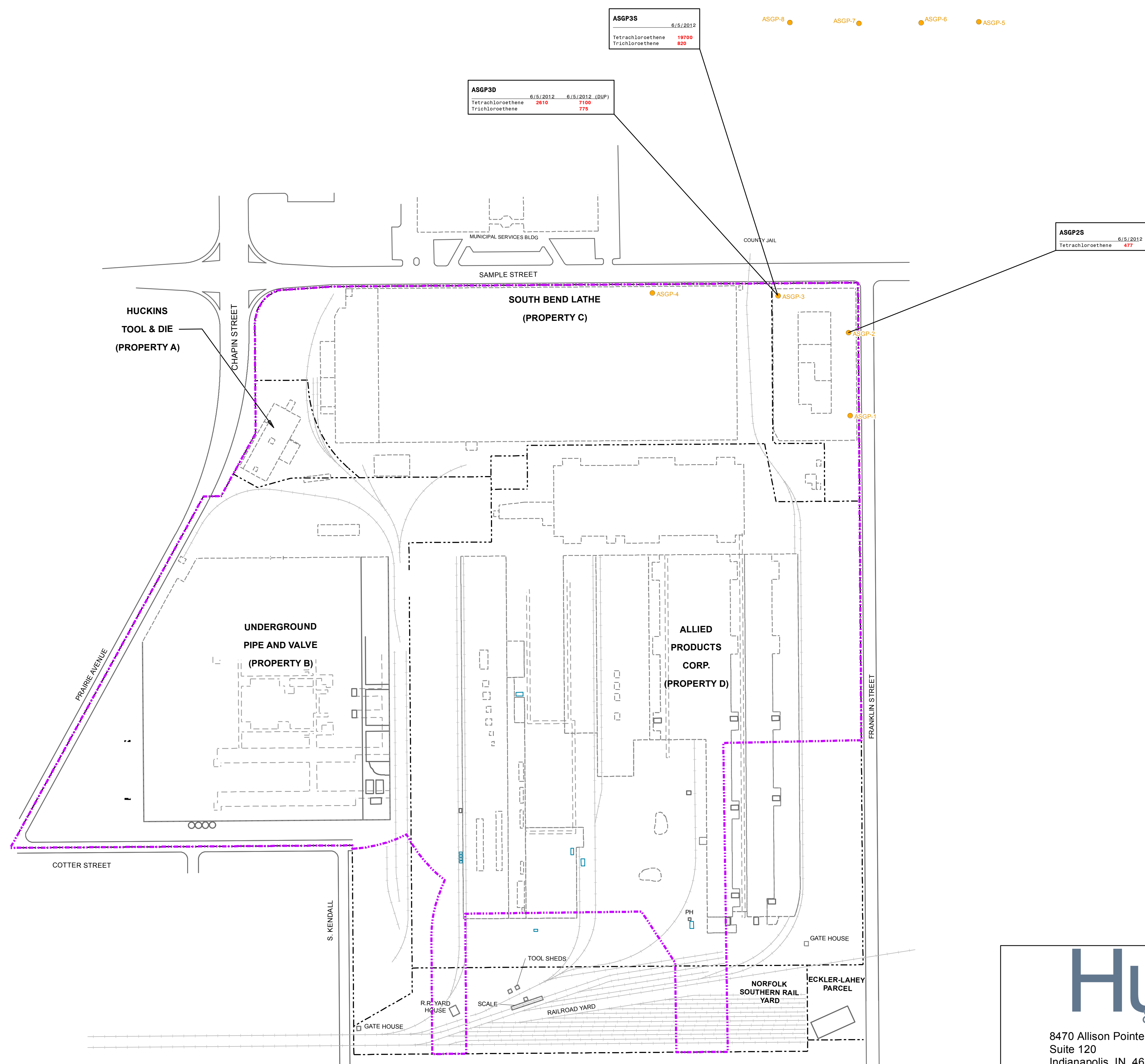
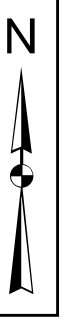
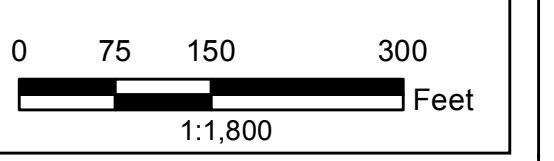
September 2012

Comprehensive Environmental Summary
Studebaker Area A

**Piezometer Surface Map
Intermediate Wells - 6/5/12**

South Bend, Saint Joseph County, Indiana

Figure
9



Note:
Results shown in red exceed the Calculated Residential Soil Gas Screening Levels.

- Legend**
- Project Boundaries
 - Property Line
 - Building
 - Former Building
 - Roads
 - Railroad - Removed
 - Tanks
 - Tunnel
 - Soil Gas Sampling Locations

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September 2012
Comprehensive Environmental Summary
Studebaker Area A

**Summary of On- and Off-Site
Soil Gas Sampling Results**

South Bend, Saint Joseph County, Indiana

Figure
10

APPENDICES



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 07/31/01
Date Completed : 07/31/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Hand Auger
Sampling Method :
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HA-1

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Topsoil, rootlets
		SS-1	0.0-0.5	2.6									Dark brown SAND, rootlets
		SS-1	0.5-1.0										Same as above
1	-1	SS-2	1.0-1.3	5.1									Brown SAND, some gravel, dry
		SS-2	1.3-1.5										Brown SAND, coarse, moist, trace gravel
		SS-3	1.5-2.3	4.7									Same as above
2	-2	SS-4	2.3-2.8	4.1									Same as above
		SS-5	2.8-3.3	4.0									Same as above
3	-3	SS-6	3.3-4.0	3.5									Same as above
4													End of boring at 4'

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 07/31/01
 Date Completed : 07/31/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : Hand Auger
 Sampling Method :
 Total Depth (ft.) : 4.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HA-2

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 0.0 (10.2 EV)
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Dark brown SAND with gravel, rootlets, glass
		SS-1	0.0-0.7	2.7									Brown SAND with gravel, rootlets
		SS-2	0.7-1.3	4.5									
1	-1												Same as above (no rootlets)
		SS-3	1.3-1.7	4.7									
		SS-4	1.7-2.2	6.4									Light brown SAND, some gravel
2	-2												
		SS-5	2.2-2.7	8.1									Light brown coarse SAND, trace gravel, moist
		SS-6	2.7-3.3	7.8									Same as above
3	-3												
		SS-7	3.3-4.0	6.8									Same as above
4													End of boring at 4'

F:\CLIENTS\SB\BI002\SOIL BORING LOGS\HA-2.BOR

11-28-2001

Hull

& associates, inc.

Date Started : 07/31/01
 Date Completed : 07/31/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : Hand Auger
 Sampling Method :
 Total Depth (ft.) : 1.4'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HA-3

(Page 1 of 1)

South Bend Area A
 Franklin & Sample
 South Bend, IN

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 0.0 (10.2 EV)
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

SBI002

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												
		SS-1	0.0-0.9	0.0									Dark brown SAND with cinder, rootlets, dry
		SS-2	0.9-1.4	3.3									Same as above but cinders are in smaller pieces; rootlets are less prevalent
1	-1												Refusal at 1.4' (rock) End of boring at 1.4'
2													



Date Started : 07/31/01
 Date Completed : 07/31/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : Hand Auger
 Sampling Method :
 Total Depth (ft.) : 2.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HA-4

(Page 1 of 1)

South Bend Area A
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 0.0 (10.2 EV)
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												
		SS-1	0.0-0.8	2.2									Dark brown SAND with cinder, rootlets, dry
		SS-2	0.8-1.4	5.2									Same as above with less rootlets
1	-1												
		SS-3	1.4-2.0	5.1									Cinder fill
													End of boring at 2.0'
2													



Date Started : 08/23/01
 Date Completed : 08/23/01
 Logged by : Matt Young
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : Split Spoon / GeoProbe
 Sampling Method :
 Total Depth (ft.) : 4.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING SB-26A

(Page 1 of 1)

South Bend Area A
 UP&V Reservoir
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID / 2020
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Concrete to 9"
		SS-1 0.0-2.0	24/24	3.2									Brown clayey SAND, moist
2	-2	SS-2 2.0-4.0	24/18	6.8									Same as above
3	-3												Brown fine to medium SAND, trace silt
4													End of boring at 4.0'

11-30-2001 F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\SB-26A.BOR



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

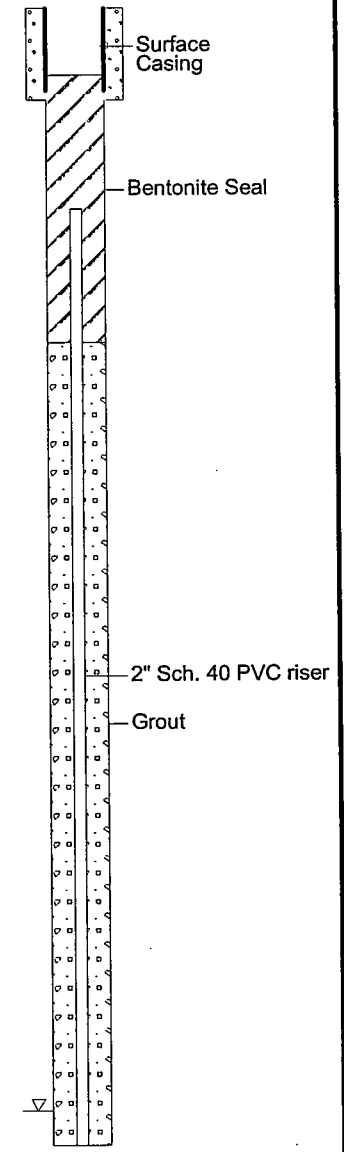
Date Started : 07/31/01
Date Completed : 07/31/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 85.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-1D

(Page 1 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : Photo vac 100ppm ISO
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0	HA-1/ 0.0-2.0		2.3						Black organic rich medium to fine SAND, trace silt, trace gravel, dry, rootlets throughout
1	-1									
2	-2	HA-2/ 2.0-4.0		4.8						Brown medium to coarse SAND, trace gravel, moist, loose
3	-3									
4	-4	SS-3 4.0-6.0	24/10	4.9	1-5-1					Used tile probe from 4 to 5, begin s/s at 4.0'
5	-5									Same as above, trace silt
6	-6	SS-4 6.0-8.0	24/12	3.3	2-3-1					Same as above
7	-7									
8	-8	SS-5 8.0-10.0	24/18	6.0	2-2-3					Same as above, less silt
9	-9									
10	-10	SS-6 10.0-12.0	24/12	6.4	3-9-9					Same as above
11	-11									
12	-12	SS-7 12.0-14.0	24/14	4.8	4-14-11					Same as above
13	-13									
14	-14	SS-8 14.0-16.0	24-12	3.1	4-20-11					Same as above
15	-15									
16	-16	SS-9 16.0-18.0	24/24	4.7	9-26-12					Same as above, wet, more gravel, more coarse sand
17										



F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-1D.BOR

11-30-2001



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

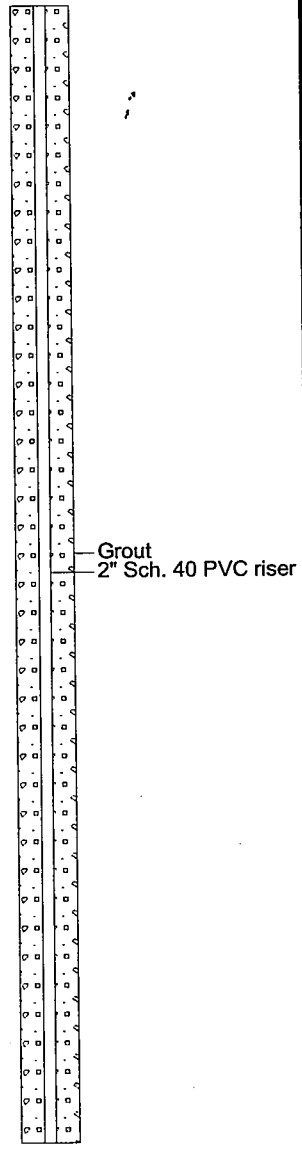
Date Started : 07/31/01
Date Completed : 07/31/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Toplite
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 85.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-1D

(Page 2 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : Photo vac 100ppm ISO
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	Well: HMW-1D Elev.:
								<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling		
17	-17												
18	-18	SS-10 18.0-20.0	24/12	2.8	9-24-6							Same as above	
19	-19												
20	-20	SS-11 20.0-22.0	24/12	6.1	3-10-7							Same as above	
21	-21												
22	-22	SS-12 22.0-24.0	24/12	5.9	4-10-8							Same as above	
23	-23												
24	-24	SS-13 24.0-26.0	24/12	5.0	5-18-13							Same as above, less gravel, less coarse sand	
25	-25												
26	-26	SS-14 26.0-28.0	24/12	4.1	2-14-2							Same as above	
27	-27												
28	-28	SS-15 28.0-30.0	24/16	3.0	4-16-13							Same as above	
29	-29												
30	-30	SS-16 30.0-32.0	24/14	8.4	5-18-15							Same as above, hit rock in end of spoon	
31	-31												
32	-32	SS-17 32.0-34.0	24/12	5.1	9-48-30							Same as above	
33	-33												
34	-34												



F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-1D.BOR

11-30-2001

Date Started : 07/31/01
 Date Completed : 07/31/01
 Logged by : Matt Young
 Reviewed by :
 Drilling Contractor : Topflite
 Drilling Method : 4.25 HSA
 Sampling Method : Split Spoon
 Total Depth (ft.) : 85.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-1D

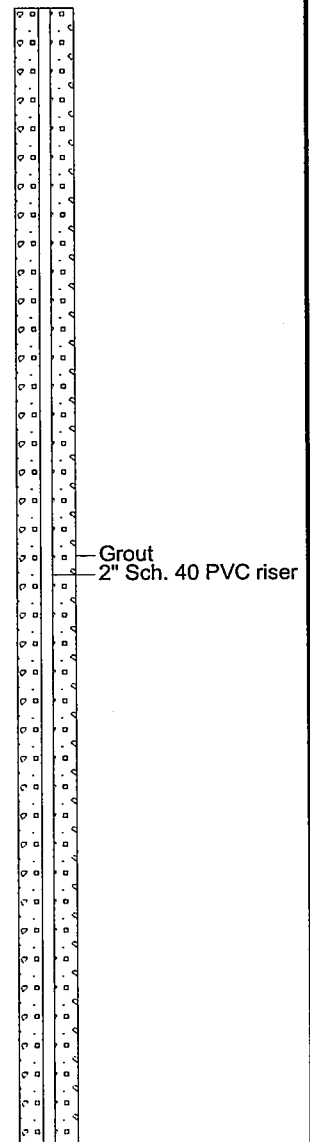
(Page 3 of 5)

South Bend Area A
 UP&V Reservoir
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : Photo vac 100ppm ISO
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION	Well: HMW-1D Elev.:
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input type="checkbox"/> During Drilling		
34	-34	SS-18 34.0-36.0	24/18	7.1	7-38-29					Same as above, more gravel	
35	-35										
36	-36	SS-19 36.0-37.0	24/0 12/6	7.1 5.8	15-50-27					No recovery, resampled at 36 to 37'	
37	-37	SS-20 37.0-39.0	24/12	5.5	8-34-25					Same as above, increase to a few gravel, more coarse sand	
38	-38										
39	-39	SS-21 39.0-41.0	24/12	0	21-40-27					Same as above, back to trace of gravel	
40	-40										
41	-41	SS-22 41.0-43.0	24/12	1.9	29-66-27					Same as above	
42	-42										
43	-43	SS-23 43.0-45.0	24/18	3.5	15-51-27					Same as above	
44	-44										
45	-45	SS-24 45.0-47.0	24/12	1.7	18-85-50					Same as above	
46	-46										
47	-47	SS-25 47.0-49.0	24/22	1.8	14-66-40					Same as above, less gravel	
48	-48									Brown fine SAND, trace silt, wet	
49	-49	SS-26 49.0-51.0	24/16	1.1	7-39-27					Same as above, sluff in 1st feet	
50	-50										
51	-51										



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 07/31/01
Date Completed : 07/31/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 85.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-1D

(Page 4 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : Photo vac 100ppm ISO
PID/FID Calibration : 100ppm isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION	Well: HMW-1D Elev.:
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling		
51	-51	SS-27 51.0-53.0	24/22	2.3	5-46-44					Brown coarse to medium SAND, trace silt, wet	<p>Grout 2" Sch. 40 PVC riser</p>
52	-52									Brown fine SAND, trace silt, wet	
53	-53	SS-28 53.0-55.0	24/14	3.0	5-29-21					Same as above, trace medium sand and gravel	
54	-54										
55	-55	SS-29 55.0-57.0	24/22	4.0	7-26-28					Same as above, no coarse sand or gravel	
56	-56										
57	-57	SS-30 57.0-59.0	24/12	3.7	3-9-11					Grey fine silty SAND, wet	
58	-58									Same as above, sluff 1st 8"	
59	-59	SS-31 59.0-61.0	24/24	1.3	8-26-16					Same as above, 12" shoe ss	
60	-60										
61	-61	SS-32 61.0-63.0	24/24	9.1	13-31-21					Grey fine sandy SILT, wet, 1st 6" sluff	
62	-62										
63	-63	SS-33 63.0-65.0	24/24	7.8	29-45-26					Same as above, increase silt with depth	
64	-64										
65	-65	SS-34 65.0-67.0	24/10	9.2	35-50					Same as above	
66	-66										
67	-67	SS-35 67.0-69.0	24/24	6.5	15-46-27					Interbedded with clay at end of spoon	
68										Same as above, interbedded clayey silt	



Date Started : 07/31/01
 Date Completed : 07/31/01
 Logged by : Matt Young
 Reviewed by :
 Drilling Contractor : Topflite
 Drilling Method : 4.25 HSA
 Sampling Method : Split Spoon
 Total Depth (ft.) : 85.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-1D

(Page 5 of 5)

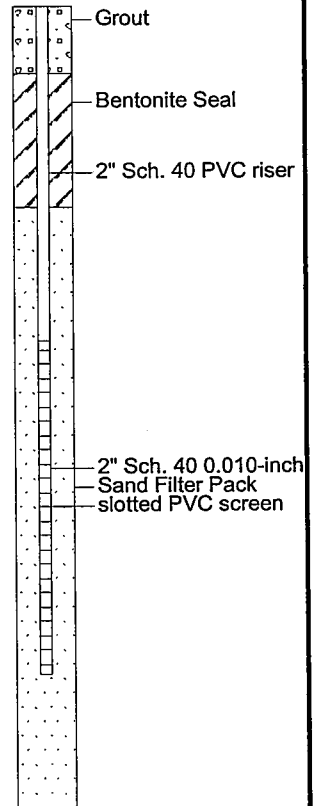
South Bend Area A
 UP&V Reservoir
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : Photo vac 100ppm ISO
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
68	-68									
69	-69	SS-36 69.0-71.0	24/24	8.2	11-30-19					Same as above, trace gravel
70	-70									
71	-71	SS-37 71.0-73.0	24/24	3.1	11-48-26					Same as above
72	-72									
73	-73	SS-38 73.0-75.0	24/24	6.4	8-34-27					Same as above, more gravel
74	-74									
75	-75	SS-39 75.0-77.0	24/24	8.9	6-18-14					Same as above, no clay, less gravel
76	-76									
77	-77	SS-40 77.0-79.0	24/24	5.8	4-15-13					Same as above
78	-78									
79	-79	SS-41 79.0-81.0	24/24	3.5	7-17-13					Grey silty fine SAND, wet, trace gravel
80	-80									Same as above
81	-81	SS-42 81.0-83.0	24/18	3.9	23-31-50					Same as above
82	-82									Brown and grey layering
83	-83	SS-43 83.0-85.0	24/24	3.6	14-34-23					Same as above, no layering less silt
84	-84									Same as above, brown and grey layering
85	-85									End of boring at 85'

Well: HMW-1D
 Elev.:



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11-30-2001



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 08/02/01
Date Completed : 08/02/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 24.0'
S. Water Level Date :
S. Water Level (ft.) :

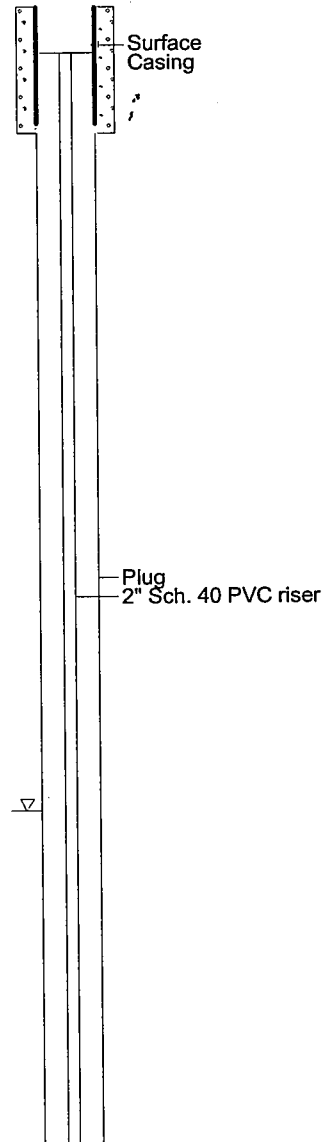
LOG OF BORING HMW-6S

(Page 1 of 2)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0	SS-1 0.0-2.0	24/12	7.1	7-27-8					Black organic rich medium to fine sand FILL, few silt, trace gravel, dry, slag fragments noted
1	-1									
2	-2		24/0	8.9	1-4-3					No recovery, no catch, black staining on spoon
3	-3									
4	-4	SS-3 4.0-6.0	24/10	14.5	1-4-3					Black stained medium to coarse SAND, trace gravel, trace silt
5	-5									
6	-6	SS-4 6.0-8.0	24/12	11.9	1-4-4					Same as above
7	-7									
8	-8	SS-5 8.0-10.0	24/12	5.4	2-5-3					Same as above, wet
9	-9									
10	-10	SS-6 10.0-12.0	24/12	10.5	2-6-7					Same as above
11	-11									
12	-12									Brown medium to coarse SAND, trace silt, trace gravel

Well: HMW-6S
Elev.:



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11-30-2001



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 08/02/01
Date Completed : 08/02/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 24.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-6S

(Page 2 of 2)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling	
12	-12		24/2		7-18-12							Well: HMW-6S Elev.:
13	-13											
14	-14	SS-7 14.0-16.0	24-10	9.2	6-13-10							
15	-15											
16	-16	SS-8 16.0-18.0	24/10	8.6	4-15-12							
17	-17											
18	-18	SS-9 18.0-20.0	24/10	2.5	4-17-9							
19	-19											
20	-20	SS-10 20.0-22.0	24/12	8.4	6-15-10							
21	-21											
22	-22	SS-11 22.0-24.0	24/12	9.4	4-12-9							
23	-23											
24	-24											

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11-30-2001



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 08/02/01
Date Completed : 08/02/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 88.0'
S. Water Level Date :
S. Water Level (ft.) :

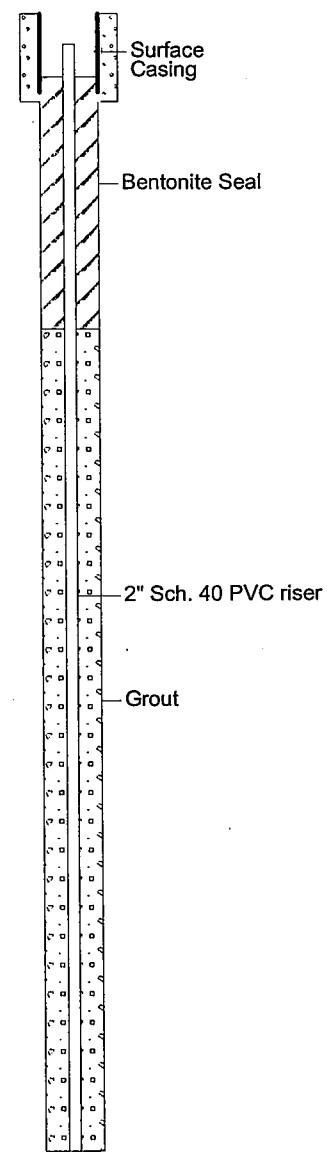
LOG OF BORING HMW-6D

(Page 1 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
0	0	HA-1/ 0.0-2.0		1.6						Black organic rich medium to fine sand FILL, trace silt, trace gravel, dry, slag fragments noted
1	-1									
2	-2	HA-2/ 2.0-4.0		4.1						
3	-3									
4	-4	SS-3 4.0-6.0	24/14	3.4	4-9-4					Brown medium to coarse SAND, trace gravel, trace silt, moist Same as above
5	-5									
6	-6	SS-4 6.0-8.0	24/12	6.4	3-7-3					Same as above, black colored banding
7	-7									
8	-8	SS-5 8.0-10.0	24/18	3.4	5-10-5					Same as above
9	-9									
10	-10	SS-6 10.0-12.0	24/18	5.3	3-5-3					Same as above
11	-11									
12	-12	SS-7 12.0-14.0	24/14	2.8	7-29-15					Same as above, more coarse SAND, more gravel
13	-13									
14	-14	SS-8 14.0-16.0	24/10	5.6	17-61-20					Same as above, increase to a few gravel
15	-15									
16	-16	SS-9 16.0-18.0	24/12	8.8	13-28-16					Same as above
17	-17									
18	-18									

Well: HMW-6D
Elev.:



11-30-2001 F:\CLIENTS\BIS\B002\SOIL BORING LOGS\HMW-6D.BOR



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

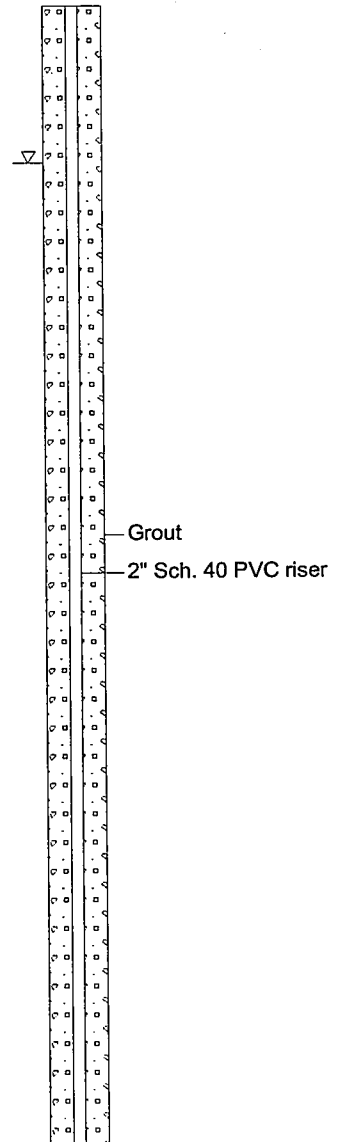
Date Started : 08/02/01
Date Completed : 08/02/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 88.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-6D

(Page 2 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION	Well: HMW-6D Elev.:
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling		
18	-18	SS-10 18.0-20.0	24/12	9.5	16-35-15					Same as above	
19	-19										
20	-20	SS-11 20.0-22.0	24/16	1.3	10-26-15					Same as above, wet	
21	-21										
22	-22	SS-12 22.0-24.0	24/12	0.3	8-37-17					Same as above, black staining at 21.5', 2" thick Same as above, increase medium grain SAND	
23	-23										
24	-24	SS-13 24.0-26.0	24/8	0.0	11-28-17					Same as above	
25	-25										
26	-26	SS-14 26.0-28.0	24/14	2.4	10-27-11					Same as above	
27	-27										
28	-28	SS-15 28.0-30.0	24/10	0.9	5-15-9					Same as above	
29	-29										
30	-30	SS-16 30.0-32.0	24/12	1.3	23-52-28					Same as above, increase silt (still trace)	
31	-31										
32	-32	SS-17 32.0-34.0	24/16	2.3	7-27-31					Same as above, fine to medium grain SAND, trace gravel, trace silt, wet	
33	-33										
34	-34	SS-18 34.0-36.0	24/12	0.0	13-39-31					Same as above, large stone in end of spoon	
35	-35										
36	-36										



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11-30-2001



Date Started : 08/02/01
 Date Completed : 08/02/01
 Logged by : Matt Young
 Reviewed by :
 Drilling Contractor : Topflite
 Drilling Method : 4.25 HSA
 Sampling Method : Split Spoon
 Total Depth (ft.) : 88.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-6D

(Page 3 of 5)

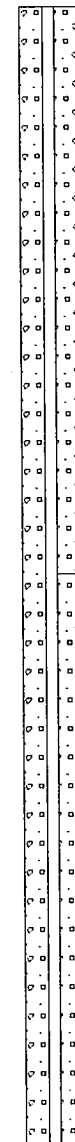
South Bend Area A
 UP&V Reservoir
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID / 2020
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12" 6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
36	-36	SS-19 36.0-38.0	23/14	1.4	36-61-50			☒	▼	Same as above, increase silt, larger size gravel, becoming very dense
37	-37							☒	▼	
38	-38	SS-20 38.0-40.0	24/16	1.7	15-54-40			☒	▼	Same as above
39	-39							☒	▼	
40	-40	SS-21 40.0-42.0	24/16	0.0	29-78-50			☒	▼	Same as above, very dense
41	-41							☒	▼	
42	-42	SS-22 42.0-44.0	24/8	0.7	15-54-39			☒	▼	Same as above, less gravel (Note: Had to move rig, possibly hit large rock and it caused augers to offset 2 to 3', Didn't move boring)
43	-43							☒	▼	
44	-44	SS-23 44.0-46.0	23/12	0.1	28-88-50			☒	▼	Same as above, less silt
45	-45							☒	▼	
46	-46	SS-24 46.0-48.0	24/4	0.0	15-88-4			☒	▼	Same as above
47	-47							☒	▼	
48	-48	SS-24 48.0-50.0	11/10	0.0	38-50			☒	▼	Same as above
49	-49							☒	▼	
50	-50		23/0		9-63-50			☒	▼	
51	-51							☒	▼	Trace of gravel in spoon, no recovery
52	-52	SS-25 52.0-54.0	23/12	1.6	15-67-50			☒	▼	Same as above, medium to fine SAND, trace silt, trace gravel
53	-53							☒	▼	
54	-54							☒	▼	

Well: HMW-6D
 Elev.:



Grout
 2" Sch. 40 PVC riser



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 08/02/01
Date Completed : 08/02/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 88.0'
S. Water Level Date :
S. Water Level (ft.) :

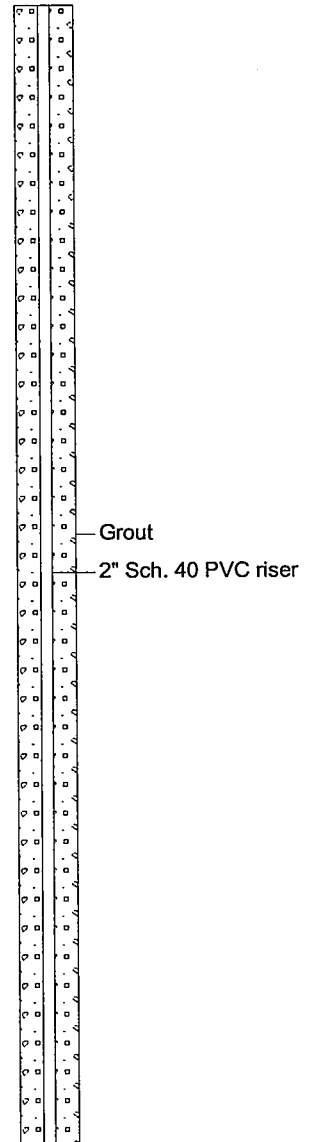
LOG OF BORING HMW-6D

(Page 4 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
54	-54		23/0		25-71-50					
55	-55									No recovery, resampling same interval, no recovery on 2nd attempt
56	-56	SS-26 56.0-58.0	23/14	1.3	18-54-50					Same as above, black staining at 57.5
57	-57									
58	-58	SS-27 58.0-60.0	17/14	1.6	13-28-50					Same as above
59	-59									
60	-60	SS-28 60.0-62.0	24/12	2.1	15-52-38					Same as above
61	-61									
62	-62	SS-29 62.0-64.0	17/0		18-36-50					No Recovery
63	-63									
64	-64	SS-30 64.0-66.0	16/10	8.4	17-32-50					Same as above, less gravel
65	-65									
66	-66	SS-31 66.0-68.0	17/14	0.5	7-32-50					Same as above, more gravel
67	-67									
68	-68		15/15		27-25-50					1" of brown clayey SILT, very stiff in spoon, dry 14" of sluff 1" clayey SILT at end
69	-69									
70	-70	SS-32 70.0-72.0	21/18	4.1	6-38-50					Brown medium to coarse SAND, trace gravel, trace silt, wet
71	-71									
72	-72									

Well: HMW-6D
Elev.:



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11-30-2001



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 08/02/01
Date Completed : 08/02/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 88.0'
S. Water Level Date :
S. Water Level (ft.) :

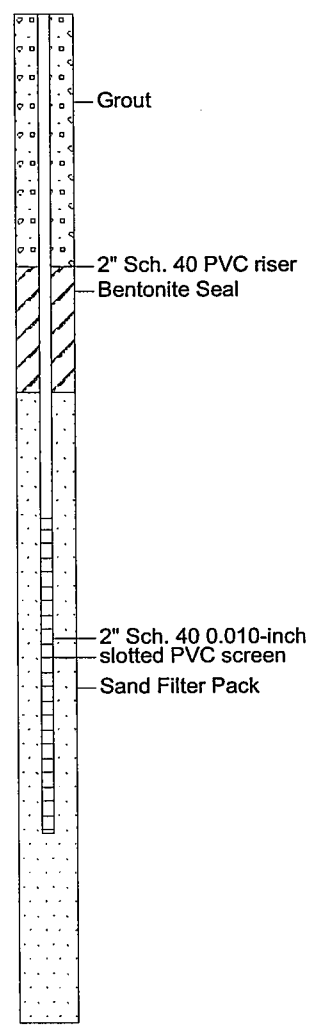
LOG OF BORING HMW-6D

(Page 5 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
72	-72	SS-33 72.0-74.0	21/16	2.5	13-48-50					Same as above
73	-73									
74	-74	SS-34 74.0-76.0	12/12		38-120					Same as above, less gravel
75	-75									
76	-76	SS-35 76.0-78.0	21/21	1.1	18-63-50					Same as above, no gravel
77	-77									
78	-78	SS-36 78.0-80.0	15/15	7.5	18-72-50					Brown silty CLAY, few sand and gravel. 1" thick in end of spoon No recovery on first attempt, took 109 to go 6"
79	-79									
80	-80	SS-37 80.0-82.0	12/12	4.2	34-100					Brown medium to fine SAND, trace gravel, wet, very dense Same as above, no gravel, increase fines
81	-81									
82	-82		24/0		12-89					Brown fine to very fine silty SAND, wet, no recovery
83	-83									
84	-84	SS-38 84.0-86.0	24/4	0	1-9-20					Same as above, 1" silt seem at end of spoon
85	-85									
86	-86	SS-39 86.0-88.0	24/12	0	23-9					Brown fine to medium grain SAND, trace gravel, trace silt
87	-87									
88	-88									End of boring at 88.0'
89	-89									
90	-90									

Well: HMW-6D
Elev.:



11-30-2001 F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-6D.BOR

South Bend Area A
UP&V Reservoir
South Bend, IN
SBI002

Date Started : 08/09/01
Date Completed : 08/09/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 78.0'
S. Water Level Date :
S. Water Level (ft.) :

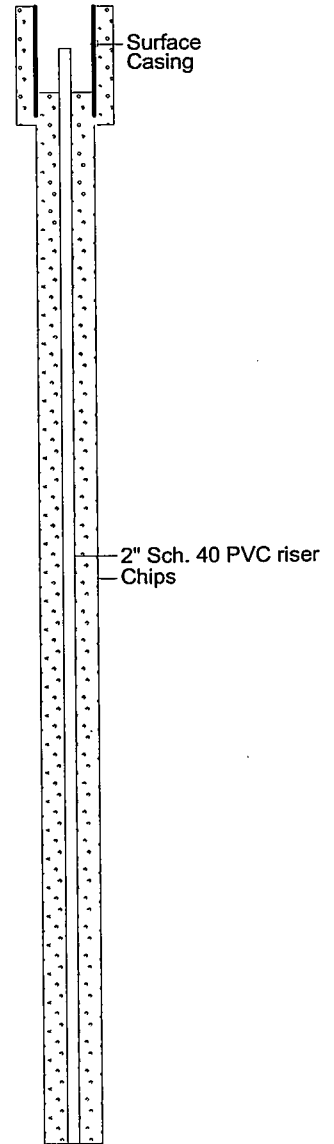
LOG OF BORING HMW-8D

(Page 1 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input checked="" type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									Concrete
1	-1	HA-1/ 1.0-2.0		1.8						
2	-2	HA-2/ 2.0-4.0		2.3						Brown silty medium to coarse SAND, trace gravel moist
3	-3									Light brown medium to coarse SAND, trace gravel moist
4	-4	SS-3 4.0-6.0	24/14	0.9	4-17-8					Same as above
5	-5									
6	-6	SS-4 6.0-8.0	24/18	2.1	4-9-5					Same as above, less gravel
7	-7									
8	-8	SS-5 8.0-10.0	24/22	5.6	3-6-4					Same as above
9	-9									
10	-10	SS-6 10.0-12.0	24/16	0.6	2-6-4					Same as above, increase gravel
11	-11									
12	-12	SS-7 12.0-14.0	24/14	2.9	4-19-16					Same as above
13										

Well: HMW-8D
Elev.:





South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 08/09/01
Date Completed : 08/09/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 78.0'
S. Water Level Date :
S. Water Level (ft.) :

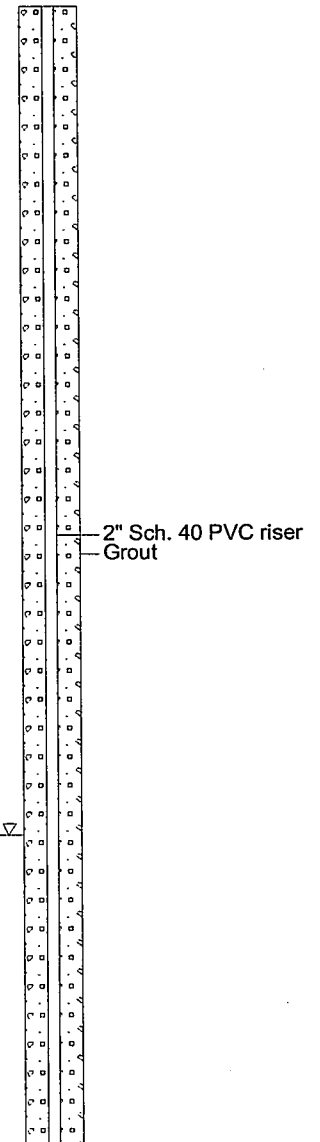
LOG OF BORING HMW-8D

(Page 2 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling	
13	-13											
14	-14	SS-8 14.0-16.0	24/14	2.4	4-21-13							Same as above, no gravel
15	-15											
16	-16	SS-9 16.0-18.0	24/20	2.1	4-47-31							Same as above
17	-17											
18	-18	SS-10 18.0-20.0	24/24	0.8	11-29-17							Same as above, trace gravel
19	-19											
20	-20	SS-11 20.0-22.0	24/20	0.0	11-31-17							Same as above
21	-21											
22	-22	SS-12 22.0-24.0	24/18	0.0	8-16-12							Same as above, wet
23	-23											
24	-24	SS-13 24.0-26.0	24/20	0.0	4-22-21							Same as above
25	-25											
26	-26											

Well: HMW-8D
Elev.:





Date Started : 08/09/01
 Date Completed : 08/09/01
 Logged by : Matt Young
 Reviewed by :
 Drilling Contractor : Topflite
 Drilling Method : 4.25 ID HSA
 Sampling Method : Split Spoon
 Total Depth (ft.) : 78.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-8D

(Page 3 of 6)

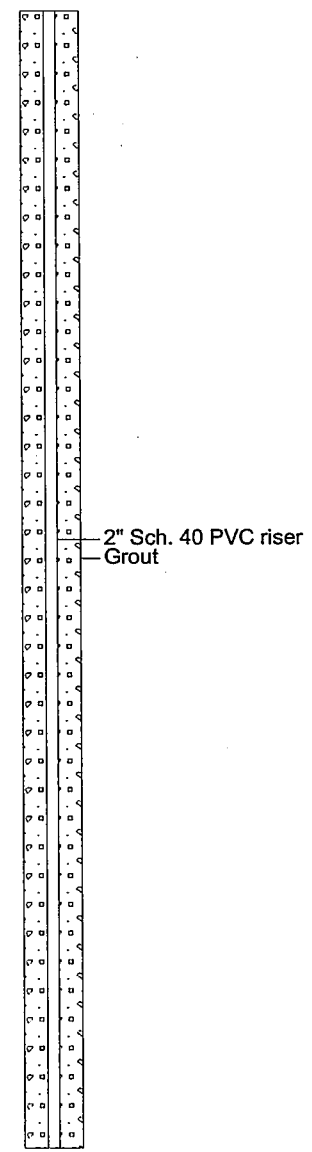
South Bend Area A
 UP&V Reservoir
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID / 2020
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								Sampled Int.	Static During Drilling	
26	-26	SS-14 26.0-28.0	24/24	0.0	5-15-13					Same as above
27	-27									
28	-28	SS-15 28.0-30.0	24/22	0.0	4-19-19					Same as above, more coarse, less gravel
29	-29									
30	-30	SS-16 30.0-32.0	24/22	0.0	4-18-13					Same as above, less coarse, more fines
31	-31									
32	-32	SS-17 32.0-34.0	24/20	0.0	4-16-17					Same as above
33	-33									
34	-34	SS-18 34.0-36.0	24/22	0.0	5-24-25					Same as above, increase gravel with depth
35	-35									
36	-36	SS-19 36.0-38.0	24/20	0.0	2-15-13					Same as above, less fines, more coarse
37	-37									
38	-38	SS-20 38.0-40.0	24/10	0.0	13-31-19					Same as above
39										

Well: HMW-8D
 Elev.:



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11-30-2001



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 08/09/01
Date Completed : 08/09/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 78.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-8D

(Page 4 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input checked="" type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
39	-39											
40	-40	SS-21 40.0-42.0	24/10	0.0	16-29-16							Same as above, less gravel
42	-42	SS-22 42.0-44.0	24/16	0.0	11-39-23							Same as above, increase gravel
44	-44	SS-23 44.0-46.0	24/20	0.0	7-60-45							Same as above, large cobble in end of spoon
46	-46	SS-24 46.0-48.0	24/10	0.0	8-27-24							Same as above
48	-48	SS-25 48.0-50.0	24/14	0.0	9-28-21							Same as above
50	-50	SS-26 50.0-52.0	24/10	0.0	8-20-16							Same as above

Well: HMW-8D
Elev.:



2" Sch. 40 PVC riser
Grout

11-30-2001 F:\CLIENTS\BIBI002\SOIL BORING LOGS\HMW-8D.BOR



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 08/09/01
Date Completed : 08/09/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 78.0'
S. Water Level Date :
S. Water Level (ft.) :

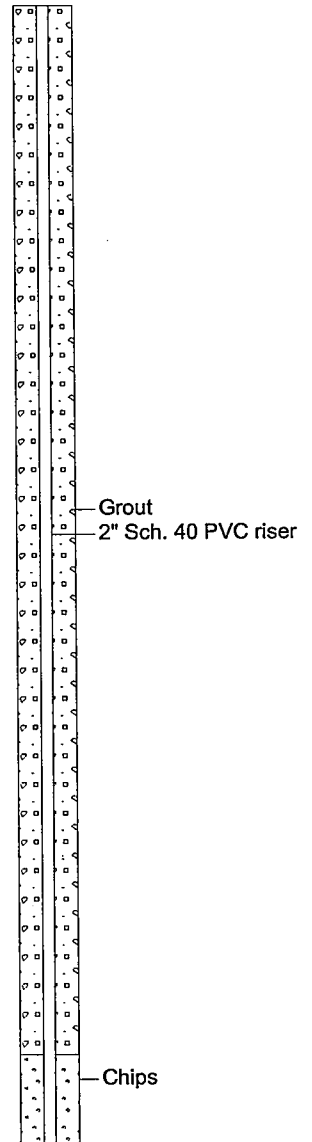
LOG OF BORING HMW-8D

(Page 5 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
52	-52	SS-27 52.0-54.0	24/12	0.0	12-37-23							Same as above, few gravel
53	-53											
54	-54	SS-28 54.0-56.0	24/12	0.0	9-35-30							Same as above
55	-55											
56	-56	SS-29 56.0-58.0	24/10	0.0	11-26-17							Same as above
57	-57											
58	-58	SS-30 58.0-60.0	24/16	0.0	19-45-27							Same as above, large cobble in spoon
59	-59											
60	-60	SS-31 60.0-62.0	24/18	0.0	10-50-43							Same as above, brown medium to coarse sand, trace silt, trace gravel, wet
61	-61											
62	-62	SS-32 62.0-64.0	23/12	0.0	14-60-50							Same as above
63	-63											
64	-64	SS-33 64.0-66.0	24/20	0.0	16-51-35							Same as above
65												

Well: HMW-8D
Elev.:



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11-30-2001



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 08/09/01
Date Completed : 08/09/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 78.0'
S. Water Level Date :
S. Water Level (ft.) :

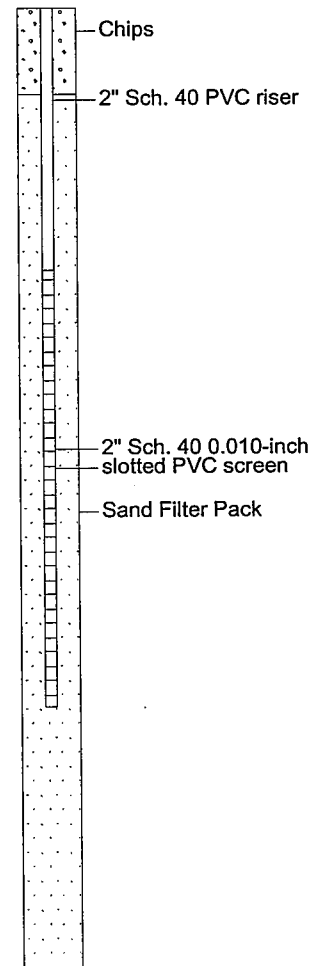
LOG OF BORING HMW-8D

(Page 6 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
65	-65									Same as above, few gravel
66	-66	SS-34 66.0-68.0	24/18	0.0	14-61-37					Brown silty CLAY seam, 1" thick at end of spoon
67	-67									Brown medium to coarse SAND, trace silt, trace gravel, wet
68	-68	SS-35 68.0-70.0	23/16	0.0	23-60-50					Same as above, few gravel
69	-69									Same as above, trace gravel
70	-70	SS-36 70.0-72.0	15/10	0.0	34-50					Greyish to brown silty SAND 8" of greyish to brown clayey SILT, dry
71	-71									Brown medium to fine SAND, trace silt, trace gravel, wet
72	-72	SS-37 72.0-74.0	23/23	0.0	6-36-50					Same as above
73	-73									Grey very fine very silty SAND, wet Same as above
74	-74	SS-38 74.0-76.0	17/17	0.0	37-42-50					Grey very fine sandy SILT, wet
75	-75									Grey SILT outer bedded with clay
76	-76	SS-39 76.0-78.0	17/17	0.0	23-41-50					Grey very fine very silty SAND
77	-77									End of boring at 78'
78	-78									

Well: HMW-8D
Elev.:



Hull & associates, inc.

South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 09/15/01
Date Completed : 09/15/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : 48" Split Spoon
Total Depth (ft.) : 69.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-9D

(Page 1 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	Well: HMW-9D Elev.:
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling		
0	0	HA-1/ 0.0-2.0		3.3								Dark brown fine to medium SAND, trace gravel, moist	<p>Surface Casing</p> <p>Bentonite</p> <p>2" Sch. 40 PVC riser</p> <p>Slurry</p>
1	-1												
2	-2	HA-2/ 2.0-4.0		2.9								Brown fine to medium SAND, trace gravel, moist	
3	-3												
4	-4	SS-3 4.0-6.0	24/20	0.6								Dark brown fine to medium SAND, trace gravel, moist	
5	-5											Brown medium to coarse SAND trace gravel, moist	
6	-6	SS-4 6.0-8.0	24/10	0.0								Same as above	
7	-7												
8	-8	SS-5 8.0-10.0	24/12	0.9								Same as above	
9	-9												
10	-10	SS-6 10.0-12.0	24/10	0.0								Same as above	
11	-11												
12	-12	SS-7 12.0-14.0	24/8	3.2								Same as above	
13	-13												
14	-14												

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11-30-2001



South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 09/15/01
Date Completed : 09/15/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : 48" Split Spoon
Total Depth (ft.) : 69.0'
S. Water Level Date :
S. Water Level (ft.) :

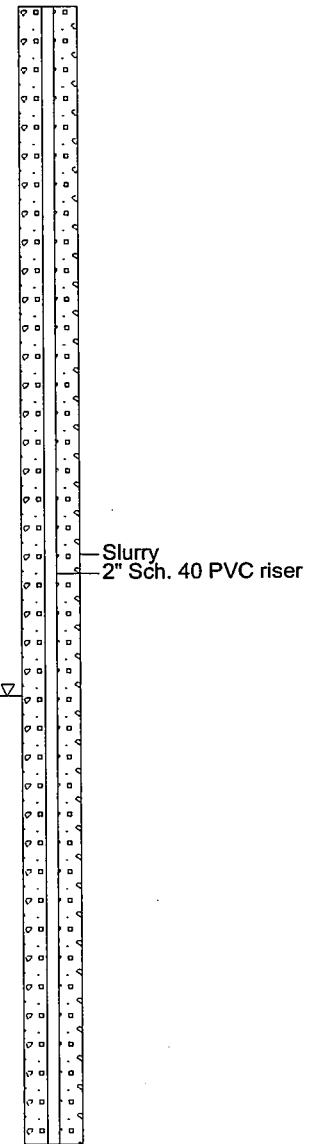
LOG OF BORING HMW-9D

(Page 2 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input type="checkbox"/> During Drilling	
14	-14	SS-8 14.0-16.0	24/12	3.9						Same as above
15	-15									
16	-16	SS-9 16.0-18.0	24/14	2.7						Same as above, less coarse, more fine sand
17	-17									
18	-18	SS-10 18.0-20.0	24/14	3.4						Same as above, increase coarse
19	-19									
20	-20	SS-11 20.0-22.0	24/10	1.0						Same as above
21	-21									
22	-22	SS-12 22.0-24.0	24/10	2.1						Same as above, wet
23	-23									
24	-24	SS-13 24.0-26.0	24/15	0.5	5-13-10					Same as above
25	-25									
26	-26	SS-14 26.0-28.0	24/10	2.4	6-17-11					Same as above
27	-27									
28										

Well: HMW-9D
Elev.:





South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 09/15/01
Date Completed : 09/15/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : 48" Split Spoon
Total Depth (ft.) : 69.0'
S. Water Level Date :
S. Water Level (ft.) :

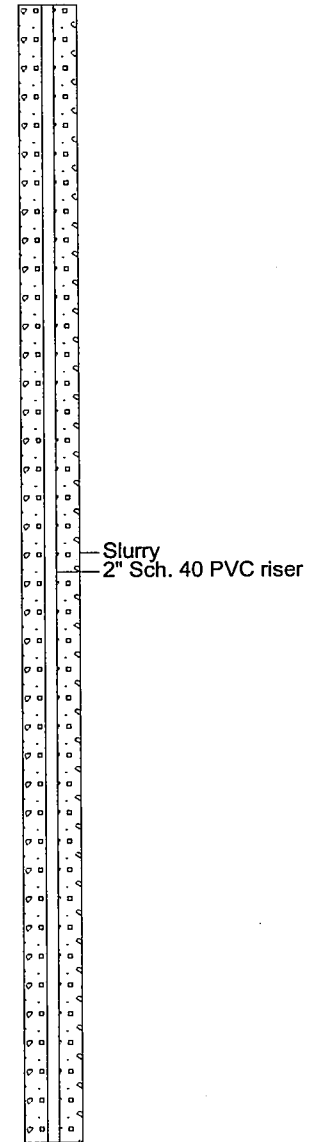
LOG OF BORING HMW-9D

(Page 3 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
28	-28	SS-15 28.0-30.0	24/20	1.9	5-13-8					Same as above
29	-29									
30	-30	SS-16 30.0-32.0	24/12	1.5	2-6-5					Same as above, Petro staining and odor (start drumming soils)
31	-31									
32	-32	SS-17 32.0-34.0	24/24	1.0	7-16-13					Same as above, staining continues
33	-33									
34	-34	SS-18 34.0-36.0	24/15	1.6	7-17-14					Same as above, staining continues
35	-35									
36	-36	SS-19 36.0-38.0	24/15	0.2	7-19-17					Same as above, staining continues
37	-37									
38	-38	SS-20 38.0-40.0	24/12	1.6	5-16-11					Same as above, staining continues
39	-39									
40	-40	SS-21 40.0-42.0	24/12	1.8	7-18-10					Same as above, staining continues
41	-41									
42										

Well: HMW-9D
Elev.:



F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-9D.BOR

11-30-2001

Date Started : 09/15/01
 Date Completed : 09/15/01
 Logged by : Matt Young
 Reviewed by :
 Drilling Contractor : Topflite
 Drilling Method : 4.25 ID HSA
 Sampling Method : 48" Split Spoon
 Total Depth (ft.) : 69.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-9D

(Page 4 of 5)

South Bend Area A
 UP&V Reservoir
 South Bend, IN
 SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID 2020 / 100ppm Iso.
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling	
42	-42	SS-22 42.0-44.0	24/15	1.6	7-14-10							Same as above, staining continues
43	-43											
44	-44	SS-23 44.0-46.0	24/15	1.1	7-19-14							Same as above, staining continues
45	-45											
46	-46	SS-24 46.0-48.0	24/10	3.1	7-25-21							Same as above, staining continues
47	-47											
48	-48	SS-25 48.0-50.0	24/10	2.2	7-17-14							Same as above, more gravel in bottom 5" of spoon, less staining
49	-49											
50	-50	SS-26 50.0-52.0	24/10	2.0	10-26-17							Same as above, less gravel, slight staining
51	-51											
52	-52	SS-27 52.0-54.0	24/10	4.2	8-24-26							Same as above, more gravel in bottom 6" of spoon, slight staining
53	-53											
54	-54	SS-28 54.0-56.0	24/8	2.1	8-17-8							Same as above, less gravel, slight staining
55	-55											
56	-56											

Well: HMW-9D
 Elev.:



Slurry
 2" Sch. 40 PVC riser

South Bend Area A
UP&V Reservoir
South Bend, IN

SBI002

Date Started : 09/15/01
Date Completed : 09/15/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : 48" Split Spoon
Total Depth (ft.) : 69.0'
S. Water Level Date :
S. Water Level (ft.) :

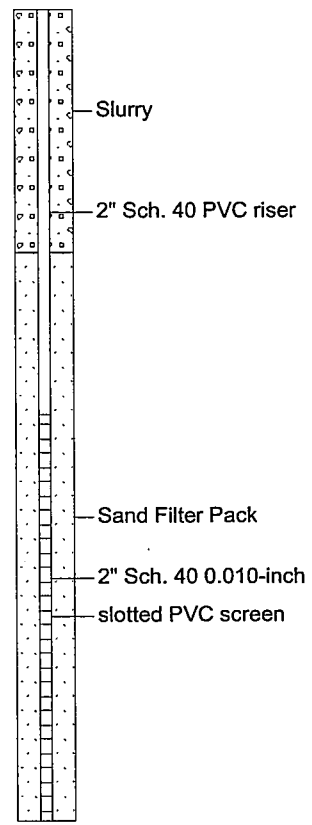
LOG OF BORING HMW-9D

(Page 5 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
56	-56	SS-29 56.0-58.0	24/3	2.2	17-24-50					Same as above, slight staining
57	-57									
58	-58	SS-30 58.0-60.0	24/10	1.0	21-64-50					Same as above, more gravel in bottom 7" of spoon, slight staining
59	-59									
60	-60	SS-31 60.0-62.0	24/10	1.5	5-12-9					Same as above, slight staining
61	-61									
62	-62	SS-32 62.0-64.0	24/8	1.3	10-28-36					Same as above, slight odor, no obvious staining
63	-63									
64	-64	SS-33 64.0-66.0	24/15	1.7	5-12-40					Same as above
65	-65									
66	-66	SS-34 66.0-68.0	14/12	1.7	44-34-52					Tight grey sandy SILT, trace gravel, moist
67	-67									
68	-68		12/6	0.2	34-50					Same as above
69	-69									End of boring at 69.0'
70										

Well: HMW-9D
Elev.:





Date Started : 08/22/01
 Date Completed : 08/22/01
 Logged by : Matt Young
 Reviewed by : James P. Hogan
 Drilling Contractor : Topflite
 Drilling Method : 4.25 ID HSA
 Sampling Method : 48" Split Spoon
 Total Depth (ft.) : 74.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-11D

(Page 1 of 5)

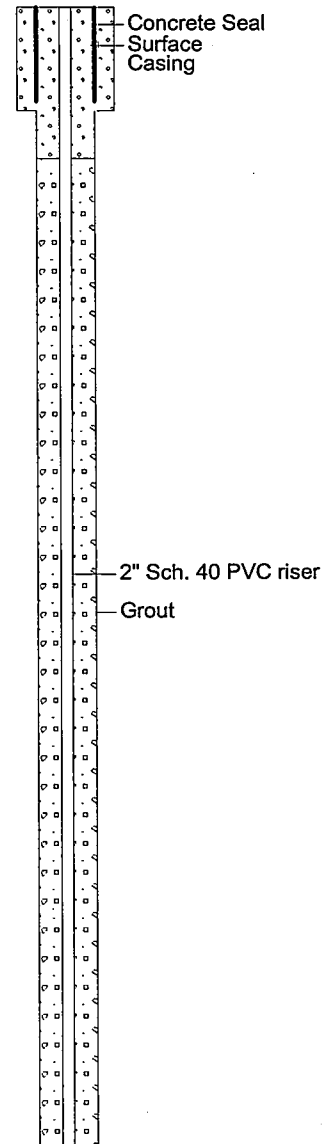
Phase II Drilling
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID 2020 / 100ppm Iso.
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									Concrete and rebar
1	-1									
2	-2	HA-1/ 2.0-4.0								FILL - Brown clayey sand, trace gravel / crushed limestone / crushed concrete, piece of cloth noted
3	-3									
4	-4	SS-2 4.0-6.0	14/6		4-6-50					Same as above, refusal on concrete fragment at 5.1', augered to 10' Boring located on abandoned and filled truck dock
5	-5									
6	-6									
7	-7									
8	-8									
9	-9									
10	-10	SS-3 10.0-12.0	24/18	11.1	6-10-7					Brown medium to fine SAND, trace silt, trace gravel, moist
11	-11									
12	-12	SS-4 12.0-14.0	24/16	14.8	4-12-8					Same as above, less silt with depth
13	-13									
14	-14	SS-5 14.0-16.0	24/22	17.8	4-10-10					Same as above
15	-15									

Well: HMW-11D
 Elev.:





Phase II Drilling
Franklin & Sample
South Bend, IN

SBI002

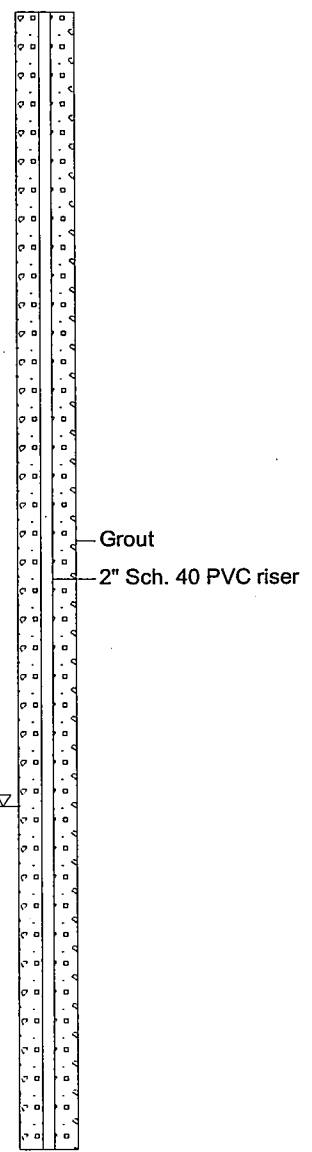
Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : Matt Young
Reviewed by : James P. Hogan
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : 48" Split Spoon
Total Depth (ft.) : 74.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-11D

(Page 2 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION	Well: HMW-11D Elev.:
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling		
15	-15										
16	-16	SS-6 16.0-18.0	24/22	16.0	6-17-12					Same as above	
17	-17										
18	-18	SS-7 18.0-20.0	24/22	16.8	5-9-6					Same as above, less fines, increase coarse sand	
19	-19										
20	-20	SS-8 20.0-22.0	24/20	16.9	6-16-12					Same as above, increase gravel	
21	-21										
22	-22	SS-9 22.0-24.0	24/20	19.2	6-19-12					Same as above, less gravel	
23	-23										
24	-24	SS-10 24.0-26.0	24/20	11.0	4-10-11					Light brown medium to fine sand, trace silt trace gravel	
25	-25									Same as above, less fines, wet	
26	-26	SS-11 26.0-28.0	24/24	44.6	2-7-7					Grey medium to fine SAND, trace silt, strong odor (petro bitter) noted, few black stains noted	
27	-27										
28	-28	SS-12 28.0-30.0	24/24	94.2	3-19-21					Same as above, strong odor noted	
29	-29										
30	-30										



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Phase II Drilling
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : Matt Young
Reviewed by : James P. Hogan
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : 48" Split Spoon
Total Depth (ft.) : 74.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-11D

(Page 3 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
30	-30	SS-13 30.0-32.0	24/16	89.4	2-12-15					Same as above, trace gravel, sample wax have washed out, increase fine sand, strong odor noted
31	-31									
32	-32	SS-14 32.0-34.0	24/18	81.8	6-29-24					Same as above, strong odor noted
33	-33									
34	-34	SS-15 34.0-36.0	24/18	120	3-11-15					Same as above, strong odor noted, increase gravel with depth, less fines, brown oily staining noted (free phase)
35	-35									
36	-36	SS-16 36.0-38.0	24/24	121	5-30-24					Same as above, strong odor noted, brown oily staining noted
37	-37									Brown medium to coarse SAND, trace silt, trace gravel, strong odor (petro bitter)
38	-38	SS-17 38.0-40.0	24/18	70.7	4-16-20					Same as above
39	-39									
40	-40	SS-18 40.0-42.0	24/22	15.4	6-36-30					Same as above, slight odor
41	-41									
42	-42	SS-19 42.0-44.0	24/16	17.5	7-25-23					Same as above, slight odor
43	-43									
44	-44	SS-20 44.0-46.0	24/12	18.1	4-33-27					Same as above, slight odor, black stain noted
45										

Well: HMW-11D
Elev.:



Grout
2" Sch. 40 PVC riser

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11-30-2001



Phase II Drilling
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : Matt Young
Reviewed by : James P. Hogan
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : 48" Split Spoon
Total Depth (ft.) : 74.0'
S. Water Level Date :
S. Water Level (ft.) :

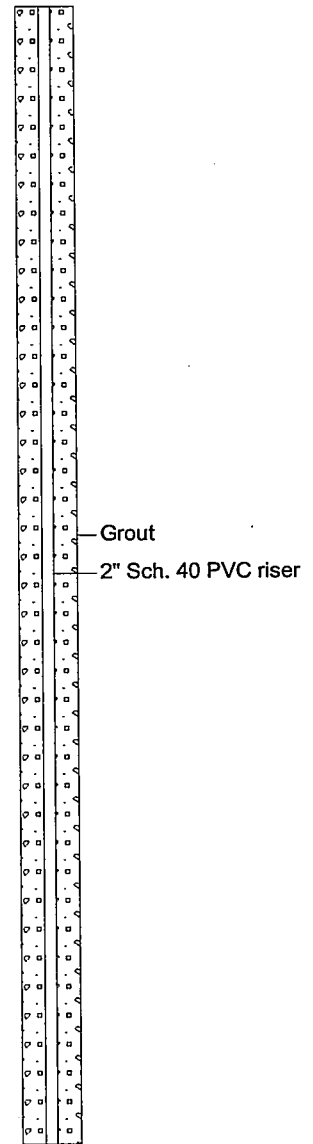
LOG OF BORING HMW-11D

(Page 4 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
45	-45									
46	-46	SS-21 46.0-48.0	24/12	15.8	14-54-33					Same as above, slight odor
47	-47									
48	-48	SS-22 48.0-50.0	24/12	11.4	8-44-33					Same as above, increase silt, increase gravel, slight odor may be from pulling spoons through bad water
49	-49									
50	-50	SS-23 50.0-52.0	24/12	15.4	12-79-37					Same as above
51	-51									
52	-52	SS-24 52.0-54.0	21/14	16.3	8-61-50					Same as above
53	-53									
54	-54	SS-25 54.0-56.0	24/16	15.9	9-46-33					Same as above
55	-55									
56	-56	SS-26 56.0-58.0	24/12	15.3	6-25-50					Same as above, less coarse sand, less gravel
57	-57									
58	-58	SS-27 58.0-60.0	24/8	7.8	20-70-35					Brown fine to medium SAND, trace gravel trace clay
59	-59									Large cobble in spoon
60										

Well: HMW-11D
Elev.:





Phase II Drilling
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : Matt Young
Reviewed by : James P. Hogan
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : 48" Split Spoon
Total Depth (ft.) : 74.0'
S. Water Level Date :
S. Water Level (ft.) :

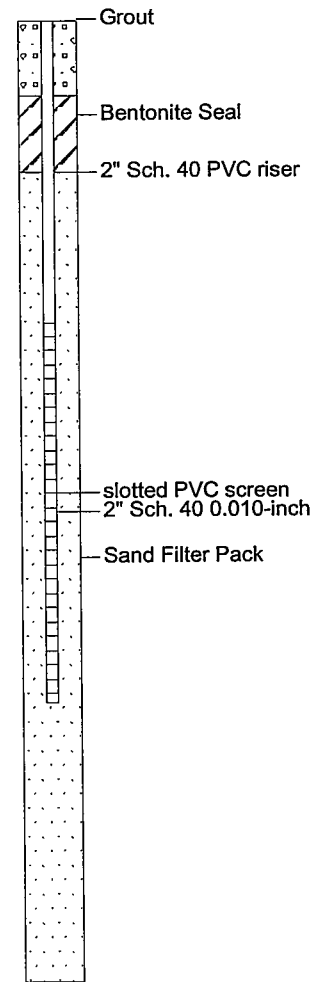
LOG OF BORING HMW-11D

(Page 5 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
60	-60	SS-28 60.0-62.0	24/12	0.0	16-60-28					Same as above
61	-61									
62	-62	SS-29 62.0-64.0	24/14	0.0	16-73-50					Same as above, less clay, few gravel
63	-63									
64	-64	SS-30 64.0-66.0	24/6	0.0	24-45-50					Same as above, large cobble in spoon
65	-65									
66	-66	SS-31 66.0-68.0	24/14	0.0	25-60-50					Same as above, no clay, trace silt
67	-67									
68	-68	SS-32 68.0-70.0	24/18	0.0	18-58-38					Same as above, 2" very fine sand, trace silt seem at top of spoon
69	-69									
70	-70	SS-33 70.0-72.0	24/16							Same as above
71	-71									
72	-72	SS-34 72.0-74.0								Brown very fine silty SAND
73	-73									
74	-74									
75										

Well: HMW-11D
Elev.:



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Phase II Drilling
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : Matt Young
Reviewed by : James P. Hogan
Drilling Contractor : Topflite
Drilling Method : Canterra CT250
Sampling Method : Hand Auger/Split Spoon
Total Depth (ft.) : 74.0'
S. Water Level Date :
S. Water Level (ft.) :

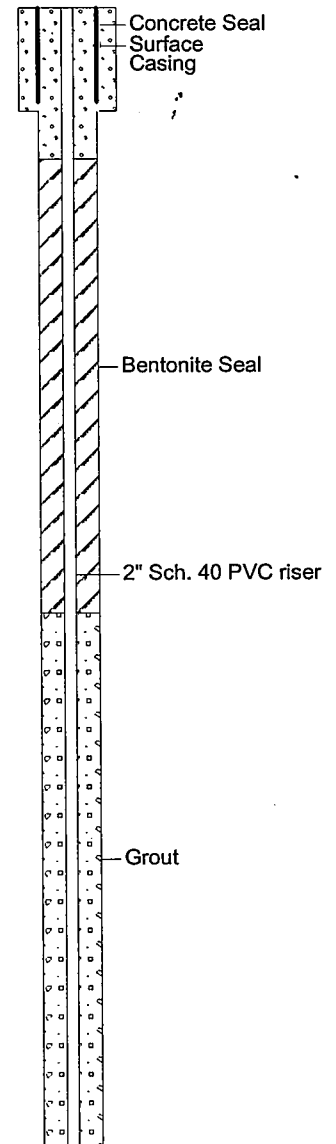
LOG OF BORING HMW-11DA

(Page 1 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input checked="" type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									Concrete
1	-1									FILL - Brown clayey sand, trace gravel / crushed limestone / crushed concrete, piece of cloth noted
2	-2	HA-1/ 2.0-4.0								
3	-3									
4	-4	SS-2 4.0-6.0	14/6		4-6-50					Same as above, refusal on concrete fragment at 5.1', augered to 10' Boring located on abandoned and filled truck dock
5	-5									
6	-6									
7	-7									
8	-8									
9	-9									
10	-10	SS-3 10.0-12.0	24/18	11.1	6-10-7					Brown medium to fine SAND, trace silt, trace gravel, moist
11	-11									
12	-12	SS-4 12.0-14.0	24/16	14.8	4-12-8					Same as above, less silt with depth
13	-13									
14	-14	SS-5 14.0-16.0	24/22	17.8	4-10-10					Same as above
15	-15									

Well: HMW-11DA
Elev.:



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11-30-20u1



Phase II Drilling
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : Matt Young
Reviewed by : James P. Hogan
Drilling Contractor : Topflite
Drilling Method : Canterra CT250
Sampling Method : Hand Auger/Split Spoon
Total Depth (ft.) : 74.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-11DA

(Page 2 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	Well: HMW-11DA Elev.:
								<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling		
15	-15												
16	-16	SS-6 16.0-18.0	24/22	16.0	6-17-12								
17	-17												
18	-18	SS-7 18.0-20.0	24/22	16.8	5-9-6								
19	-19												
20	-20	SS-8 20.0-22.0	24/20	16.9	6-16-12								
21	-21												
22	-22	SS-9 22.0-24.0	24/20	19.2	6-19-12								
23	-23												
24	-24	SS-10 24.0-26.0	24/20	11.0	4-10-11								
25	-25												
26	-26	SS-11 26.0-28.0	24/24	44.6	2-7-7								
27	-27												
28	-28	SS-12 28.0-30.0	24/24	94.2	3-19-21								
29	-29												
30	-30												

Grout
2" Sch. 40 PVC riser

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11-30-2001



Phase II Drilling
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : Matt Young
Reviewed by : James P. Hogan
Drilling Contractor : Topflite
Drilling Method : Canterra CT250
Sampling Method : Hand Auger/Split Spoon
Total Depth (ft.) : 74.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-11DA

(Page 3 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
30	-30	SS-13 30.0-32.0	24/16	89.4	2-12-15					Same as above, trace gravel, sample wax have washed out, increase fine sand, strong odor noted
31	-31									
32	-32	SS-14 32.0-34.0	24/18	81.8	6-29-24					Same as above, strong odor noted
33	-33									
34	-34	SS-15 34.0-36.0	24/18	120	3-11-15					Same as above, strong odor noted, increase gravel with depth, less fines, brown oily staining noted (free phase)
35	-35									
36	-36	SS-16 36.0-38.0	24/24	121	5-30-24					Same as above, strong odor noted, brown oily staining noted
37	-37									Brown medium to coarse SAND, trace silt, trace gravel, strong odor (petro bitter)
38	-38	SS-17 38.0-40.0	24/18	70.7	4-16-20					Same as above
39	-39									
40	-40	SS-18 40.0-42.0	24/22	15.4	6-36-30					Same as above, slight odor
41	-41									
42	-42	SS-19 42.0-44.0	24/16	17.5	7-25-23					Same as above, slight odor
43	-43									
44	-44	SS-20 44.0-46.0	24/12	18.1	4-33-27					Same as above, slight odor, black stain noted
45										

Well: HMW-11DA
Elev.:



Grout
2" Sch. 40 PVC riser



Phase II Drilling
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : Matt Young
Reviewed by : James P. Hogan
Drilling Contractor : Topflite
Drilling Method : Canterra CT250
Sampling Method : Hand Auger/Split Spoon
Total Depth (ft.) : 74.0'
S. Water Level Date :
S. Water Level (ft.) :

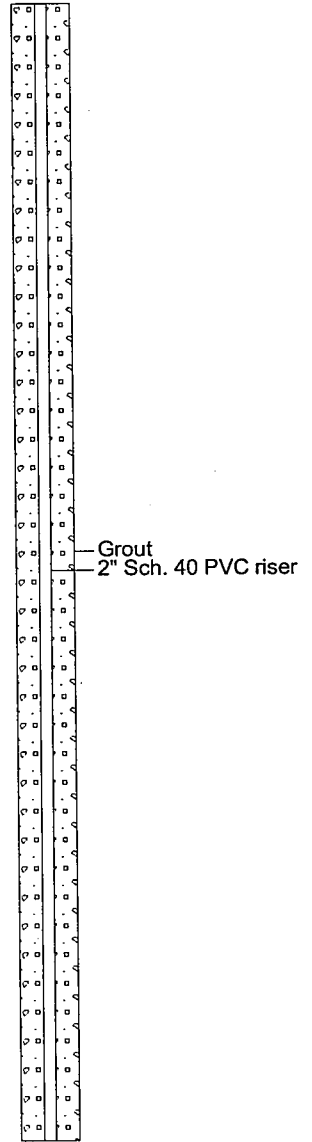
LOG OF BORING HMW-11DA

(Page 4 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
45	-45									
46	-46	SS-21 46.0-48.0	24/12	15.8	14-54-33					Same as above, slight odor
47	-47									
48	-48	SS-22 48.0-50.0	24/12	11.4	8-44-33					Same as above, increase silt, increase gravel, slight odor may be from pulling spoons through bad water
49	-49									
50	-50	SS-23 50.0-52.0	24/12	15.4	12-79-37					Same as above
51	-51									
52	-52	SS-24 52.0-54.0	21/14	16.3	8-61-50					Same as above
53	-53									
54	-54	SS-25 54.0-56.0	24/16	15.9	9-46-33					Same as above
55	-55									
56	-56	SS-26 56.0-58.0	24/12	15.3	6-25-50					Same as above, less coarse sand, less gravel
57	-57									
58	-58	SS-27 58.0-60.0	24/8	7.8	20-70-35					Brown fine to medium SAND, trace gravel trace clay
59	-59									Large cobble in spoon
60										

Well: HMW-11DA
Elev.:



Date Started : 08/22/01
 Date Completed : 08/22/01
 Logged by : Matt Young
 Reviewed by : James P. Hogan
 Drilling Contractor : Topflite
 Drilling Method : Canterra CT250
 Sampling Method : Hand Auger/Split Spoon
 Total Depth (ft.) : 74.0'
 S. Water Level Date :
 S. Water Level (ft.) :

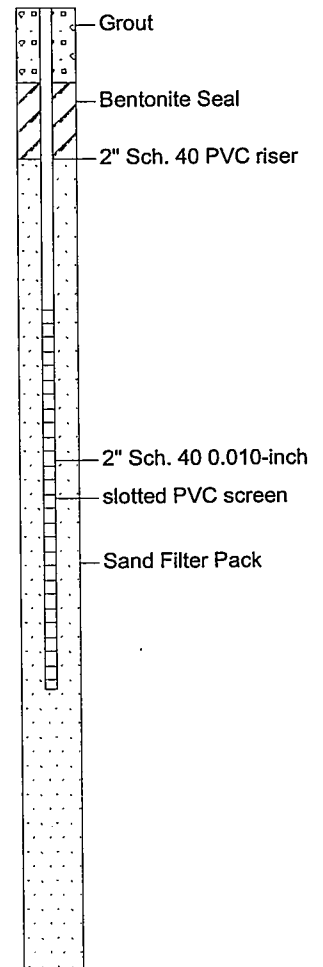
LOG OF BORING HMW-11DA

(Page 5 of 5)

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID 2020 / 100ppm Iso.
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
60	-60	SS-28 60.0-62.0	24/12	0.0	16-60-28					Same as above
61	-61									
62	-62	SS-29 62.0-64.0	24/14	0.0	16-73-50					Same as above, less clay, few gravel
63	-63									
64	-64	SS-30 64.0-66.0	24/6	0.0	24-45-50					Same as above, large cobble in spoon
65	-65									
66	-66	SS-31 66.0-68.0	24/14	0.0	25-60-50					Same as above, no clay, trace silt
67	-67									
68	-68	SS-32 68.0-70.0	24/18	0.0	18-58-38					Same as above, 2" very fine sand, trace silt seem at top of spoon
69	-69									Drilling note: Encountered hard gray clayey SILT at 69.0 to 69.5'
70	-70	SS-33 70.0-72.0	24/16							Same as above
71	-71									
72	-72	SS-34 72.0-74.0								Hard gray clayey SILT, trace sand; dry
73	-73									
74	-74									
75	-75									

Well: HMW-11DA
Elev.:





Phase II Drilling
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : Matt Young
Reviewed by : James P. Hogan
Drilling Contractor : Topflite
Drilling Method : Canterra CT250,4 1/4"HSA
Sampling Method : Hand Auger/Split Spoon
Total Depth (ft.) : 40.0'
S. Water Level Date :
S. Water Level (ft.) :

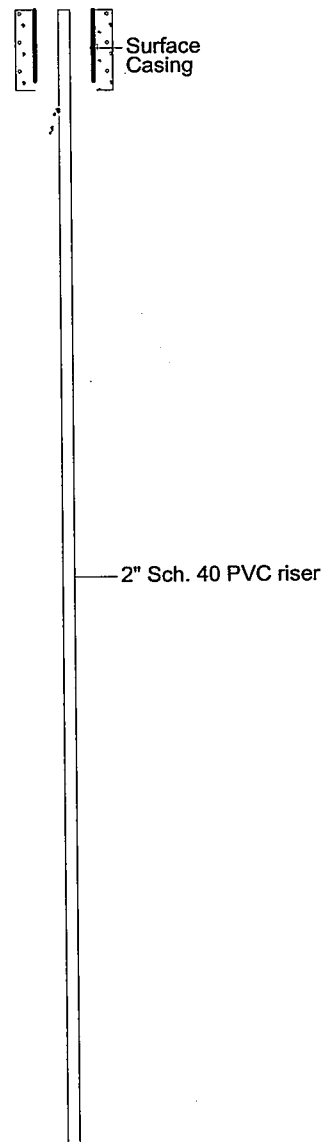
LOG OF BORING HMW-11I

(Page 1 of 2)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								☒ Sampled Int.	▾ Lab Sample	▼ Static	▽ During Drilling	
0	0											15" Concrete
1	-1											FILL - Brown clayey sand, trace gravel / crushed limestone / crushed concrete, piece of cloth noted
2	-2	HA-1/ 2.0-4.0										
3	-3											
4	-4	SS-2 4.0-6.0	14/6		4-6-50							Same as above, refusal on concrete fragment at 5.1', augered to 10' Boring located on abandoned and filled truck dock
5	-5											
6	-6											
7	-7											
8	-8											
9	-9											
10	-10	SS-3 10.0-12.0	24/18	11.1	6-10-7							Brown medium to fine SAND, trace silt, trace gravel, moist
11	-11											
12	-12	SS-4 12.0-14.0	24/16	14.8	4-12-8							Same as above, less silt with depth
13	-13											
14	-14	SS-5 14.0-16.0	24/22	17.8	4-10-10							Same as above
15	-15											
16	-16	SS-6 16.0-18.0	24/22	16.0	6-17-12							Same as above
17	-17											
18	-18	SS-7 18.0-20.0	24/22	16.8	5-9-6							Same as above, less fines, increase coarse sand
19	-19											
20	-20											

Well: HMW-11I
Elev.:



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11-30-2001

Date Started : 08/22/01
 Date Completed : 08/22/01
 Logged by : Matt Young
 Reviewed by : James P. Hogan
 Drilling Contractor : Topflite
 Drilling Method : Canterra CT250,4 1/4"HSA
 Sampling Method : Hand Auger/Split Spoon
 Total Depth (ft.) : 40.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-111

(Page 2 of 2)

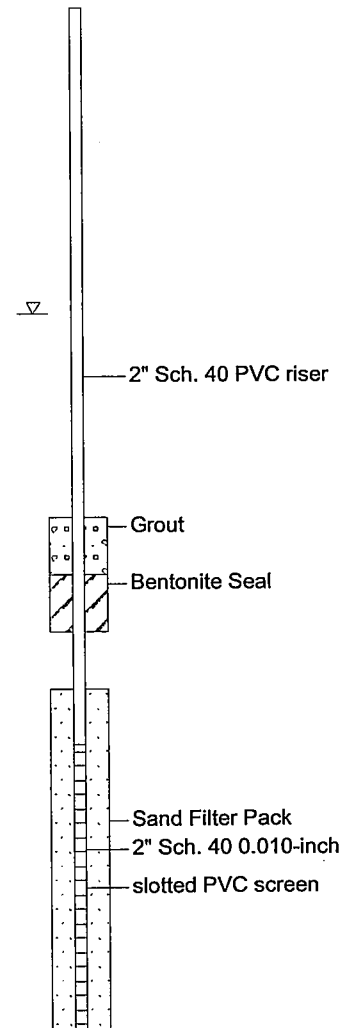
Phase II Drilling
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID 2020 / 100ppm Iso.
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
20	-20	SS-8 20.0-22.0	24/20	16.9	6-16-12					Same as above, increase gravel
21	-21									
22	-22	SS-9 22.0-24.0	24/20	19.2	6-19-12 ⁷					Same as above, less gravel
23	-23									
24	-24	SS-10 24.0-26.0	24/20	11.0	4-10-11					Light brown medium to fine sand, trace silt trace gravel
25	-25									Same as above, less fines, wet
26	-26	SS-11 26.0-28.0	24/24	44.6	2-7-7					Grey medium to fine SAND, trace silt, strong odor (petro bitter) noted, few black stains noted
27	-27									
28	-28	SS-12 28.0-30.0	24/24	94.2	3-19-21					Same as above, strong odor noted
29	-29									Auger 28' to 33' - photos 13 to 7 free Product encountered
30	-30	SS-13 30.0-32.0	24/16	89.4	2-12-15					Same as above, trace gravel, sample wax have washed out, increase fine sand, strong odor noted
31	-31									
32	-32	SS-14 32.0-34.0	24/18	81.8	6-29-24					Same as above, strong odor noted
33	-33									
34	-34	SS-15 34.0-36.0	24/18	120	3-11-15					Same as above, strong odor noted, increase gravel with depth, less fines, brown oily staining noted (free phase)
35	-35									
36	-36	SS-16 36.0-38.0	24/24	121	5-30-24					Same as above, strong odor noted, brown oily staining noted
37	-37									Brown medium to coarse SAND, trace silt, trace gravel, strong odor (petro bitter)
38	-38	SS-17 38.0-40.0	24/18	70.7	4-16-20					Same as above
39	-39									
40	-40									

Well: HMW-111
 Elev.:





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/13/01
Date Completed : 08/13/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 68.0'
S. Water Level Date :
S. Water Level (ft.) :

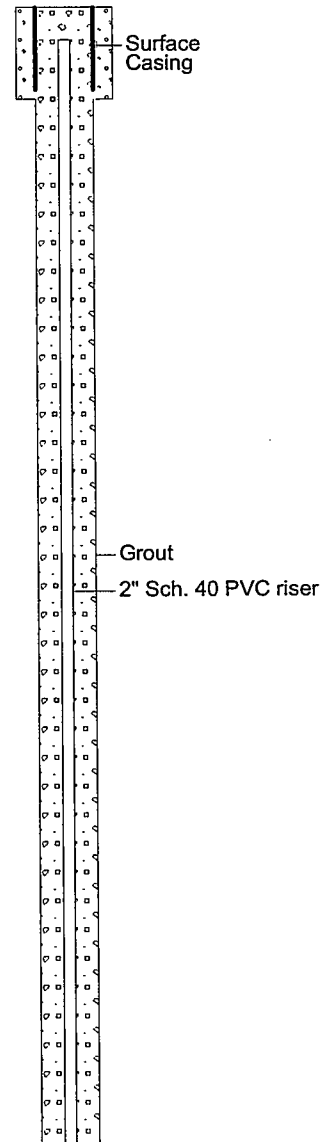
LOG OF BORING HMW-12D

(Page 1 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
0	0	HA-1/ 0.0-2.0								Concrete and rebar
1	-1									
2	-2	HA-2/ 2.0-4.0		0.0						Brown medium to coarse SAND, trace silt, trace gravel; small amount of balck staining, moist
3	-3									
4	-4	SS-3 4.0-6.0	24/12	2.5	4-3-2					Same as above, less staining
5	-5									
6	-6	SS-4 6.0-8.0	24/22	7.8	3-3-1					Same as above
7	-7									
8	-8	SS-5 8.0-10.0	24/14	4.7	3-6-3					Light brown medium to coarse SAND, trace gravel, trace silt, moist
9	-9									
10	-10	SS-6 10.0-12.0	24/8	10.1	9-9-5					Brown medium to coarse SAND, trace silt, trace gravel, moist
11	-11									
12	-12	SS-7 12.0-14.0	24/16	7.0	8-21-14					Same as above, less silt
13	-13									
14	-14	SS-8 14.0-16.0	24/14	9.0	8-21-15					Light brown fine to medium SAND, trace silt, moist
15	-15									
16	-16	SS-9 16.0-18.0	24/22	7.3	8-24-15					Same as above
17										

Well: HMW-12D
Elev.:



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11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

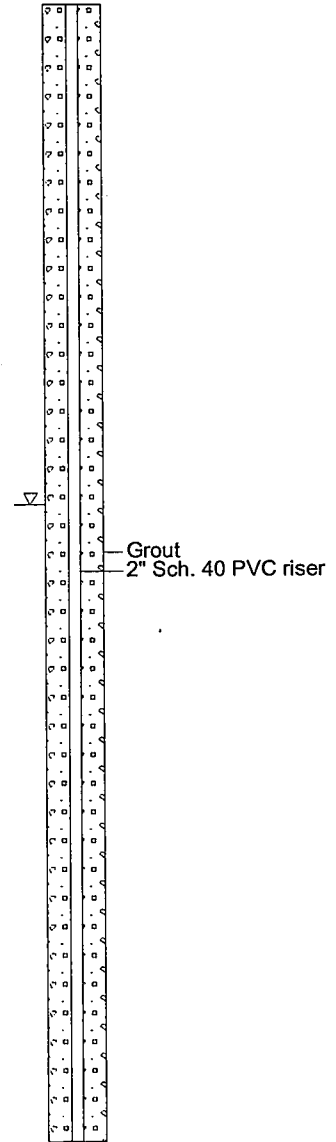
Date Started : 08/13/01
Date Completed : 08/13/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 68.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-12D

(Page 2 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
17	-17									
18	-18	SS-10 18.0-20.0	24/22	2.0	6-16-10					Same as above, gradual black through spoon, less fines more medium to coarse
19	-19									
20	-20	SS-11 20.0-22.0	24/18	0.0	6-16-12					Same as above, trace gravel
21	-21									Same as above
22	-22	SS-12 22.0-24.0	24/24	0.0	8-23-14					Same as above
23	-23									
24	-24	SS-13 24.0-26.0	24/18	0.0	5-25-13					Same as above, wet
25	-25									Brown medium to coarse SAND, few gravel, trace silt, wet
26	-26	SS-14 26.0-28.0	24/12	0.0	4-22-13					Same as above
27	-27									
28	-28	SS-15 28.0-30.0	24/20	0.0	13-24-17					Same as above
29	-29									Same as above, black stain
30	-30	SS-16 30.0-32.0	24/20	0.0	7-33-27					Same as above
31	-31									
32	-32	SS-17 32.0-34.0	24/20	0.0	13-30-16					Same as above
33	-33									
34	-34									



Well: HMW-12D
Elev.:

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/13/01
Date Completed : 08/13/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 68.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-12D

(Page 3 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

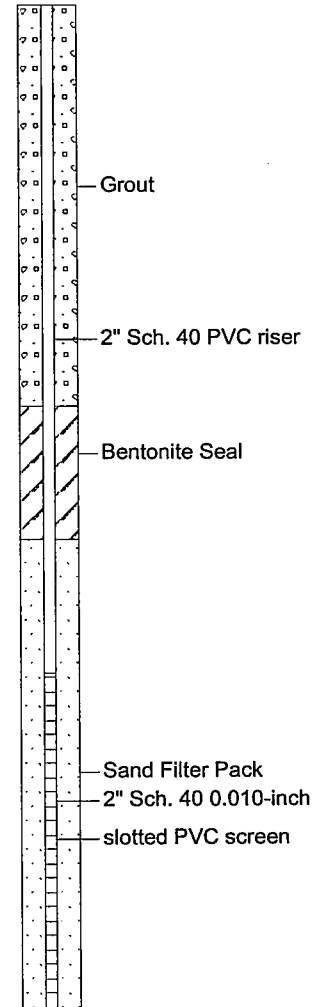
Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples Graphic Log	Soil Samples ☒ Sampled Int. ■ Lab Sample	Water Levels ▼ Static ▽ During Drilling	DESCRIPTION	Well: HMW-12D Elev.:
34	-34	SS-18 34.0-36.0	24/16	0.9	29-22-17				Same as above	<p>Grout 2" Sch. 40 PVC riser</p>
35	-35									
36	-36	SS-19 36.0-38.0	24/12	1.6	42-28-18				Same as above, 2 large cobbles	
37	-37									
38	-38	SS-20 38.0-40.0	24/18	0.0	23-29-17				Same as above	
39	-39									
40	-40	SS-21 40.0-42.0	24/12	0.0	47-34-27				Same as above, more silt	
41	-41									
42	-42	SS-23 42.0-44.0	24/18	0.4	14-50-29				Same as above	
43	-43									
44	-44	SS-23 44.0-46.0	24/16	0.0	7-23-14				Same as above, 4" at top, no gravel	
45	-45									
46	-46	SS-24 46.0-48.0	24/18	0.0	14-49-27				Same as above	
47	-47									
48	-48	SS-25 48.0-50.0	24/16	0.0	11-55-27				Same as above	
49	-49									
50	-50	SS-26 50.0-52.0	24/18	0.0	15-45-44				Same as above, trace gravel	
51										

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11-30-2001

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling	
51	-51											
52	-52	SS-27 52.0-54.0	23/16	0.0	13-67-50							Same as above, less gravel
53	-53											
54	-54	SS-28 54.0-56.0	16/12	0.0	37-50-50							Same as above, black banding
55	-55											
56	-56	SS-29 56.0-58.0	24/14	0.0	17-49-33							Same as above, black banding
57	-57											
58	-58	SS-30 58.0-60.0	23	0.0	11-72-50							Same as above
59	-59											
60	-60	SS-31 60.0-62.0	24/18	0.0	10-51-42							Same as above, less gravel
61	-61											
62	-62	SS-32 62.0-64.0	24/4	0.0	10-50-50							Same as above, no gravel, sample most likely washed out
63	-63											
64	-64	SS-33 64.0-66.0	23/20	3.4	8-54-50							Same as above, trace gravel
65	-65											Same as above, black staining
66	-66	SS-34 66.0-68.0	24/22	0.0	10-62-50							Brown SILT, trace gravel
67	-67											Grey SILT, trace fine to medium sand, trace gravel
68	-68											End of boring at 68.0'

Well: HMW-12D
Elev.:



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/15/01
Date Completed : 08/15/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : 4.25 ID HSA
Sampling Method : 2" Split Spoon
Total Depth (ft.) : 31.5
S. Water Level Date :
S. Water Level (ft.) :

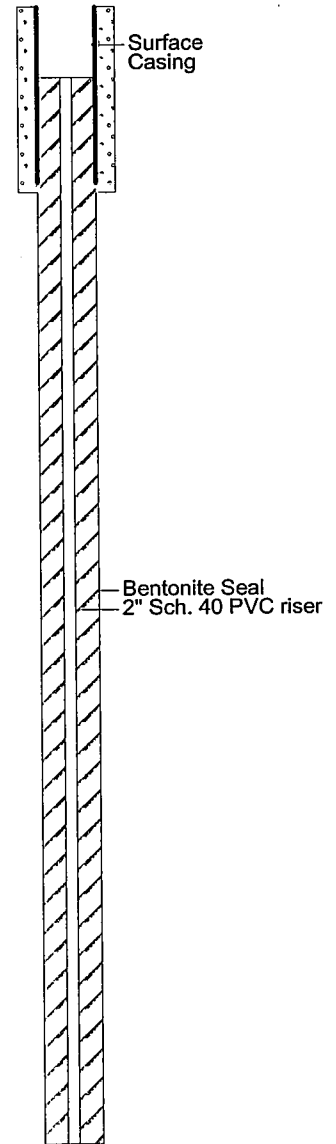
LOG OF BORING HMW-14S

(Page 1 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input checked="" type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									Asphalt / concrete
1	-1	HA-1/ 1.0-1.5		0.8						Brown fine SAND, some gravel, moist
		HA-2/ 1.5-2.0		3.0						Black silty SAND, some gravel, organics, moist
2	-2	HA-3/ 2.0-2.7		6.8						Black silty SAND, trace gravel, moist
		HA-4/ 2.7-3.3		7.3						Same as above, slight petro odor
3	-3	HA-5/ 3.3-4.2		9.3						Same as above
4	-4	HA-6/ 4.2-4.8		20.6						Same as above
5	-5	SS-7 5.0-5.8	24/24	1.8	2-5-4					Brown fine SAND, trace gravel, slight petro staining and odor
										Brown clayey SAND, trace gravel, moist
6	-6									Brown coarse SAND, trace gravel, moist
7	-7	SS-8 7.0-8.5	24/18	3.7	2-3-2					Same as above
8										

Well: HMW-14S
Elev.:



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/15/01
Date Completed : 08/15/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : 4.25 ID HSA
Sampling Method : 2' Split Spoon
Total Depth (ft.) : 31.5
S. Water Level Date :
S. Water Level (ft.) :

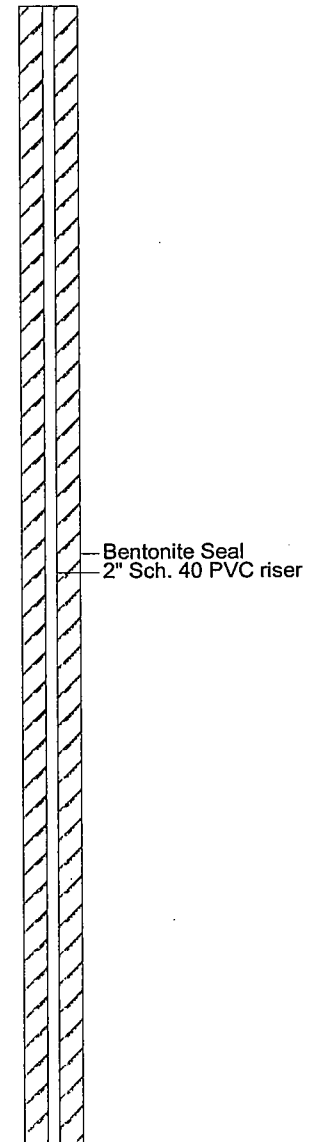
LOG OF BORING HMW-14S

(Page 2 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
8	-8									
9	-9	SS-9 9.0-10.3	24/15	5.1	6-7-4	<input checked="" type="checkbox"/>				Same as above, trace clay at 9.3 to 9.8
11	-11	SS-10 11.0-12.7	24/20	1.1	4-7-2	<input checked="" type="checkbox"/>				Light brown coarse SAND, trace gravel, moist
13	-13	SS-11 13.0-14.7	24/20	0.0	3-5-3	<input checked="" type="checkbox"/>				Light brown fine SAND, trace gravel, moist
15	-15	SS-12 15.0-15.3	24/20	3.0	4-5-2	<input checked="" type="checkbox"/>				Same as above Light brown coarse SAND, trace gravel, moist

Well: HMW-14S
Elev.:





Date Started : 08/15/01
 Date Completed : 08/15/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : 4.25 ID HSA
 Sampling Method : 2' Split Spoon
 Total Depth (ft.) : 31.5
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-14S

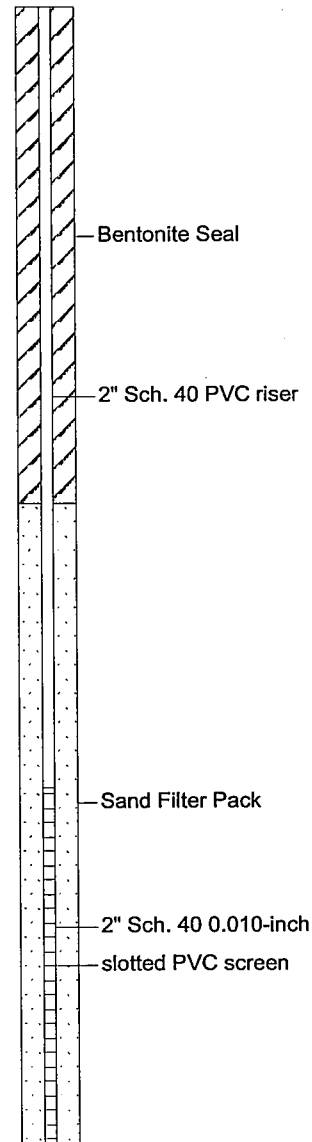
(Page 3 of 4)

South Bend Area A
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID / 2020
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	Well: HMW-14S Elev.:
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling		
16	-16												
17	-17	SS-13 17.0-18.7	24/20	4.3	7-13-12	☒						Same as above	
18	-18												
19	-19	SS-14 19.0-20.3	24/15	5.1	7-21-14	☒						Light brown coarse SAND, with gravel, band of dark staining from 19.4 to 19.6 and from 19.9 to 20.2	
20	-20												
21	-21	SS-15 21.0-22.3	24/15	4.0	8-33-20	☒						Same as above (no staining)	
22	-22												
23	-23	SS-16 23.0-25.0	24/24	5.0	10-22-9	☒						Light brown coarse SAND, some gravel, very moist from 23.0 to 24.0 and saturated at 24.0	
24													



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11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

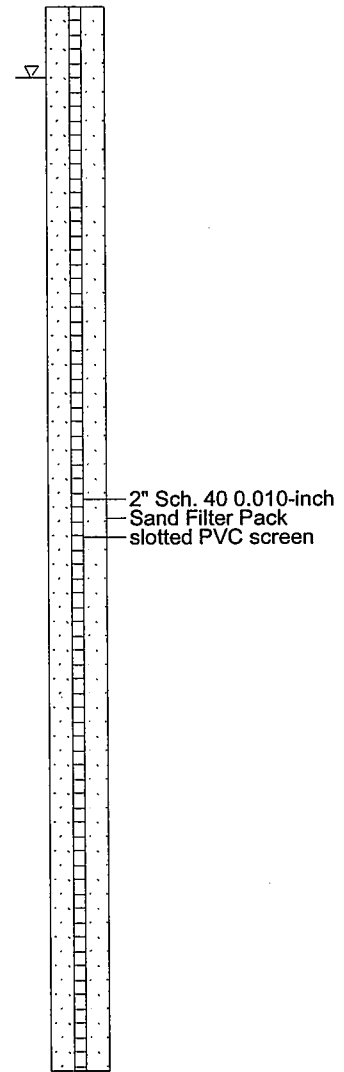
Date Started : 08/15/01
Date Completed : 08/15/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : 4.25 ID HSA
Sampling Method : 2' Split Spoon
Total Depth (ft.) : 31.5
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-14S

(Page 4 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
24	-24											
25	-25	SS-17 25.0-26.4	24/17	8.9	3-7-10							Well: HMW-14S Elev.:
26	-26											
27	-27	SS-18 27.0-28.5	24/18	27.7	4-8-10							
28	-28											
29	-29	SS-19 29.0-30.5	24/18	11.5	3-5-3							
30	-30											
31	-31											
32	-32											



F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-14S.BOR

11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/15/01
Date Completed : 08/15/01
Logged by : James P. Hogan
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : CT250 4 1/4 HSAs
Sampling Method : Hand Auger, Split Spoons
Total Depth (ft.) : 64.0'
S. Water Level Date :
S. Water Level (ft.) :

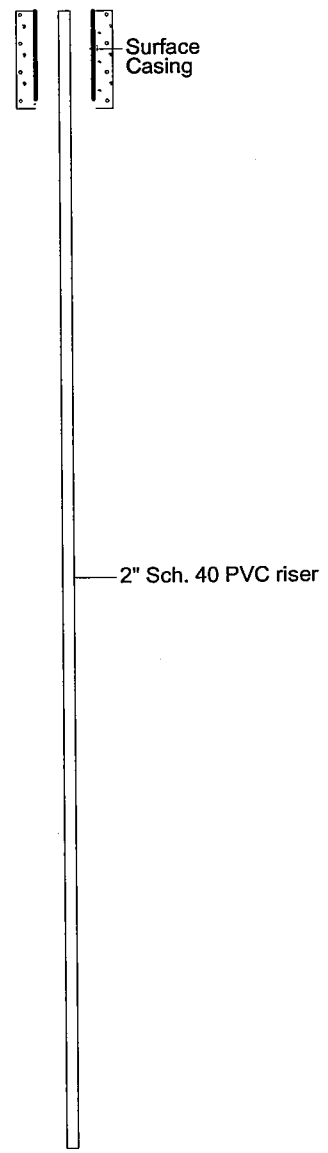
LOG OF BORING HMW-15D

(Page 1 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									Asphalt / concrete
1	-1	HA-1/ 1.0-1.5		0.8						Brown fine SAND, some gravel, moist
2	-2	HA-2/ 1.5-2.0		3.0						Black silty SAND, some gravel, organics, moist
3	-3	HA-3/ 2.0-2.7		6.8						Black silty SAND, trace gravel, moist
4	-4	HA-4/ 2.7-3.3		7.3						Same as above, slight petro odor
5	-5	HA-5/ 3.3-4.2		9.3						Same as above
6	-6	HA-6/ 4.2-4.8		20.6						Same as above
7	-7	SS-7 5.0-5.8	24/24	1.8	2-5-4					Brown fine SAND, trace gravel, slight petro staining and odor
8	-8									Brown clayey SAND, trace gravel, moist
9	-9	SS-8 7.0-8.5	24/18	3.7	2-3-2					Brown coarse SAND, trace gravel, moist
10	-10									Same as above
11	-11	SS-9 9.0-10.3	24/15	5.1	6-7-4					Same as above, trace clay at 9.3 to 9.8
12	-12									Light brown coarse SAND, trace gravel, moist
13	-13	SS-11 13.0-14.7	24/20	0.0	3-5-3					Light brown fine SAND, trace gravel, moist
14	-14									Same as above
15	-15	SS-12 15.0-15.3	24/20	3.0	4-5-2					Light brown coarse SAND, trace gravel, moist

Well: HMW-15D
Elev.:



11-30-2001 F:\CLIENTS\SBI002\SOIL BORING LOGS\HMW-15D.BOR



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/15/01
Date Completed : 08/15/01
Logged by : James P. Hogan
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : CT250 4 1/4 HSAs
Sampling Method : Hand Auger, Split Spoons
Total Depth (ft.) : 64.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-15D

(Page 2 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
16	-16											
17	-17	SS-13 17.0-18.7	24/20	4.3	7-13-12							Well: HMW-15D Elev.:
18	-18											
19	-19	SS-14 19.0-20.3	24/15	5.1	7-21-14							
20	-20											
21	-21	SS-15 21.0-22.3	24/15	4.0	8-33-20							
22	-22											
23	-23	SS-16 23.0-25.0	24/24	5.0	10-22-9							
24	-24											2" Sch. 40 PVC riser
25	-25	SS-17 25.0-26.4	24/17	8.9	3-7-10							
26	-26											
27	-27	SS-18 27.0-28.5	24/18	27.7	4-8-10							
28	-28											
29	-29	SS-19 29.0-30.5	24/18	11.5	3-5-3							
30	-30	SS-1 30.0-31.2	2.0/1.2	2.5	8-21-15							
31	-31											
32	-32											

F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-15D.BOR

11-30-2001



Date Started : 08/15/01
 Date Completed : 08/15/01
 Logged by : James P. Hogan
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : CT250 4 1/4 HSAs
 Sampling Method : Hand Auger, Split Spoons
 Total Depth (ft.) : 64.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-15D

(Page 3 of 4)

South Bend Area A
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID / 2020
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

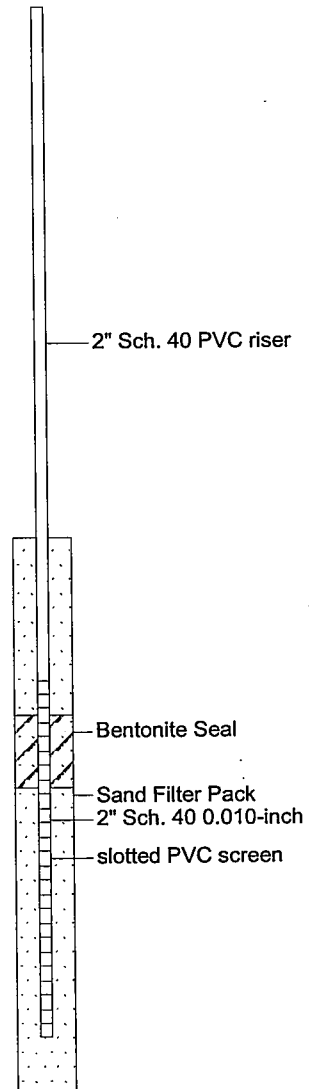
Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
32	-32	SS-2 32.0-33.3	2.0/1.3	2.4	7-20-12	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Medium dense, same as above
33	-33					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
34	-34	SS-3 34.0-35.3	2.0/1.3	7.0	9-23-15	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Medium dense to dense, same as above
35	-35					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
36	-36	SS-4 36.0-37.3	2.0/1.3	6.2	8-28-17	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Same as above
37	-37					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
38	-38	SS-5 38.0-38.9	2.0/0.9	5.0	6-20-13	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Medium dense brown SAND, trace gravel; wet
39	-39					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
40	-40	SS-6 40.0-41.3	2.0/1.3	6.8	4-13-34	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Medium dense brown SAND; wet
41	-41					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
42	-42	SS-7 42.0-43.0	2.0/1.0	5.3	9-50-33	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Dense to very dense orange-brown gravelly coarse SAND; trace of silt, trace clay; wet
43	-43					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
44	-44	SS-8 44.0-45.3	2.0/1.3	5.7	11-95-40	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
45	-45					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
46	-46	SS-9 46.0-46.7	2.0/1.3	7.5	14-48-37	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Dense to very dense, same as above
47	-47	SS-10 46.7-47.3		8.0		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Dense to very dense fine SAND; wet
48	-48					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Well: HMW-15D
Elev.:

—2" Sch. 40 PVC riser

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
48	-48	SS-11 48.0-48.8	2.0/0.8	6.8	9-32-31	■	█			Dense, same as above
49	-49									
50	-50	SS-12 50.0-50.9	2.0/0.9	7.0	11-14-17	■	█			Medium dense brown SAND, trace gravel; wet
51	-51									
52	-52	SS-13 52.0-52.8	2.0/0.8	7.2	7-45-45	■	█			Dense to very dense brown SAND; wet
53	-53									
54	-54	SS-14 54.0-55.5	2.0/1.9	4.6	4-22-28	■	█			Medium dense to dense brown fine SAND; wet
55	-55									
56	-56	SS-15 55.5-55.9 SS-16 56.0-56.8	2.0/0.8	5.4	17-38-40	■	█			Medium dense to dense SAND, little gravel; wet Dense brown SAND; wet
57	-57									
58	-58	SS-17 58.0-59.3	2.0/1.3	4.0	7-51-48	■	█			Very dense, same as above
59	-59									
60	-60	SS-18 60.0-61.0	2.0/1.0	3.3	19-32-31	■	█			Dense brown SAND, trace gravel; wet
61	-61									
62	-62	SS-19 62.0-63.0	1.3/1.3	1.4	3-34-50	■	█			Very dense brown SAND; wet
63	-63	SS-20 63.0-63.3		2.9		■	█			Hard clayey SILT, little sand; dry
64										

Well: HMW-15D
Elev.:





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : James Hogan
Reviewed by :
Drilling Contractor : Topflite Drilling
Drilling Method : CT250, 4 1/4" HSAs
Sampling Method : Split Spoon, Hand Auger
Total Depth (ft.) : 69.0'
S. Water Level Date :
S. Water Level (ft.) :

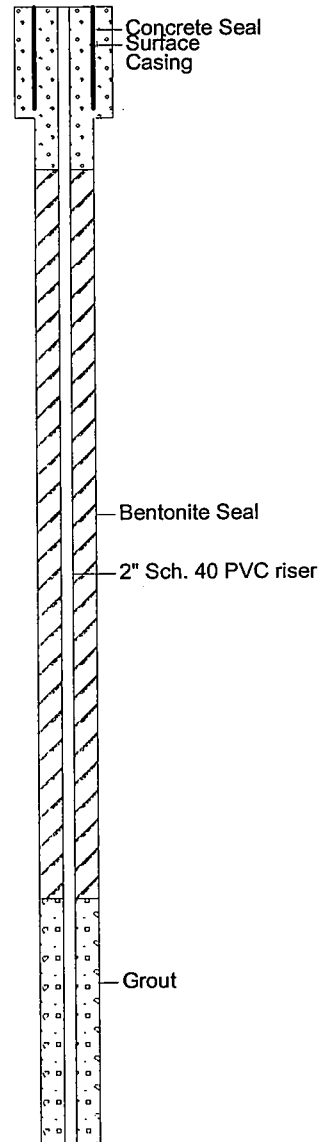
LOG OF BORING HMW-16D

(Page 1 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									Asphalt and Concrete
1	-1	HA-1/ 1.0-2.0		6.7						Dark brown gravelly SAND, brick, wood, moist
2	-2	HA-2/ 2.0-4.0		5.3						Dark brown silty SAND, trace gravel; moist
4	-4	SS-3 4.1-5.5	2.0/1.5	0	6-11-6					Same as above Medium dense orange to brown SAND; moist
6	-6	SS-4 6.0-7.1	2.0/1.1	0	4-10-8					Loose orange-brown SAND, trace gravel; moist
8	-8	SS-5 8.0-9.5	2.0/1.5	0	5-12-6					Medium dense orange-brown SAND; trace gravel; moist
10	-10	SS-6 10.0-11.1	2.0/1.1	0	3-10-8					Loose orange-brown SAND, trace gravel, moist
12	-12	SS-7 12.0-13.0	2.0/1.0	0	5-6-1					Same as above

Well: HMW-16D
Elev.:



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11-30-2001



Date Started : 08/22/01
 Date Completed : 08/22/01
 Logged by : James Hogan
 Reviewed by :
 Drilling Contractor : Topflite Drilling
 Drilling Method : CT250, 4 1/4" HSAs
 Sampling Method : Split Spoon, Hand Auger
 Total Depth (ft.) : 69.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-16D

(Page 2 of 5)

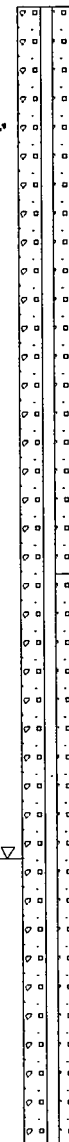
South Bend Area A
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID / 2020
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
14	-14	SS-8 14.0-15.1	2.0/1.1	0	5-6-7					Same as above
15	-15									
16	-16	SS-9 16.0-17.0	2.0/1.0	0.7	9-18-10					Medium dense brown gravelly SAND; moist
17	-17									
18	-18	SS-10 18.0-19.3	2.0-1.3	2.0	9-22-8					Medium dense to dense brown gravelly SAND; moist
19	-19									
20	-20	SS-11 20.0-20.7	2.0/0.7	1.3	8-18-13					Medium dense brown sandy GRAVEL; moist
21	-21									
22	-22	SS-12 22.0-23.0	2.0/1.0	2.0	13-31-14					Dense brown gravelly SAND; moist
23	-23									
24	-24	SS-13 24.0-25.1	2.0/1.1	3.2	6-17-13					Medium dense brown SAND; wet
25	-25									
26	-26	SS-14 26.0-27.4	2.0/1.4	2.3	5-16-13					Same as above
27	-27									
28										

Well: HMW-16D
Elev.:



Grout
2" Sch. 40 PVC riser

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

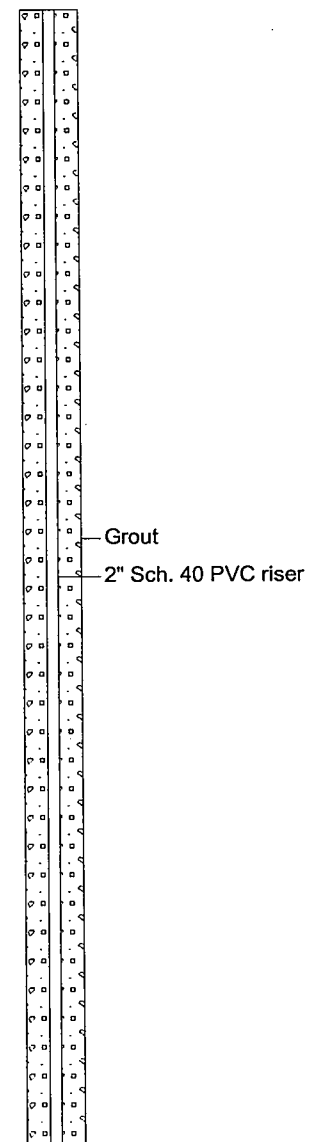
Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : James Hogan
Reviewed by :
Drilling Contractor : Topflite Drilling
Drilling Method : CT250, 4 1/4" HSAs
Sampling Method : Split Spoon, Hand Auger
Total Depth (ft.) : 69.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-16D

(Page 3 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	Well: HMW-16D Elev.:
								<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling		
28	-28	SS-15 28.0-29.3	2.0/1.3	4.0	3-17-13								
29	-29												
30	-30	SS-16 30.0-31.0	2.0/1.0	1.7	10-17-9								
31	-31												
32	-32	SS-17 32.0-33.0	2.0/1.0	5.1	8-25-16								
33	-33												
34	-34	SS-18 34.0-35.0	2.0/1.0	4.8	6-18-12								
35	-35												
36	-36	SS-19 36.0-37.2	2.0/1.2	4.3	4-14-13								
37	-37												
38	-38	SS-20 38.0-39.3	2.0/1.3	2.9	4-24-18								
39	-39												
40	-40	SS-21 40.0-40.9	2.0/0.9	3.1	8-12-20								
41	-41												
42	-42												





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : James Hogan
Reviewed by :
Drilling Contractor : Topflite Drilling
Drilling Method : CT250, 4 1/4" HSAs
Sampling Method : Split Spoon, Hand Auger
Total Depth (ft.) : 69.0'
S. Water Level Date :
S. Water Level (ft.) :

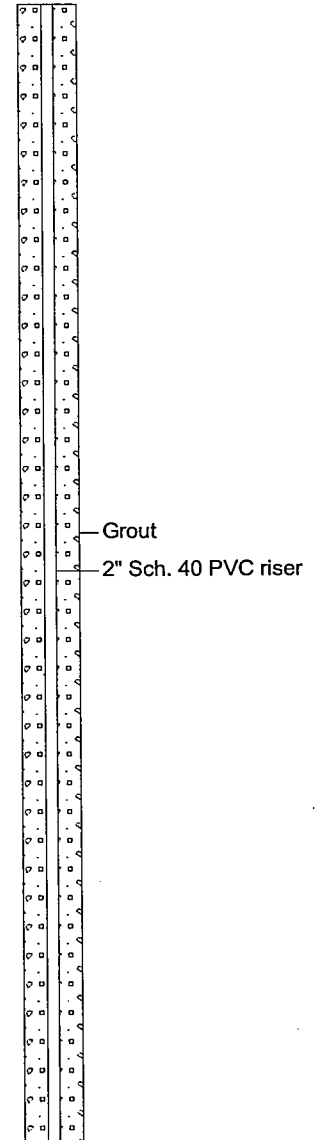
LOG OF BORING HMW-16D

(Page 4 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
42	-42	SS-22 42.0-43.1	2.0/1.1	3.1	6-30-19					Medium dense to dense brown SAND; wet
43	-43									
44	-44	SS-23 44.0-45.0	2.0/1.0	3.9	4-12-10					Medium dense, same as above
45	-45									
46	-46	SS-24 46.0-46.8	2.0/0.8	4.1	4-21-21					Medium dense to dense, same as above
47	-47									
48	-48		0.2/0.0		50/2					No recovery
49	-49									
50	-50	SS-25 50.0-50.1	0.1/0.0	4.1	50/1					Very dense SAND, some coarse sand; wet
51	-51									
52	-52	SS-26 52.0-52.1	0.3/0.1	3.9	100/3					Very dense gravelly SAND; wet
53	-53									
54	-54	SS-27 54.0-54.3	0.3/0.3	3.5	50/3					Very dense SAND, some coarse sand; wet
55	-55									
56	-56									

Well: HMW-16D
Elev.:



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11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/22/01
Date Completed : 08/22/01
Logged by : James Hogan
Reviewed by :
Drilling Contractor : Topflite Drilling
Drilling Method : CT250, 4 1/4" HSAs
Sampling Method : Split Spoon, Hand Auger
Total Depth (ft.) : 69.0'
S. Water Level Date :
S. Water Level (ft.) :

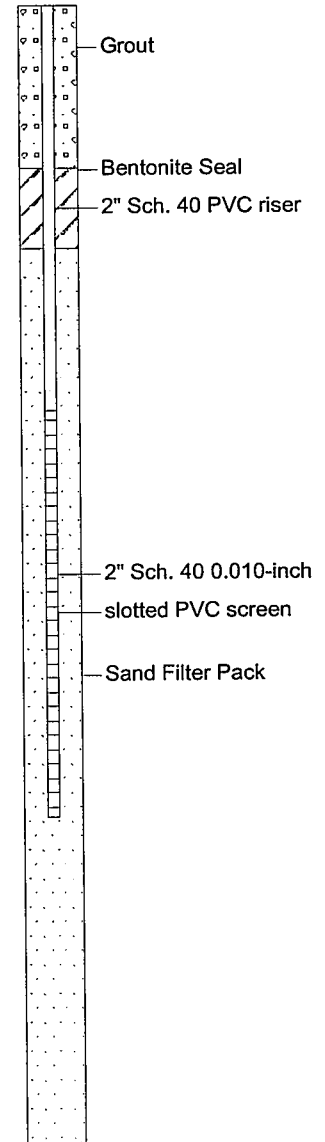
LOG OF BORING HMW-16D

(Page 5 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
56	-56	SS-28 56.0-56.7	2.0/0.7	4.8	138-219-25	█	.....			Very dense coarse SAND; trace sand; trace gravel; wet
57	-57									
58	-58	SS-29 58.0-59.0	2.0/1.0	3.1	39-56-61	█	.....			Very dense SAND; wet; clayey sand in tip
59	-59									
60	-60	SS-30 60.0-61.1	1.3/1.1	4.3	10-31-50	█	.....			Very dense brown SAND; wet; sandy gravel in tip
61	-61									
62	-62	SS-31 62.0-63.3	1.9/1.3	4.9	12-55-50	█	.....			Very dense brown SAND; wet
63	-63									
64	-64	SS-32 64.0-64.7	1.5/1.3	4.0	24-35-50	█	.....			Same as above
65	-65	SS-33 64.7-65.3		4.3		█	.....			Very dense brown sandy GRAVEL; wet
66	-66	SS-34 66.0-66.9	1.5/1.2	5.2	9-27-50	█	.....			Very dense brown SAND; wet
67	-67	SS-35 66.9-67.2		5.8		█	.....			Very dense brown silty, little sand; trace clay; moist
68	-68	SS-36 68.0-68.9	1.5/0.9	4.4	23-42-50	█	.....			Hard gray clayey SILT, trace sand; moist End of boring at 69.0'
69	-69									
70										

Well: HMW-16D
Elev.:



F:\CLIENTS\SIBSIBI002\SOIL BORING LOGS\HMW-16D.BOR

11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

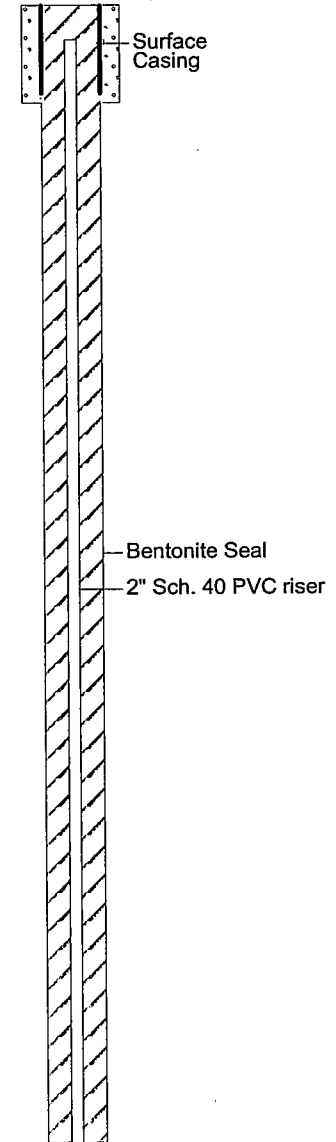
Date Started : 08/14/01
Date Completed : 08/14/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : 4.25 HSA
Sampling Method : Split Spoons
Total Depth (ft.) : 32'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-18S

(Page 1 of 2)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0	SS-1 0.0-1.2		1.5						Black silty SAND, some gravel organics, very moist
1	-1	SS-2 1.2-2.1		2.1						Same as above
2	-2	SS-3 2.1-2.3		4.9						Brown fine SAND, some gravel, very moist
3	-3									Same as above
4	-4	SS-4 3.5-4.2		2.6						Same as above, wood fragments
4	-4	SS-5 4.2-5.0		1.9						Same as above, trace coal fragments
5	-5	SS-6 5.0-6.7	24/20	7.8	4-7-3					Brown fine SAND, trace gravel, moist
6	-6									
7	-7	SS-7 7.0-8.3	24/20	3.9	4-6-3					Same as above
8	-8									Brown coarse SAND, trace gravel, moist
9	-9	SS-8 9.0-10.3	24/15	5.7	5-11-7					Same as above
10	-10									
11	-11	SS-9 11.0-12.3	24/15	6.3	5-7-2					Brown coarse SAND, some gravel, very moist
12	-12									
13	-13	SS-10 13.0-13.8	24/15	1.4	3-5-2					Same as above
14	-14									Brown clayey SILT, some gravel, moist
15	-15	SS-11 15.0-16.3	24/15	3.7	4-10-6					Brown coarse SAND, some gravel, very moist
16	-16									Brown coarse SAND, some gravel, trace clay, very moist



F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-18S.BOR

11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/14/01
Date Completed : 08/14/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : 4.25 HSA
Sampling Method : Split Spoons
Total Depth (ft.) : 32'
S. Water Level Date :
S. Water Level (ft.) :

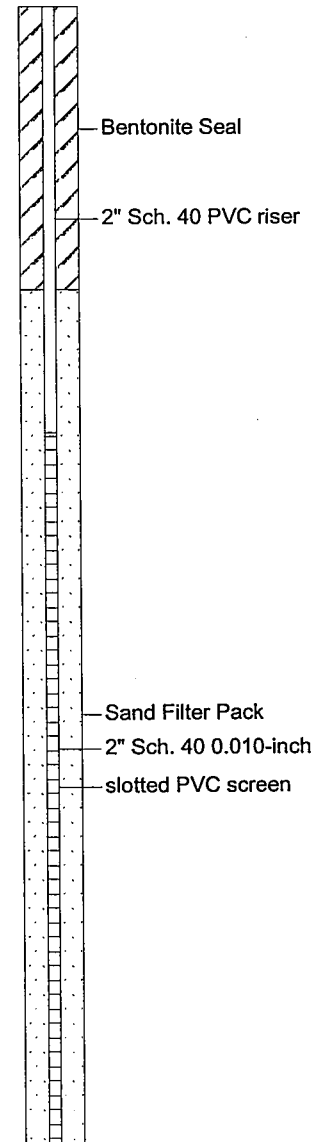
LOG OF BORING HMW-18S

(Page 2 of 2)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
16	-16									
17	-17	SS-12 17.0-18.0	24/12	3.8	3-8-7					Same as above
18	-18									
19	-19	SS-13 19.0-20.7	24/20	6.2	6-19-18					Brown coarse SAND, some gravel, very moist
20	-20									
21	-21	SS-14 21.0-22.3	24/15	4.7	9-21-24					Same as above
22	-22									
23	-23	SS-15 23.0-24.7	24/20	8.4	12-15-6					Same as above, black staining from 23.8 to 24.7, slight petro odor
24	-24									
25	-25	SS-16 25.0-26.0	24/12	7.8	6-13-9					SAND and GRAVEL, black staining from 25 to 25.3, saturated at 25.3'
26	-26									
27	-27	SS-17 27.0-28.3	24/15	6.7	1-3-2					Light brown coarse SAND, trace gravel, saturated
28	-28									
29	-29	SS-18 29.0-30.0	24/12	5.8	1-2-1					Same as above
30	-30									
31	-31	SS-19 31.0-31.4	24/5	5.9	2-3-2					Same as above
32										

Well: HMW-18S
Elev.:



F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-18S.BOR

11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 119'
S. Water Level Date :
S. Water Level (ft.) :

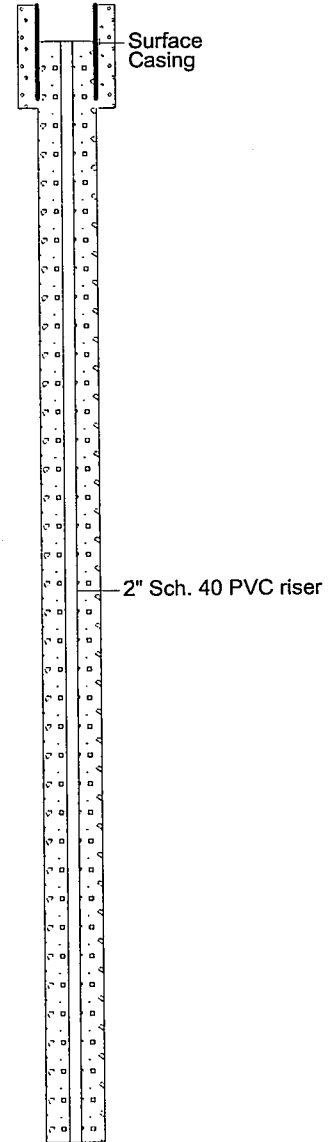
LOG OF BORING HMW-22D

(Page 1 of 8)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
0	0	HA-1/ 0.0-2.0		3.1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Crushed stone, slag fragments, black FILL medium to coarse grain sand / cinders, dry
1	-1									
2	-2	HA-2/ 2.0-4.0		3.1				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Brown medium to fine grain SAND, trace silt, trace gravel, moist
3	-3									
4	-4	SS-3 4.0-6.0	24/8	4.4	7-17-13			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Same as above, light brown
5	-5									Same as above
6	-6	SS-4 5.0-6.7	24/18	3.8	2-8-6			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Same as above, interbedded silty sand seam at 6.5'
7	-7									Light brown medium to fine grain SAND, moist trace silt
8	-8	SS-5 8.0-10.0	24/12	2.6	2-4-6			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Same as above
9	-9									Brown medium to coarse SAND, trace silt, trace gravel
10	-10	SS-6 10.0-12.0	24/12	2.4	9-18-11			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Same as above
11	-11									
12	-12	SS-7 12.0-14.0	24/18	3.7	6-21-15			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Same as above, interbedded clayey sand seam at 12.5'
13	-13									
14	-14	SS-8 14.0-16.0	24/16	8.6	12-29-17			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Same as above
15										

Well: HMW-22D
Elev.:





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

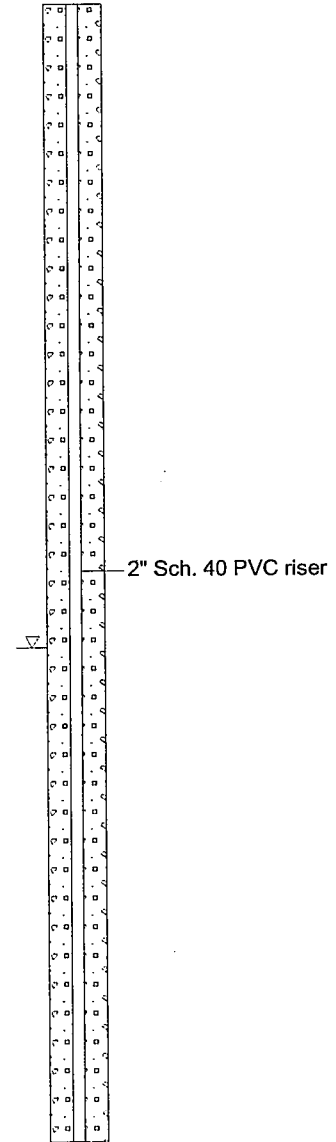
Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 119'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-22D

(Page 2 of 8)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
15	-15											
16	-16	SS-9 16.0-18.0	24/20	1.8	9-26-17							Same as above, less gravel at 17.0
17	-17											
18	-18	SS-10 18.0-20.0	24/20	6.3	8-28-16							Same as above
19	-19											
20	-20	SS-11 20.0-22.0	24/22	14.7	10-25-16							Same as above, black banding at 21.5'
21	-21											
22	-22	SS-12 22.0-23.0	24/20	3.8	8-19-12							
23	-23	SS-13 23.0-24.0		4.1								Same as above, wet at 23.0'
24	-24	SS-14 24.0-26.0	24/22	3.6	4-14-9							Same as above, brown coarse to medium sand, trace silt, trace gravel
25	-25											
26	-26	SS-15 26.0-28.0	24/22	9.7	4-28-20							Same as above
27	-27											
28	-28	SS-16 28.0-30.0	24/16	9.9	6-23-16							Same as above, more gravel
29	-29											
30	-29											



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11-05-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

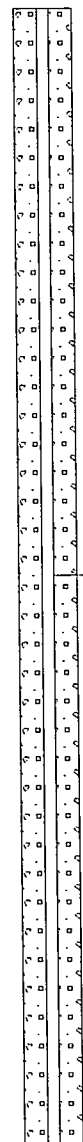
Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 119'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-22D

(Page 3 of 8)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
30	-30	SS-17 30.0-32.0	24/20	16.0	6-10-13							Same as above, black banding at 31.5'
31	-31											
32	-32	SS-18 32.0-34.0	24/22	5.9	9-19-22							Same as above
33	-33											
34	-34	SS-19 34.0-36.0	24/18	13.7	6-21-14							Same as above, large stone stuck in end of spoon, less coarse sand
35	-35											
36	-36	SS-20 36.0-38.0	24/20	5.4	9-22-9							Same as above, more coarse sand
37	-37											
38	-38	SS-21 38.0-40.0	24/18	5.6	6-32-35							Same as above
39	-39											
40	-40	SS-22 40.0-42.0	23/22	3.4	8-58-50							Same as above
41	-41											
42	-42	SS-23 42.0-44.0	24/16	2.4	9-49-30							Same as above
43	-43											
44	-44	SS-24 44.0-46.0	24/24	4.1	9-47-25							Same as above
45	-45											



2" Sch. 40 PVC riser

Well: HMW-22D
Elev.:



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 119'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-22D

(Page 4 of 8)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
45	-45											
46	-46	SS-25 46.0-48.0	24/20	5.9	14-47-37							Same as above, increase gravel
47	-47											
48	-48	SS-26 48.0-50.0	24/20	5.5	10-38-19							Same as above, few gravel, less sand
49	-49											
50	-50	SS-27 50.0-52.0	24/10	5.6	13-31-28							Same as above, increase silt
51	-51											
52	-52	SS-28 52.0-54.0	23/16	4.6	25-88-50							Same as above, large stone in spoon
53	-53											Brown fine to medium SAND, trace silt, trace gravel, large stone in end of spoon
54	-54	54.0-55.0	24/18	6.8	24-53-27							Same as above
55	-55	SS-30 55.0-56.0		6.3								Grey silty clayey SAND, trace gravel
56	-56	SS-31 56.0-58.0	24/6	4.0	39-75-18							Same as above
57	-57											
58	-58	SS-22 58.0-60.0	24/12	6.6	2-19-19							Same as above
59	-59											
60	-60											Brown fine to medium SAND, trace gravel trace silt

Well: HMW-22D
Elev.:



2" Sch. 40 PVC riser



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

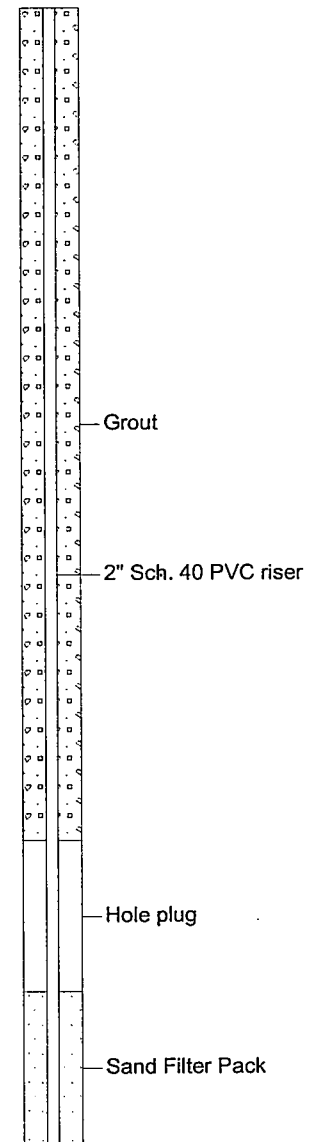
Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 119'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-22D

(Page 5 of 8)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION	Well: HMW-22D Elev.:
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling		
60	-60	SS-23 60.0-62.0	24/24	8.4	8-28-27					Same as above, medium to coarse sand	
61	-61									Brown fine SAND, trace silt, trace gravel 2" brown clayey sand seam, very dense, trace gravel	
62	-62	SS-27 62.0-64.0	24/24	8.3	13-68-52					Brown fine SAND, trace silt, trace gravel	
63	-63									Same as above, increase gravel	
64	-64	SS-28 64.0-66.0	17/6	8.1	18-25-50					Brown fine silty SAND 1" brown silt seam, lost last 6" at 63.5 Same as above, may have washed out sand when removing rods	
65	-65										
66	-66	SS-29 66.6-68.0	23/18	5.5	10-57-50					Brown fine to medium SAND, trace silt, trace gravel	
67	-67										
68	-68	SS-30 68.0-70.0	21/24	8.2	15-58-50					Same as above, no gravel	
69	-69										
70	-70	SS-31 70.0-72.0	22/20	8.5	18-56-50					2" brown sandy SILT seam at 69.5' Same as above, trace gravel	
71	-71										
72	-72	SS-32 72.0-74.0	15/15	8.7	9-25-50					Same as above, no gravel, 3" brown silt seam at 73.5, lost last 6"	
73	-73										
74	-74	SS-33 74.0-76.0	21/18	0.0	25-61-50					Same as above, trace gravel just above 1" sandy silt seam	
75											



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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

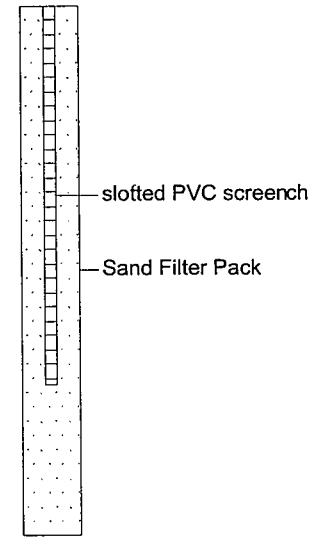
Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 119'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-22D

(Page 6 of 8)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
75	-75									
76	-76	SS-34 76.0-78.0	22/18	0.0	10-75-50					Same as above, increase silt with depth, trace gravel
77	-77									
78	-78	SS-35 78.0-80.0	24/18	0.0	8-44-50					Same as above
79	-79									Brown silt seam at 79', 1" thick Brown sandy silt, 6" thick Brown silt at end of spoon 3" thick
80	-80	SS-36 80.0-82.0	24/16	0.0	8-35-35					Brown sandy SILT, trace gravel
81	-81									Brown silt seam, trace gravel, last 4"
82	-82	SS-37 82.0-84.0	24/24	0.0	12-38-46					Light brown fine to medium SAND, trace silt, trace gravel
83	-83									
84	-84	SS-38 84.0-86.0	16/16	0.0	24-45-50					Brown sandy silt, last 6" Same as above, first 3"
85	-85									
86	-86	SS-39 86.0-88.0	16/6	0.0	12-25-50					Brown medium to fine SAND, trace silt, trace gravel
87	-87									Grey sandy SILT, manganese oxidation, last 6" Same as above
88	-88	SS-40 88.0-90.0	16/14	0.0	11-45-50					Same as above, first 2" Grey silt, very dense, 6" thick
89	-89									
90	-90									





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 119'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-22D

(Page 7 of 8)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
90	-90	SS-41 90.0-92.0	12/10	0.0	25/86					Grey silty SAND, last 6"
91	-91									Same as above
92	-92		24/0			8-24-13				Gravel (cobbles) at end of spoon, few medium to fine sand, trace silt
93	-93									
94	-94	SS-42 94.0-96.0	24/14	0.0	8-32-24					Grey silty SAND
95	-95									
96	-96	SS-43 96.0-98.0	24/24	0.0	8-39-31					Same as above
97	-97									
98	-98		21/24		8-69-50					Same as above
99	-99									
100	-100	SS-45 100-102	24/18	4.2	18-55-50					Same as above
101	-101									Grey SILT, trace fine sand
102	-102	SS-46 102-104	21/16	2.8	22-78-50					Grey sandy SILT
103	-103									
104	-104	SS-47 104-106	15/15	0.0	19-33-50					Same as above
105	-105									

Well: HMW-22D
Elev.:



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : Topflite
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 119'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-22D

(Page 8 of 8)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
105	-105									
106	-106	SS-48 106-108	21/16	0.0	19-62-50					Same as above, less sand, trace gravel
107	-107									
108	-108	SS-49 108-110	24/18	0.0	12-32-30					Grey fine to medium grain silty SAND
109	-109									Same as above
110	-110	SS-50 110-112	16/12	0.0	23-37-50					Same as above
111	-111									
112	-112	SS-51 112-114	17/16	0.0	23-47-50					Same as above
113	-113									
114	-114	SS-52 114-116	24/24	0.0	12-71-50					Same as above
115	-115									Grey SILT
116	-116	SS-53 116-118	17/16	0.0	10-31-50					Grey silty fine SAND, grey silt
117	-117									Same as above, grey silt, trace sand
118	-118		12/12	0.0	20-50					Grey sandy CLAY, trace gravel, very dense, moist
119	-119									Same as above Sand at end of spoon End of boring at 119.0
120										

Well: HMW-22D
Elev.:

F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-22D.BOR-II

11-05-2001

South Bend Area A
Franklin & Sample
South Bend, IN
SBI002

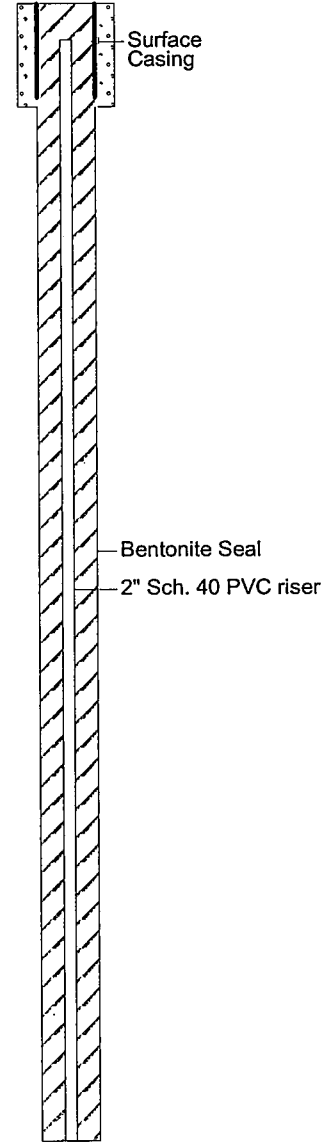
Date Started : 08/13/01
Date Completed : 08/13/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon, 2" Macro
Total Depth (ft.) : 30'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-25S

(Page 1 of 2)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									Asphalt and Concrete
1	-1	HA-1/ 1.0-2.5		0.2						Silty SAND, some gravel very moist
2	-2									
3	-3	HA-2/ 2.5-4.0		0.5						Brown silty SAND, few gravel, very moist
4	-4	HA-3/ 4.0-5.0		0.0						Brown SAND, trace gravel, very moist
5	-5	SS-4 5.0-6.7	24/20	2.5	3-5-2					Light brown fine SAND, trace gravel, very moist
6	-6									
7	-7	SS-5 7.0-8.7	24/20	2.6	3-5-2					Same as above
8	-8									Light brown coarse SAND, some gravel, very moist
9	-9	SS-6 9.0-10.0	24/12	0.9	5-10-7					Same as above
10	-10									
11	-11	SS-7 11.0-12.5	24/18	2.4	4-6-4					Same as above
12	-12									Light brown medium coarse SAND, trace gravel, very moist
13	-13	SS-8 13.0-14.5	24/18	1.9	5-12-8					Same as above
14	-14									
15	-15									Light brown coarse SAND, some gravel, very moist



F:\CLIENTS\SBI002\SOIL BORING LOGS\HMW-25S.BOR

11-30-2001

Date Started : 08/13/01
 Date Completed : 08/13/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : 4.25 HSA
 Sampling Method : Split Spoon, 2" Macro
 Total Depth (ft.) : 30'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-25S

(Page 2 of 2)

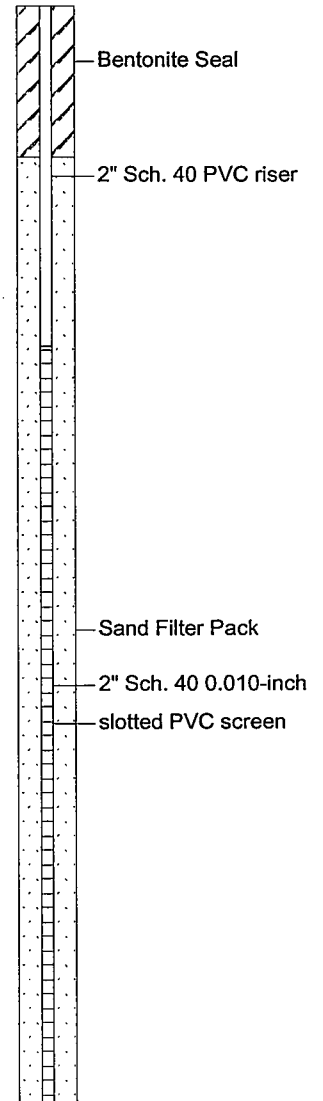
South Bend Area A
 Franklin & Sample
 South Bend, IN

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID / 2020
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

SBI002

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
15	-15	SS-9 15.0-16.7	24/20	2.3	8-18-14					
16	-16									
17	-17	SS-10 17.0-18.7	24/20	5.3	7-12-5					Same as above
18	-18									Coarse SAND and GRAVEL, petrol staining from 18.3 to 18.7', very moist
19	-19	SS-11 19.0-20.0	24/12	4.5	6-21-9					Same as above (also stained)
20	-20									Light brown coarse SAND, trace gravel
21	-21	SS-12 21.0-22.0	24/12	4.3	5-11-9					Light brown coarse SAND and GRAVEL, slight petro staining at 21.7'
22	-22									
23	-23	SS-13 23.0-24.5	24/18	4.1	14-20-12					Same as above, saturated at 24.0'
24	-24									
25	-25	SS-14 25.0-26.2	24/14	4.6	7-10-5					Same as above
26	-26									
27	-27	SS-15 27.0-28.0	24/12	3.7	7-14-8					Same as above
28	-28									
29	-29									
30	-30									Total depth of well is 29' 6"

Well: HMW-25S
 Elev.:



Date Started : 08/09/01
 Date Completed : 08/09/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : 4" HSA
 Sampling Method : 2' Split Spoon
 Total Depth (ft.) : 28'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-26S

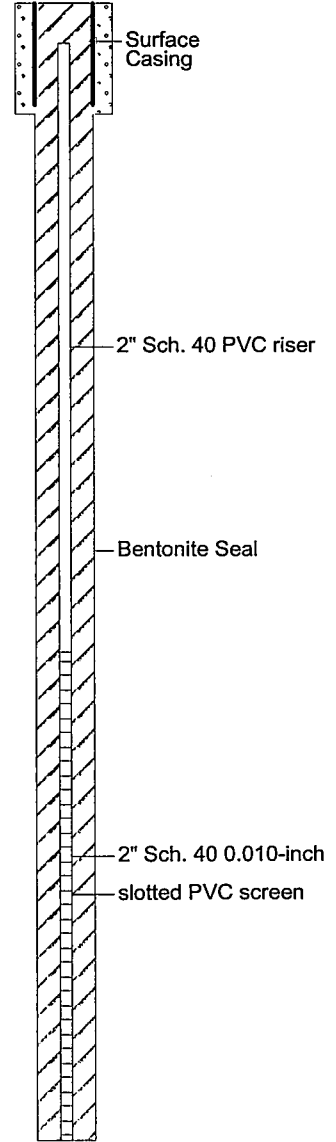
(Page 1 of 2)

South Bend Area A
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID / 2020
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	Well: HMW-26S Elev.:		
0	0											Asphalt and Concrete
1	-1											Silty SAND, some gravel, trace clay, moist
2	-2	HA-1/ 1.5-2.3		1.8								Brown coarse SAND, trace gravel, moist
3	-3	HA-2/ 2.3-3.8		1.7								Same as above
4	-4	HA-3/ 3.8-5.0		5.2								Same as above
5	-5	SS-4 5.0-7.0	24/24	0.5	4-4-3							Same as above
6	-6											Light brown coarse SAND, trace gravel, very moist
7	-7	SS-5 7.0-8.7	24/20	0.7	2-2-1							Same as above
8	-8											Same as above
9	-9	SS-6 9.0-10.3	24/15	10.1	3-8-4							Same as above
10	-10											Same as above
11	-11	SS-7 11.0-12.7	24/20	1.3	2-6-5							Same as above, more gravel from 14.5 to 14.7
12	-12											
13	-13	SS-8 13.0-14.7	24/20	8.3	5-7-8							
14	-14											



Date Started : 08/09/01
 Date Completed : 08/09/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : 4" HSA
 Sampling Method : 2' Split Spoon
 Total Depth (ft.) : 28'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-26S

(Page 2 of 2)

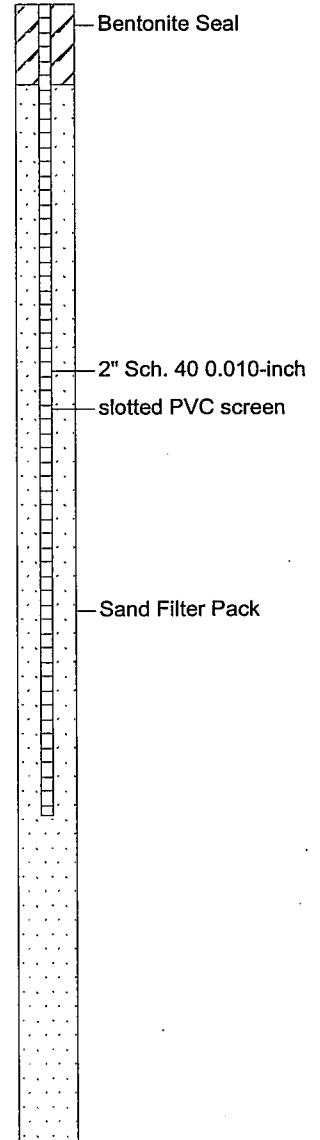
South Bend Area A
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : PID / 2020
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
14	-14									
15	-15	SS-9 15.0-16.7	24/20	5.1	6-14-12					Light brown SAND with gravel, very moist
16	-16									
17	-17	SS-10 17.0-18.7	24/20	6.8	8-10-9					Same as above
18	-18									
19	-19	SS-11 19.0-20.0	24/12	7.9	8-17-12					Same as above
20	-20									
21	-21	SS-12 21.0-22.7	24/20	6.2	8-17-21					Same as above
22	-22									
23	-23	SS-13 23.0-24.7	24/20	3.1	8-13-11					Light brown coarse SAND, some gravel, very moist
24	-24									
25	-25	SS-14 25.0-27.0	24/20	4.0	5-7-4					Same as above
26	-26									
27	-27	SS-15 27.3-28.0	24/12	2.5	6-6					Coarse SAND with gravel, saturated at 27.0' Coarse sand and gravel, saturated
28	-28									Total depth of well is 28.0'

Well: HMW-26S
 Elev.:



Hull

& associates, inc.

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/13/01
Date Completed : 08/13/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 33'
S. Water Level Date :
S. Water Level (ft.) :

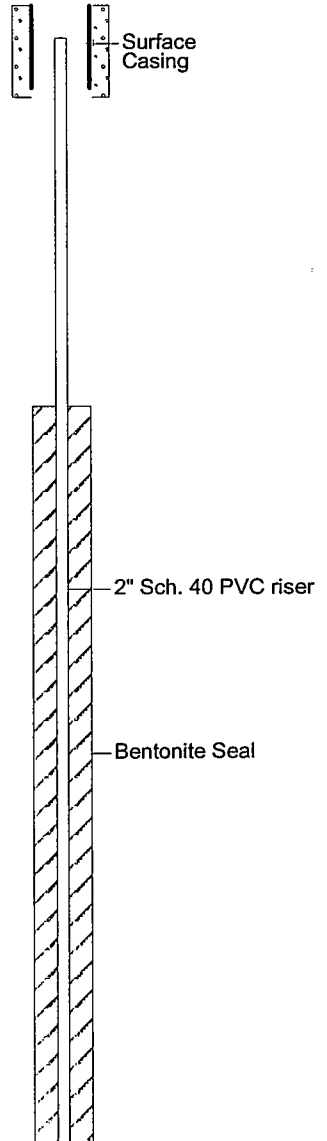
LOG OF BORING HMW-27S

(Page 1 of 2)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0	HA-1/ 0.0-0.8		3.3		<input checked="" type="checkbox"/>				Black SAND, rich organics, rootlet
1	-1	HA-2/ 1.5-2.0		1.7		<input checked="" type="checkbox"/>				Brown fine SAND, trace gravel, moist, rootlets
2	-2	HA-3/ 2.0-2.5		4.3		<input checked="" type="checkbox"/>				Same as above, no rootlets
3	-3	HA-4/ 2.5-3.5		3.5		<input checked="" type="checkbox"/>				Same as above
4	-4	HA-5/ 3.5-4.0		3.6		<input checked="" type="checkbox"/>				Same as above
4	-4	HA-6/ 4.0-5.0		3.9		<input checked="" type="checkbox"/>				Same as above
5	-5	SS-7 5.0-6.0	24/12	0.0	1-3-3	<input checked="" type="checkbox"/>				Same as above
6	-6									Hit sewer line at 6.5' bg. offset 5' SW, Asphalt cover drill through asphalt and use probe to 5' - probed to 5' - no obstructions. Straight drill to 7'
7	-7	SS-8 7.0-7.5	24/10	2.7	4-8-2	<input checked="" type="checkbox"/>				Brown fine SAND, trace gravel, moist
8	-8									Light brown coarse SAND, trace gravel, moist
9	-9	SS-9 9.0-10.0	24/12	2.4	1-2-4	<input checked="" type="checkbox"/>				Same as above
10	-10									
11	-11	SS-10 11.0-12.0	24/12	1.0	1-2-12	<input checked="" type="checkbox"/>				Light brown coarse SAND with gravel, moist
12	-12									
13	-13	SS-11 13.0-14.0	24/12	1.9	1-13-1	<input checked="" type="checkbox"/>				Light brown coarse SAND, some gravel, moist
14	-14									
15	-15	SS-12 15.0-16.3	24/15	2.4	2-4-4	<input checked="" type="checkbox"/>				Same as above
16	-16									
17	-17									

Well: HMW-27S
Elev.:

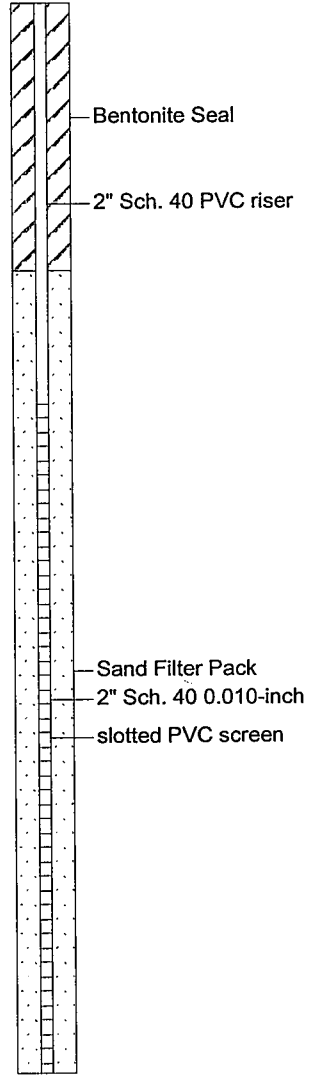


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11-30-2001

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
17	-17	SS-13 17.0-19.0	24/24	3.3	5-16-10					Same as above
18	-18									
19	-19	SS-14 19.0-20.3	24/18	4.7	10-20-15					Same as above
20	-20									
21	-21	SS-15 21.0-22.7	24/20	6.3	5-20-23					Same as above
22	-22									
23	-23	SS-16 23.0-24.0	24/12	6.7	5-20-20					Same as above, very moist to saturated
24	-24									
25	-25	SS-17 25.0-26.3	24/15	6.8	6-8-3					Sand and Gravel, saturated at 26.0'
26	-26									
27	-27	SS-18 27.0-27.8	24/10	4.2	5-10-5					Same as above
28	-28									
29	-29	SS-19 29.0-30.7	24/20	5.5	2-5-4					Same as above
30	-30									
31	-31	SS-20 31.0-32.3	24/15	6.3	4-9-13					Same as above
32	-32									
33	-33									Total depth is 33.0'
34	-34									

Well: HMW-27S
Elev.:





& associates. inc.

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/12/01
Date Completed : 09/12/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : No Sampling
Total Depth (ft.) :
S. Water Level Date :
S. Water Level (ft.) :

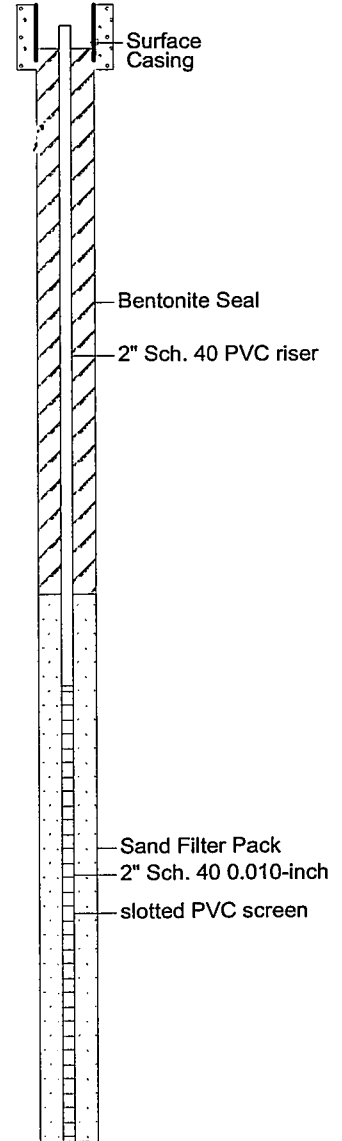
LOG OF BORING HMW-28S

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : PID / 2020
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		Well: HMW-28S Elev.:
								<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION												
0	0											
1	-1											
2	-2											
3	-3											
4	-4											
5	-5											
6	-6											
7	-7											
8	-8											
9	-9											
10	-10											
11	-11											
12	-12											
13	-13											
14	-14											
15	-15											
16	-16											
17	-17											
18	-18											
19	-19											
20	-20											
21	-21											
22	-22											
23	-23											
24	-24											
25	-25											

See HMW-28D for geology

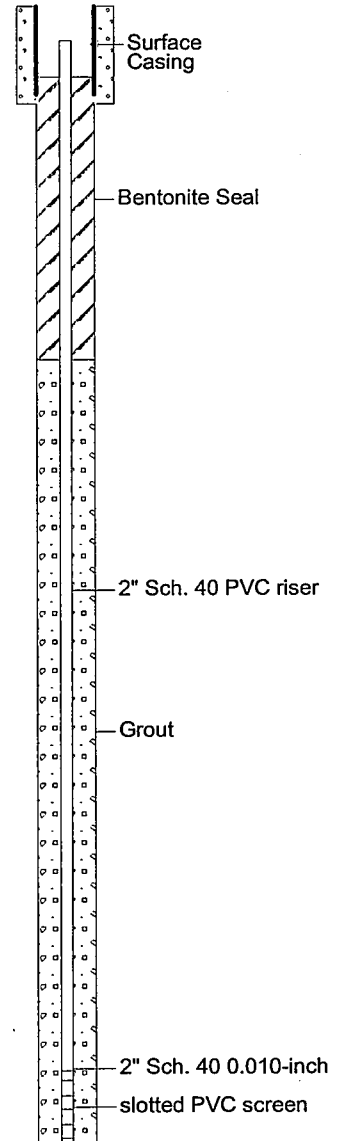


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11-30-2001

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
0	0	HA-1/ 0.0-2.0		0.0						Dark brown organic rich clayey SAND, trace gravel, moist
1	-1									
2	-2	HA-2/ 2.0-4.0		0.0						Brown medium to coarse SAND, few silt, trace gravel
3	-3									
4	-4	SS-3 4.0-6.0	24/12	0.0	2-3-3					Same as above
5	-5									
6	-6	SS-4 6.0-8.0	24/18	0.0	2-4-2					Same as above, less silt
7	-7									
8	-8	SS-5 8.0-10.0	24/20	0.0	2-4-2					Same as above
9	-9									
10	-10	SS-6 10.0-12.0	24/8	0.0	2-3-1					Same as above, trace clay
11	-11									
12	-12	SS-7 12.0-14.0	24/12	0.0	8-19-10					Light brown medium to coarse SAND, trace silt, trace gravel, moist
13	-13									
14	-14	SS-8 14.0-16.0	24/16	0.0	6-18-14					Same as above
15	-15									
16	-16									

Well: HMW-28D
Elev.:





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/30/01
Date Completed : 08/30/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 96.0'
S. Water Level Date :
S. Water Level (ft.) :

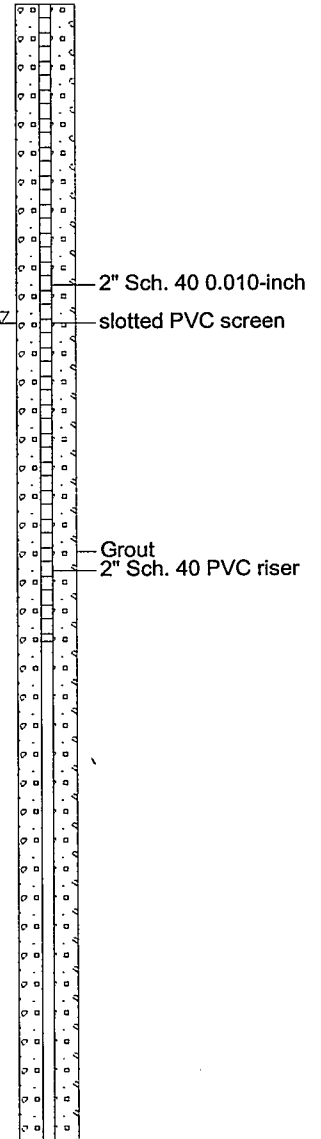
LOG OF BORING MW-28D

(Page 2 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
16	-16	SS-9 16.0-18.0	24/18	0.0	7-20-10					Same as above
17	-17									
18	-18	SS-10 18.0-20.0	24/16	0.0	7-21-12					Same as above
19	-19									
20	-20	SS-11 20.0-22.0	24/16	0.0	6-19-9					Same as above, wet
21	-21									
22	-22	SS-12 22.0-24.0	24/12	0.0	6-18-14					Same as above, large cobble in end of spoon
23	-23									
24	-24	SS-13 24.0-26.0	24/12	0.0	7-21-14					Same as above
25	-25									
26	-26	SS-14 26.0-28.0	24/16	0.0	4-16-15					Same as above
27	-27									Same as above, few gravel
28	-28	SS-15 28.0-30.0	24/14	0.0	6-15-14					Same as above, trace gravel
29	-29									
30	-30	SS-16 30.0-32.0	24/12	0.0	2-8-8					Same as above
31	-31									
32	-32									

Well: HMW-28D
Elev.:





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/30/01
Date Completed : 08/30/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 96.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING MW-28D

(Page 3 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
32	-32	SS-17 32.0-34.0	24/16	0.0	3-16-22							
33	-33											
34	-34	SS-18 34.0-36.0	24/12	0.0	8-48-30							
35	-35											
36	-36	SS-19 36.0-38.0	24/18	0.0	13-28-24							
37	-37											
38	-38	SS-20 38.0-40.0	24/12	0.0	10-31-23							
39	-39											
40	-40	SS-21 40.0-42.0	24/6	0.0	6-25-21							
41	-41											
42	-42	SS-22 42.0-44.0	24/20	0.0	14-53-33							
43	-43											
44	-44	SS-23 44.0-46.0	24/14	0.0	7-40-17							
45	-45											
46	-46	SS-24 46.0-48.0	24/20	0.0	7-61-49							
47	-47											
48	-48											

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11-30-2001



& associates, inc.

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/30/01
Date Completed : 08/30/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 96.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING MW-28D

(Page 4 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
48	-48	SS-25 48.0-50.0	24/18	0.0	6-65-50					Same as above
49	-49									
50	-50	SS-26 50.0-52.0	24/6	0.0	10-29-50					Same as above
51	-51									
52	-52	SS-27 52.0-54.0	24/0	0.0	14-50					Sample may have washed out
53	-53									
54	-54	SS-28 54.0-56.0	24/8	0.0	13-35-50					Same as above
55	-55									
56	-56	SS-29 56.0-58.0	24/18	0.0	9-74-50					Same as above
57	-57									
58	-58	SS-30 58.0-60.0	24/0	0.0	9-30-50					Same as above, interbedded few silt (grey), sample may have washed out
59	-59									
60	-60		24/0		1-28-44					May have washed out sample
61	-61									
62	-62	SS 62.0-64.0	23/12	0.0	3-53-50					Same as above
63	-63									
64	-64									

Well: HMW-28D
Elev.:



Grout
2" Sch. 40 PVC riser

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11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/30/01
Date Completed : 08/30/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 96.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING MW-28D

(Page 5 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
64	-64	SS 64.0-66.0	22/18	0.0	7-74-50					Same as above
65	-65									
66	-66	SS 66.0-68.0	23.5/16	0.0	8-71-50					Same as above
67	-67									
68	-68	SS 68.0-70.0	22/20	0.0	9-66-50					Same as above, increase silt
69	-69									
70	-70	SS 70.0-72.0	23/20	0.0	6-47-50					Same as above
71	-71									
72	-72	SS 72.0-74.0	21/20	0.0	14-97-50					Same as above
73	-73									
74	-74	SS 74.0-76.0	21/20	0.0	15-87-50					Same as above
75	-75									
76	-76	SS 76.0-78.0	24/0	0.0	12-43-50					No recovery
77	-77									
78	-78	SS 78.0-80.0	24/20	0.0	9-78-50					Same as above, increase gravel, trace clay
79	-79									
80										

Well: HMW-28D
Elev.:



Grout
2" Sch. 40 PVC riser

F:\CLIENTS\SB\SB002\SOIL BORING LOGS\MW-28D.BOR

11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

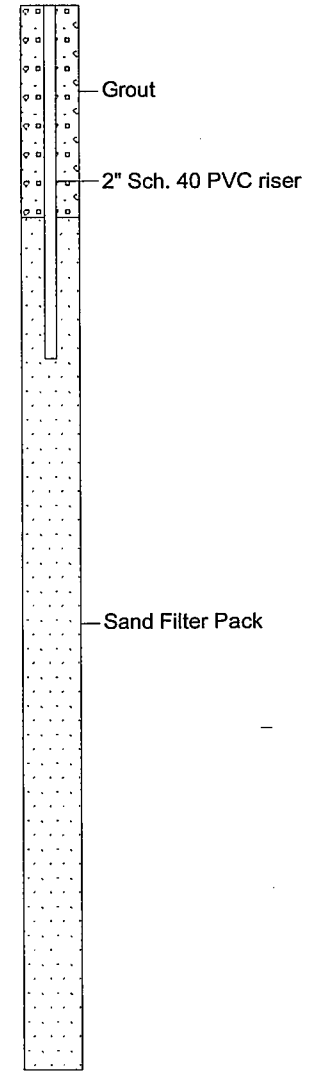
Date Started : 08/30/01
Date Completed : 08/30/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 96.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING MW-28D

(Page 6 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
80	-80	SS 80.0-82.0	22/22	0.0	7-52-50					Same as above
81	-81									
82	-82	SS 82.0-84.0	17/16	0.0	6-55-50					Same as above, large cobble in end of shoe
83	-83									
84	-84	SS 84.0-86.0	23/21	0.0	9-45-50					Same as above, increase silt
85	-85									
86	-86	SS 86.0-87.0	12/12	0.0	7-79					Same as above
87	-87									Brown sandy CLAY at end of spoon, trace gravel, soft - interbeded
88	-88	SS 88.0-90.0	15/5	0.0	9-60-50					Same as above, large broken cobbles in spoon
89	-89									
90	-90	SS 90.0-92.0	15/15	0.0	7-83-50					Same as above
91	-91									
92	-92	SS 92.0-94.0	15/15	0.0	29-36-50					Same as above
93	-93									
94	-94	SS 94.0-96.0	16/16	0.0	12-35-50					Same as above
95	-95									
96	-96									Brown clayey SAND, few gravel, trace large broken cobbles End of boring at 96.0'



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11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/11/01
Date Completed : 09/11/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 82.0'
S. Water Level Date :
S. Water Level (ft.) :

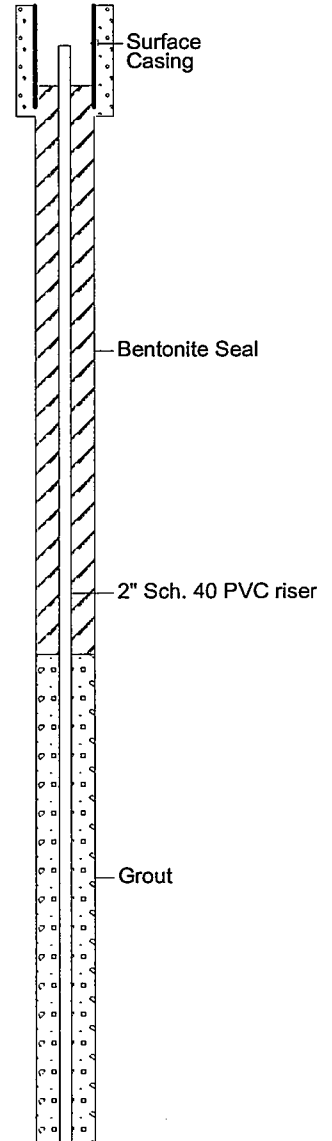
LOG OF BORING HMW-29D

(Page 1 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling	
0	0	HA-1/ 0.0-2.0		0.2				☒				Asphalt top 3" crushed limestone to 6"
1	-1											Brown clayey SAND, trace gravel, moist
2	-2	HA-2/ 2.0-4.0		0.4								Brown medium to fine SAND, trace silt, trace gravel, moist
3	-3											
4	-4	SS-3 4.0-6.0	24/20	0.3	4-11-7							Same as above
5	-5											Same as above, 1" black stain, no odor
6	-6	SS-4 6.0-8.0	24/18	0.6	3-9-8							Same as above
7	-7											
8	-8	SS-5 8.0-10.0	24/20	0.2	2-10-6							Same as above
9	-9											
10	-10	SS-6 10.0-12.0	24/16	0.4	5-23-14							Same as above
11	-11											Same as above, 4" increase gravel and trace clay seam at 11.5'
12	-12	SS-7 12.0-14.0	24/20	0.6	4-17-17							Same as above, increase coarse sand less fine sand
13	-13											
14	-14											

Well: HMW-29D
Elev.:



F:\CLIENTS\SBI\SBI002\SOIL BORING LOGS\HMW-29D.BOR

11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/11/01
Date Completed : 09/11/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 82.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-29D

(Page 2 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	Well: HMW-29D Elev.:
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling		
14	-14	SS-8 14.0-16.0	24/20	0.3	7-35-15	☒							
15	-15												
16	-16	SS-9 16.0-18.0	24/20	0.8	8-20-11	☒							
17	-17												
18	-18	SS-10 18.0-20.0	24/16	0.0	12-27-15	☒							
19	-19												
20	-20	SS-11 20.0-22.0	24/18	0.5	11-28-15	☒							
21	-21												
22	-22												
23	-23												
24	-24												
25	-25	SS-12 25.0-27.0	24/20	0.3	11-28-14	☒							
26	-26												
27	-27												
28	-28												



Grout
2" Sch. 40 PVC riser

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11-30-2001



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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/11/01
Date Completed : 09/11/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 82.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-29D

(Page 3 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	
								Sampled Int.	Lab Sample	Static	During Drilling		
28	-28											<p>Well: HMW-29D Elev.:</p> <p>Grout 2" Sch. 40 PVC riser</p>	
29	-29												
30	-30	SS-13 30.0-32.0	24/20	96.3	11-31-24								Same as above
31	-31												
32	-32												Brown silty CLAY, trace sand
33	-33												Black silty SAND, trace gravel, strong odor
34	-34												
35	-35	SS-14 35.0-37.0	24/14	191	9-29-24								Same as above, strong odor
36	-36												
37	-37												
38	-38												
39	-39												
40	-40	SS-15 40.0-42.0	24/22	20.7	12-41-35							Same as above	
41	-41												
42	-42												

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11-30-2001

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION														
								Sampled Int.	Lab Sample	Static	During Drilling															
42	-42											<p>Well: HMW-29D Elev.:</p>														
43	-43												<p>Well: HMW-29D Elev.:</p>													
44	-44													<p>Well: HMW-29D Elev.:</p>												
45	-45	SS-16 45.0-47.0	34/16	0.0	23-51-35										<p>Well: HMW-29D Elev.:</p>											
46	-46															<p>Well: HMW-29D Elev.:</p>										
47	-47																<p>Well: HMW-29D Elev.:</p>									
48	-48																	<p>Well: HMW-29D Elev.:</p>								
49	-49																		<p>Well: HMW-29D Elev.:</p>							
50	-50	SS-17 50.0-52.0	24/12	20.8	8-36-35															<p>Well: HMW-29D Elev.:</p>						
51	-51																				<p>Well: HMW-29D Elev.:</p>					
52	-52																					<p>Well: HMW-29D Elev.:</p>				
53	-53																						<p>Well: HMW-29D Elev.:</p>			
54	-54																							<p>Well: HMW-29D Elev.:</p>		
55	-55																								<p>Well: HMW-29D Elev.:</p>	
56	-56																									<p>Well: HMW-29D Elev.:</p>

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South Bend Area A
Franklin & Sample
South Bend, IN


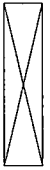
SBI002

Date Started : 09/11/01
Date Completed : 09/11/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 82.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-29D

(Page 5 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
56	-56		24/0		6-24-31							Well: HMW-29D Elev.: 
57	-57											
58	-58											
59	-59											
60	-60		24/0		20-37-37						No recovery	
61	-61											
62	-62											
63	-63											
64	-64											
65	-65	SS-18 65.0-67.0	21/18	35.2	8-41-50						Same as above	
66	-66											
67	-67											
68	-68											
69	-69											
70	-70											

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11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/11/01
Date Completed : 09/11/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 82.0'
S. Water Level Date :
S. Water Level (ft.) :

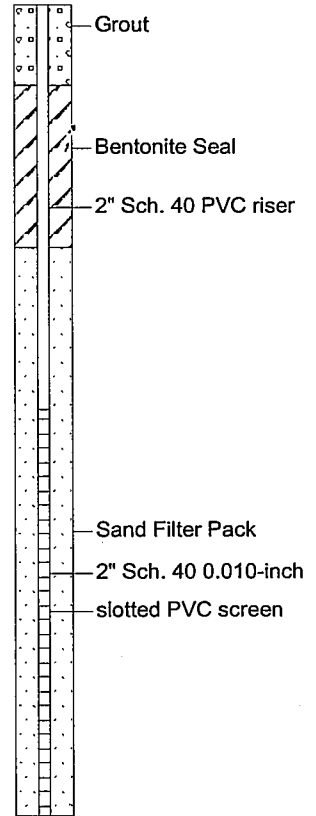
LOG OF BORING HMW-29D

(Page 6 of 6)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
70	-70		17/0		11-27-20					No recovery
71	-71									
72	-72									
73	-73									
74	-74									
75	-75	SS-19 75.0-77.0	17/17	16.3	11-30-100					Same as above, brown
76	-76									
77	-77									
78	-78									
79	-79									
80	-80									Same as above
81	-81	SS-20 81.0-82.0	24/16	14.2						Brown silty CLAY, trace gravel, trace sand, 3" thick
82	-82									Brown SAND, trace gravel, trace sand
83	-83									End of boring at 82.0'
84	-84									

Well: HMW-29D
Elev.:



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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/12/01
Date Completed : 09/12/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : No Sampling
Total Depth (ft.) :
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-29I

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									<p>See HMW-29D for geology</p>
1	-1									
2	-2									
3	-3									
4	-4									
5	-5									
6	-6									
7	-7									
8	-8									
9	-9									
10	-10									
11	-11									
12	-12									
13	-13									
14	-14									
15	-15									
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30	-30									
31	-31									
32	-32									
33	-33									
34	-34									
35	-35									
36	-36									
37										

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11-30-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/13/01
Date Completed : 09/13/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : No Sampling
Total Depth (ft.) :
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-30I

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									Well: HMW-30I Elev.:
1	-1								See HMW-30D for geology	
2	-2									
3	-3									
4	-4									
5	-5									
6	-6									
7	-7									
8	-8									
9	-9									
10	-10									
11	-11									
12	-12									
13	-13									
14	-14									
15	-15									
16	-16									
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27	-27									
28	-28									
29	-29									
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31	-31									
32	-32									
33	-33									
34	-34									
35	-35									
36	-36									
37	-37									
38	-38									
39	-39									

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11-30-2001

Date Started : 09/05/01
 Date Completed : 09/05/01
 Logged by : Matt Young
 Reviewed by :
 Drilling Contractor : TopFlight
 Drilling Method : 4.25 ID HSA
 Sampling Method : Split Spoon
 Total Depth (ft.) : 70'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-30D

(Page 1 of 5)

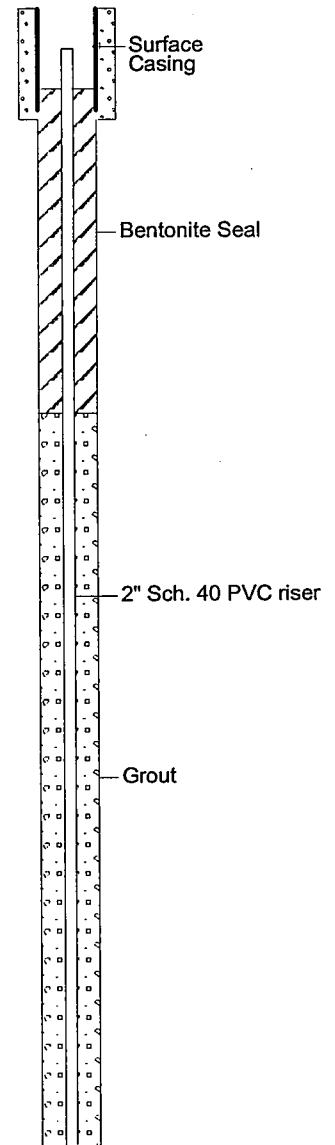
South Bend Area A
 Franklin & Sample
 South Bend, IN

SBI002

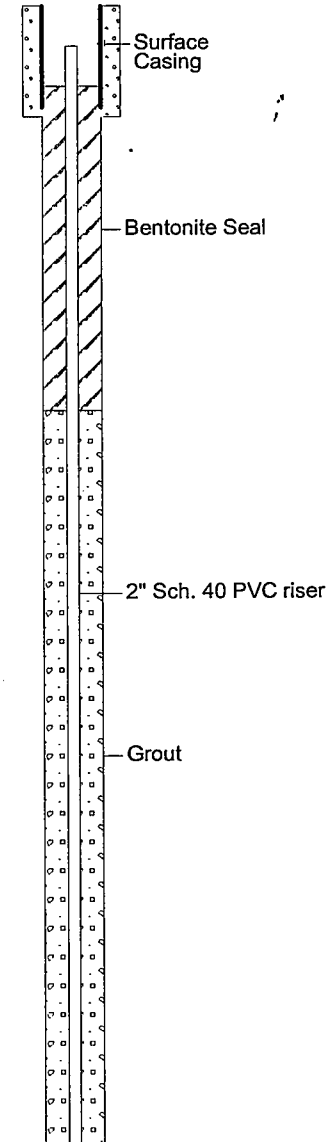
G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 2020 / 100ppm Iso.
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0	HA-1/ 0.0-2.0		0.0						Asphalt top 3", crushed limestone to 6"
1	-1									Brown clayey SAND, trace gravel, moist
2	-2	HA-2/ 2.0-4.0		0.2						Same as above
3	-3									
4	-4	SS-3 4.0-6.0	24/24	0.7	4-11-4					Brown fine to medium SAND, trace silt, trace gravel, moist
5	-5									Same as above, trace clay interbedded
6	-6	SS-4 6.0-8.0	24/20	0.8	4-10-4					Same as above
7	-7									
8	-8	SS-5 8.0-10.0	24/18	1.6	3-4-3					Same as above
9	-9									
10	-10	SS-6 10.0-12.0	24/18	1.0	2-4-2					Same as above
11	-11									Same as above, increase gravel
12	-12	SS-7 12.0-14.0	24/10	0.9	4-6-4					Same as above
13	-13									
14										

Well: HMW-30D
 Elev.:



Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
0	0			0.0						Asphalt top 3", crushed limestone to 6"
1	-1									Brown clayey SAND, trace gravel, moist
2	-2	HA-2/ 2.0-4.0		0.2						Same as above
3	-3									
4	-4	SS-3 4.0-6.0	24/24	0.7	4-11-4					Brown fine to medium SAND, trace silt, trace gravel, moist
5	-5									Same as above, trace clay interbeded
6	-6	SS-4 6.0-8.0	24/20	0.8	4-10-4					Same as above
7	-7									
8	-8	SS-5 8.0-10.0	24/18	1.6	3-4-3					Same as above
9	-9									
10	-10	SS-6 10.0-12.0	24/18	1.0	2-4-2					Same as above
11	-11									Same as above, increase gravel
12	-12	SS-7 12.0-14.0	24/10	0.9	4-6-4					Same as above
13	-13									
14	-14									





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/05/01
Date Completed : 09/05/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 70'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-30D

(Page 2 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	Well: HMW-30D Elev.:
								<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling		
14	-14	SS-8 14.0-16.0	24/20	0.0	5-16-11								
15	-15												
16	-16	SS-9 16.0-18.0	24/18	0.6	5-17-9								
17	-17												
18	-18	SS-10 18.0-20.0	24/22	0.8	5-15-9								
19	-19												
20	-20	SS-11 20.0-22.0	24/22	1.0	7-18-11								
21	-21												
22	-22	SS-12 22.0-24.0	24/20	2.2	4-14-8								
23	-23												
24	-24	SS-13 24.0-26.0	24/18	2.1	2-15-15								
25	-25												
26	-26	SS-14 26.0-28.0	24/18	2.0	4-16-9								
27	-27												
28	-28												



Grout
2" Sch. 40 PVC riser

11-30-2001 F:\CLIENTS\SB\SB\002\SOIL BORING LOGS\HMW-30D.BOR



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/05/01
Date Completed : 09/05/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 70'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-30D

(Page 3 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
28	-28	SS-15 28.0-30.0	24/22	3.1	6-19-7							Same as above
29	-29											
30	-30	SS-16 30.0-32.0	24/20	2.3	7-19-11							Same as above, no clay, increase silt
31	-31											
32	-32	SS-17 32.0-34.0	24/18	60.2	9-25-20							Same as above, black staining, strong odor
33	-33											Same as above, grey staining
34	-34	SS-18 34.0-36.0	24/24	1196	9-54-50							Same as above, black staining, very strong odor
35	-35											
36	-36	SS-19 36.0-38.0	24/23	1727	11-45-24							Same as above
37	-37											
38	-38	SS-20 38.0-40.0	24/22	>2000	7-24-13							Same as above
39	-39											
40	-40	SS-21 40.0-42.0	10/10	544	9-50							Same as above, less staining
41	-41											
42	-42											

Well: HMW-30D
Elev.:



Grout
2" Sch. 40 PVC riser



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/05/01
Date Completed : 09/05/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 70'
S. Water Level Date :
S. Water Level (ft.) :

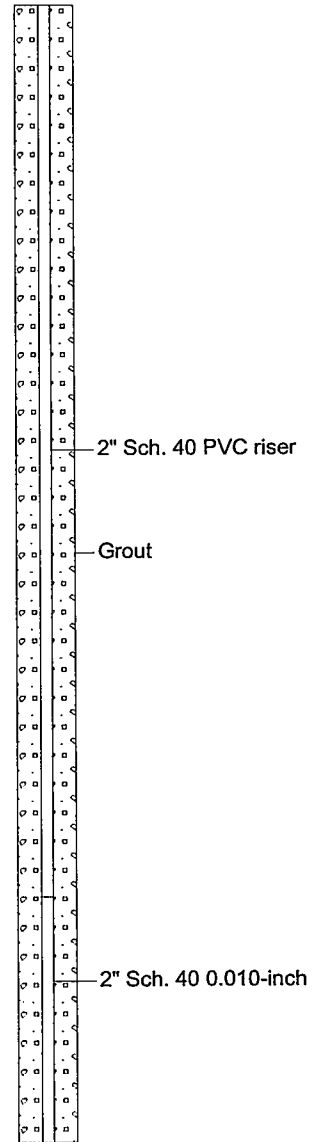
LOG OF BORING HMW-30D

(Page 4 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
42	-42		0/0									No recovery, pushing stone
43	-43											
44	-44	SS-22 44.0-46.0	24/16	560	24-30-13							Same as above, no staining, few gravel
45	-45											
46	-46	SS-23 46.0-48.0	24/12	449	13-32-26							Same as above
47	-47											
48	-48	SS-24 48.0-50.0	24/12	53	9-54-26							Same as above, trace clay
49	-49											
50	-50	SS-25 50.0-52.0	24/8	102	56-40-31							Same as above, no clay
51	-51											
52	-52											No recovery
53	-53											
54	-54											No recovery
55	-55											
56	-56											

Well: HMW-30D
Elev.:





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/05/01
Date Completed : 09/05/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 70'
S. Water Level Date :
S. Water Level (ft.) :

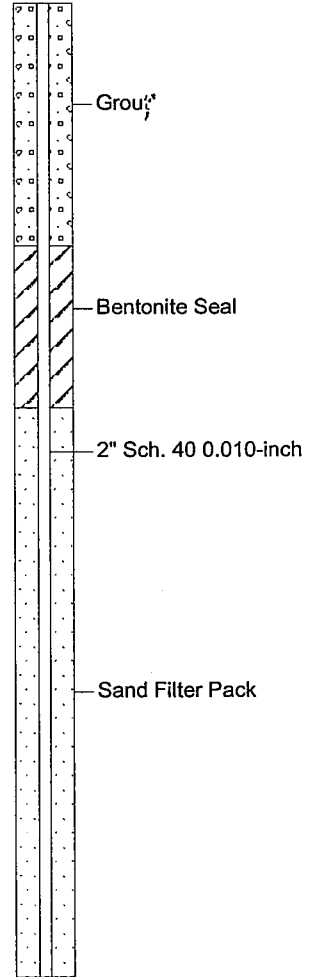
LOG OF BORING HMW-30D

(Page 5 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input checked="" type="checkbox"/> During Drilling	
56	-56	SS-26 56.0-58.0	16/14	102	104-36-50					Same as above, no gravel
57	-57									
58	-58	SS-27 58.0-60.0	5/5	119						Same as above, trace gravel, increase silt
59	-59									
60	-60	SS-28 60.0-62.0	21/20	179	6-68-50					Same as above
61	-61									
62	-62	SS-29 62.0-64.0	22/16	117	5-52-50					Same as above
63	-63									
64	-64	SS-30 64.0-66.0	21/18	68.3	18-77-50					Same as above
65	-65									
66	-66	SS-31 66.0-68.0	24/20	65.8	5-62-33					Same as above
67	-67									
68	-68	SS-32 68.0-70.0	15/15	0.0	8-22-50					Grey very dense silty CLAY, trace sand, trace gravel, dry
69	-69									
70										End of boring at 70.0'

Well: HMW-30D
Elev.:





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/10/01
Date Completed : 09/10/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : No Sampling
Total Depth (ft.) :
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-31S

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log*	Soil Samples		Water Levels		DESCRIPTION	
								<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling		
0	0											<p>Well: HMW-31S Elev.:</p>	
1	-1												See HMW-31D for geology
2	-2												
3	-3												
4	-4												
5	-5												
6	-6												
7	-7												
8	-8												
9	-9												
10	-10												
11	-11												
12	-12												
13	-13												
14	-14												
15	-15												
16	-16												
17	-17												
18	-18												
19	-19												
20	-20												
21	-21												
22	-22												
23	-23												
24	-24												
25	-25												
26	-26												
27	-27												
28	-28												



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/10/01
 Date Completed : 09/10/01
 Logged by : Matt Young
 Reviewed by :
 Drilling Contractor : TopFlight
 Drilling Method : 4.25 ID HSA
 Sampling Method : No Sampling
 Total Depth (ft.) :
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-311

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 2020 / 100ppm Iso.
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
0	0									<p>Well: HMW-311 Elev.:</p>
1	-1								See HMW-31D for geology	
2	-2									
3	-3									
4	-4									
5	-5									
6	-6									
7	-7									
8	-8									
9	-9									
10	-10									
11	-11									
12	-12									
13	-13									
14	-14									
15	-15									
16	-16									
17	-17									
18	-18									
19	-19									
20	-20									
21	-21									
22	-22									
23	-23									
24	-24									
25	-25									
26	-26									
27	-27									
28	-28									
29	-29									
30	-30									
31	-31									
32	-32									
33	-33									
34	-34									
35	-35									
36	-36									
37	-37									
38	-38									
39	-39									
40	-40									
41	-41									
42	-42									
43	-43									
44	-44									
45										



& associates. inc.

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/10/01
Date Completed : 09/10/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : No Sampling
Total Depth (ft.) :
S. Water Level Date :
S. Water Level (ft.) :

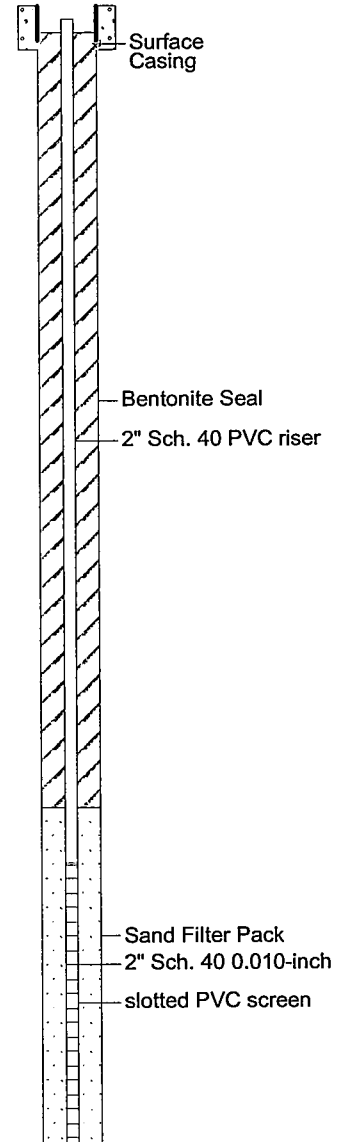
LOG OF BORING HMW-32I

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
0	0											<p>Well: HMW-32I Elev.:</p>
1	-1											
2	-2											
3	-3											
4	-4											
5	-5											
6	-6											
7	-7											
8	-8											
9	-9											
10	-10											
11	-11											
12	-12											
13	-13											
14	-14											
15	-15											
16	-16											
17	-17											
18	-18											
19	-19											
20	-20											
21	-21											
22	-22											
23	-23											
24	-24											
25	-25											
26	-26											
27	-27											
28	-28											
29	-29											
30	-30											
31	-31											
32	-32											
33	-33											
34	-34											
35	-35											
36	-36											
37	-37											
38	-38											
39	-39											
40	-40											
41												

See HMW-31D for geology





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

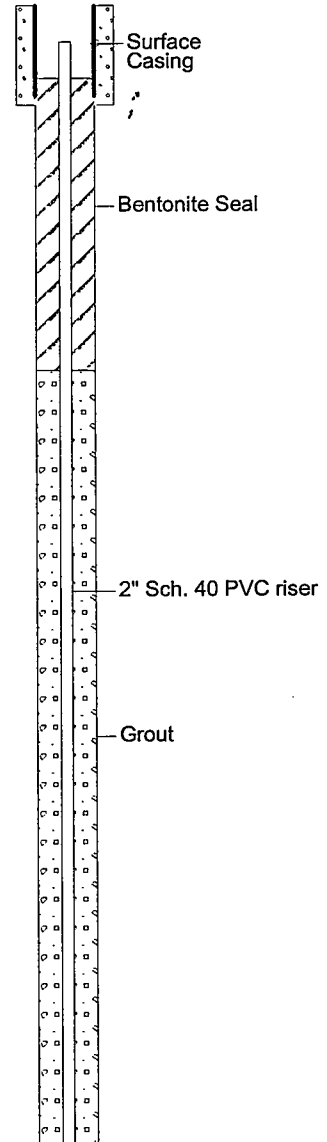
Date Started : 09/04/01
Date Completed : 09/04/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 62.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-31D

(Page 1 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	Well: HMW-31D Elev.:
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling		
0	0	HA-1/ 0.0-2.0		0.0									
1	-1												
2	-2	HA-2/ 2.0-4.0		0.0									
3	-3												
4	-4	SS-3 4.0-6.0	24/18	0.0	1-4-3								
5	-5												
6	-6	SS-4 6.0-8.0	24/16	0.0	3-11-7								
7	-7												
8	-8	SS-5 8.0-10.0	24/14	0.0	3-8-6								
9	-9												
10	-10	SS-6 10.0-12.0	24/16	0.0	3-5-2								
11	-11												
12	-12	SS-7 12.0-14.0	24/8	0.0	2-1-1								
13	-13												
14	-14	SS-8 14.0-16.0	24/12	0.0	2-2-1								
15	-15												





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

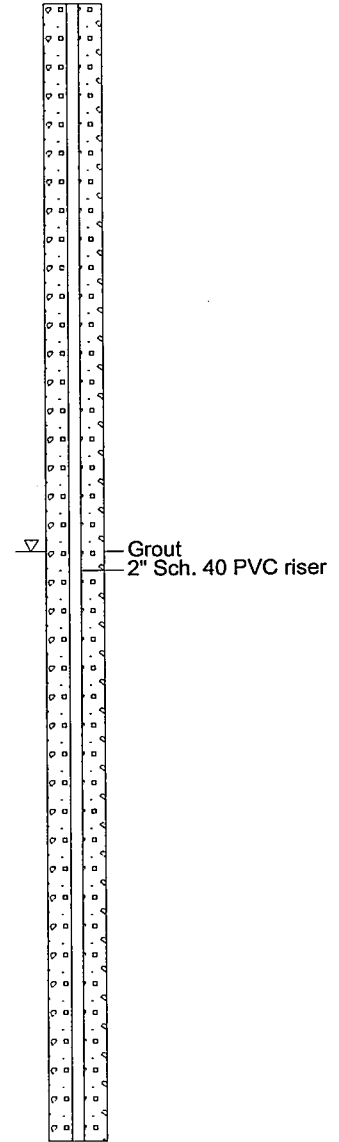
Date Started : 09/04/01
Date Completed : 09/04/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 62.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-31D

(Page 2 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
16	-16	SS-9 16.0-18.0	24/12	0.0	3-10-12							
17	-17											
18	-18	SS-10 18.0-20.0	24/6	0.0	6-30-17							Same as above, large cobble in end of shoe
19	-19											
20	-20	SS-11 20.0-22.0	24/16	0.0	6-22-14							Same as above, large broken cobble noted in spoon
21	-21											Same as above, no gravel
22	-22	SS-12 22.0-23.0	24/18	0.0	7-21-12							Same as above, trace gravel
23	-23	SS-13 23.0-24.0		0.0								Same as above, increase coarse sand, wet
24	-24											
25	-25											Sample washed out
26	-26		24/0		6-10-9							
27	-27											Begin 5' centers
28	-28											
29	-29	SS-14 29.0-31.0	24/18	0.0	6-18-17							Same as above
30	-30											
31	-31											



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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/04/01
 Date Completed : 09/04/01
 Logged by : Matt Young
 Reviewed by :
 Drilling Contractor : TopFlight
 Drilling Method : 4.25 ID HSA
 Sampling Method : Split Spoon
 Total Depth (ft.) : 62.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING HMW-31D

(Page 3 of 4)

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 2020 / 100ppm Iso.
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	
								<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling		
32	-32											Well: HMW-31D Elev.:	
33	-33												
34	-34	SS-15 34.0-36.0	24/12	13.2	8-15-9	<input checked="" type="checkbox"/>							Grout 2" Sch. 40 PVC riser
35	-35												
36	-36												
37	-37												
38	-38												
39	-39	SS-16 39.0-41.0	24/12	193	12-18-9	<input checked="" type="checkbox"/>							
40	-40												
41	-41												
42	-42												
43	-43												
44	-44	SS-17 44.0-46.0	24/16	249	6-49-20	<input checked="" type="checkbox"/>							
45	-45												
46	-46												
47	-47												



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/04/01
Date Completed : 09/04/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 62.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-31D

(Page 4 of 4)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION	
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling		
48	-48											Well: HMW-31D Elev.: 	
49	-49	SS-18 49.0-51.0	24/18	141	25-48-22	☒							Same as above, increase fine sand, no staining, strong odor
50	-50												
51	-51					☒							Same as above, decrease fine sand, increase gravel, trace clay
52	-52												
53	-53												
54	-54	SS-19 54.0-56.0	24/20	98	7-43-32	☒							Same as above
55	-55												
56	-56					☒							
57	-57												
58	-58												
59	-59	SS-20 59.0-61.0	24/17	84.5	7-27-50	☒							Same as above
60	-60												
61	-61	SS-21 61.0-62.0	24/17		8-34-50	☒						Grey dense CLAY, trace gravel, trace sand, dry End of boring at 62.0'	
62	-62												
63													



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

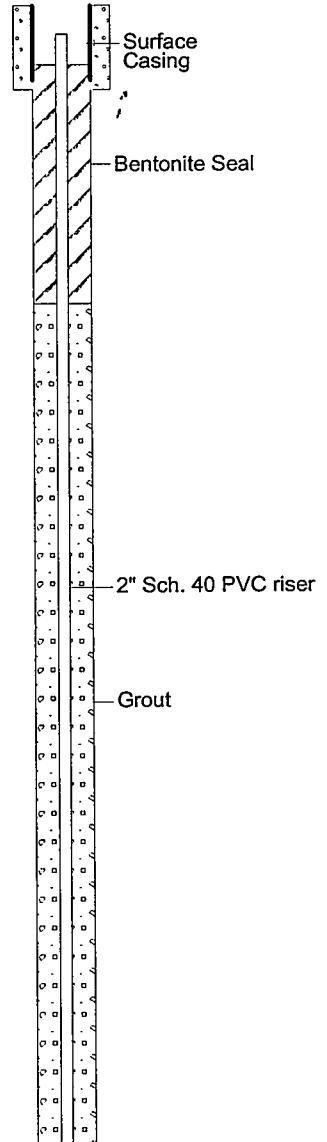
Date Started : 09/06/01
Date Completed : 09/06/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 94.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-32D

(Page 1 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling	
0	0	HA-1/ 0.0-2.0		1.2				☒				Asphalt to 3", crushed limestone to 6"
1	-1											Brown medium to fine SAND, trace silt, trace gravel, dry
2	-2	HA-2/ 2.0-4.0		1.3								Same as above
3	-3											
4	-4	SS-3 4.0-6.0	23/20	2.0	10-44-50							Brown clayey SAND, trace gravel, moist
5	-5											
6	-6	SS-4 6.0-8.0	24/22	1.1	7-23-14							Same as above
7	-7											
8	-8	SS-5 8.0-10.0	24/18	0.7	13-25-21							Same as above, brick fragment noted in middle of spoon
9	-9											
10	-10	SS-6 10.0-12.0	24/14	2.5	10-22-18							Light brown medium to coarse SAND, trace gravel, trace silt, moist
11	-11											
12	-12		5/0		50							No recovery
13	-13											
14	-14	SS-7 14.0-16.0	24/14	2.4	10-31-32							Same as above
15	-15											
16	-16	SS-8 16.0-18.0	24/12	0.7	10-27-17							Same as above
17	-17											
18	-18	SS-9 18.0-20.0	24/20	3.1	6-18-12							Same as above
19	-19											



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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/06/01
Date Completed : 09/06/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 94.0'
S. Water Level Date :
S. Water Level (ft.) :

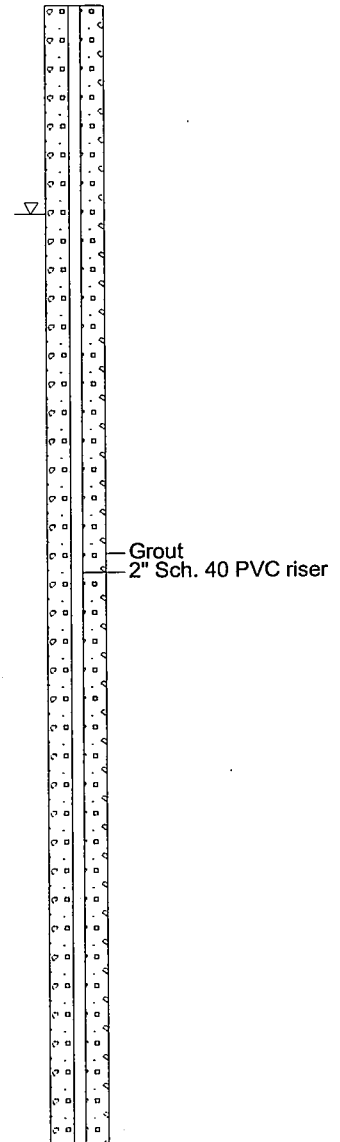
LOG OF BORING HMW-32D

(Page 2 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
19	-19											
20	-20	SS-10 20.0-22.0	24/16	3.4	9-26-22							Same as above
21	-21											
22	-22	SS-11 22.0-24.0	24/12	1.9	6-35-23							Same as above, few gravel, trace clay, wet
23	-23											
24	-24	SS-12 24.0-26.0	24/12	4.2	10-31-12							Same as above
25	-25											
26	-26	SS-13 26.0-28.0	24/12	5.4	12-25-8							Same as above
27	-27											
28	-28	SS-14 28.0-30.0	24/18	5.8	11-34-23							Same as above
29	-29											
30	-30	SS-15 30.0-32.0	24/14	4.5	11-44-36							Same as above, trace gravel, increase silt, no clay
31	-31											
32	-32	SS-16 32.0-34.0	24/16	3.1	7-18-13							Same as above, decrease silt
33	-33											
34	-34	SS-17 34.0-36.0	24/14	8.9	5-29-98							Same as above
35	-35											
36	-36	SS-18 36.0-38.0	24/18	1618	8-40-23							Same as above
37	-37											Same as above, black staining, strong odor
38	-38											

Well: HMW-32D
Elev.:



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12-03-2001

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
38	-38	SS-19 38.0-40.0	24/12	1803	9-25-17							
39	-39											
40	-40	SS-20 40.0-42.0	24/12	1940	11-31-29							
41	-41											
42	-42	SS-21 42.0-44.0	24/12	553	7-33-26							
43	-43											
44	-44	SS-22 44.0-46.0	24/12	812	10-41-26							
45	-45											
46	-46	SS-23 46.0-48.0	24/12	350	6-40-50							
47	-47											
48	-48	SS-24 48.0-50.0	24/16	346	13-31-20							
49	-49											
50	-50	SS-25 50.0-52.0	24/16	222	8-36-36							
51	-51											
52	-52	SS-26 52.0-54.0	22/22	137	8-64-50							
53	-53											
54	-54	SS-27 54.0-56.0	9/6	73.4	38-50							
55	-55											
56	-56	SS-28 56.0-58.0	18/10	140	11-33-65							
57	-57											



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 09/06/01
Date Completed : 09/06/01
Logged by : Matt Young
Reviewed by :
Drilling Contractor : TopFlight
Drilling Method : 4.25 ID HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 94.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING HMW-32D

(Page 4 of 5)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								<input checked="" type="checkbox"/> Sampled Int.	<input checked="" type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
57	-57											
58	-58	SS-29 58.0-60.0	22/18	119	17-67-50							Same as above
59	-59											
60	-60	SS-30 60.0-62.0	24/20	144	4-17-41							Same as above
61	-61											
62	-62	SS-31 62.0-64.0	17/12	184	9-26-61							Same as above, few silt
63	-63											
64	-64		17/0		14-39-50							No recovery
65	-65											
66	-66	SS-32 66.0-68.0	24/20	55.9	6-72-54							Same as above
67	-67											Same as above, brown / no staining, trace clay
68	-68	SS-33 68.0-70.0	24/16	44.9	7-38-39							Same as above, no clay
69	-69											
70	-70	SS-34 70.0-72.0	24/18	65.3	4-18-41							Same as above
71	-71											
72	-72	SS-35 72.0-74.0	21/21	84.9	12-91-50							Same as above
73	-73											
74	-74	SS-36 74.0-76.0	23/19	69.7	19-72-50							Same as above
75	-75											
76	-76											

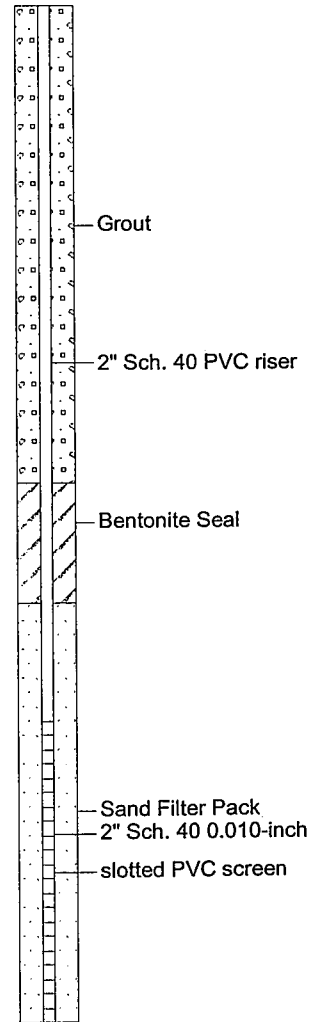
Well: HMW-32D
Elev.:



Grout
2" Sch. 40 PVC riser

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								☒ Sampled Int. ■ Lab Sample	▼ Static ▽ During Drilling	
76	-76	SS-37 76.0-78.0	21/18	45.7	19-96-50					Same as above
77	-77									
78	-78	SS-38 78.0-80.0	22/18	29.9	12-62-50					Same as above
79	-79									
80	-80		21/0		13-53-50					Brown SILT, wet No recovery, most likely sand that washed out
81	-81									
82	-82	SS-39 82.0-84.0	22/22	33.7	4-30-50					Brown silty SAND, trace gravel, wet
83	-83									
84	-84	SS-40 84.0-86.0	16/15	21.5	15-16-50					Same as above
85	-85									Grey SILT, moist
86	-86	SS-41 86.0-88.0	24/10	12.9	1-22-22					Grey silty SAND, trace gravel wet
87	-87									
88	-88	SS-42 88.0-90.0	24/24	12.1	14-58-48					Same as above
89	-89									
90	-90	SS-43 90.0-92.0	22/14	11.4	6-58-50					
91	-91									
92	-92	SS-44 92.0-94.0	24/12	12.6	13-56-50					Grey sandy SILT, dense / stiff, trace gravel, wet
93	-93									
94	-94									End of boring at 94.0'
95	-95									

Well: HMW-32D
Elev.:





South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/14/01
Date Completed : 08/14/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : 4.25 HSA
Sampling Method : Split Spoon
Total Depth (ft.) : 31.6'
S. Water Level Date :
S. Water Level (ft.) :

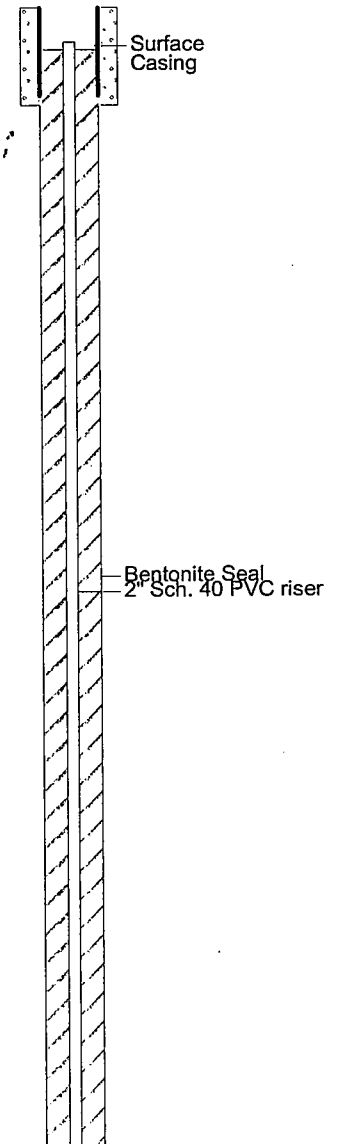
LOG OF BORING HMW-34S

(Page 1 of 2)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 2020 / 100ppm Iso.
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples	Water Levels	DESCRIPTION
								Sampled Int.	Static During Drilling	
0	0	HA-1/ 0.0-1.0		0.6						Brown fine SAND, some gravel, moist
1	-1	HA-2/ 1.0-2.0		1.9						Same as above
2	-2	HA-3/ 2.0-3.0		3.0						Black fine SAND, some gravel, moist
3	-3	HA-4/ 3.0-4.0		4.6						Brown fine SAND, trace gravel, very moist
4	-4	HA-5/ 4.0-5.0		0.7						Same as above
5	-5	SS-6 5.0-6.7	24/20	2.0	3-6-3					Same as above
6	-6									
7	-7	SS-7 7.0-8.3	24/15	1.3	3-9-8					Same as above
8	-8									
9	-9	SS-8 9.0-10.7	24/20	1.1	6-20-16					Light brown coarse SAND, some gravel, moist
10	-10									
11	-11	SS-9 11.0-12.7	24/20	3.0	6-9-8					Same as above, trace clay
12	-12									
13	-13	SS-10 13.0-14.3	24/15	1.9	5-8-10					Light brown coarse SAND, some gravel, moist
14	-14									
15	-15	SS-11 15.0-16.7	24/20	0.6	7-17-14					Same as above
16										

Well: HMW-34S
Elev.:



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12-03-2001



Hull & associates, inc.
 South Bend Area A
 Franklin & Sample
 South Bend, IN
 SBI002

Date Started : 08/14/01
 Date Completed : 08/14/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : 4.25 HSA
 Sampling Method : Split Spoon
 Total Depth (ft.) : 31.6'
 S. Water Level Date :
 S. Water Level (ft.) :

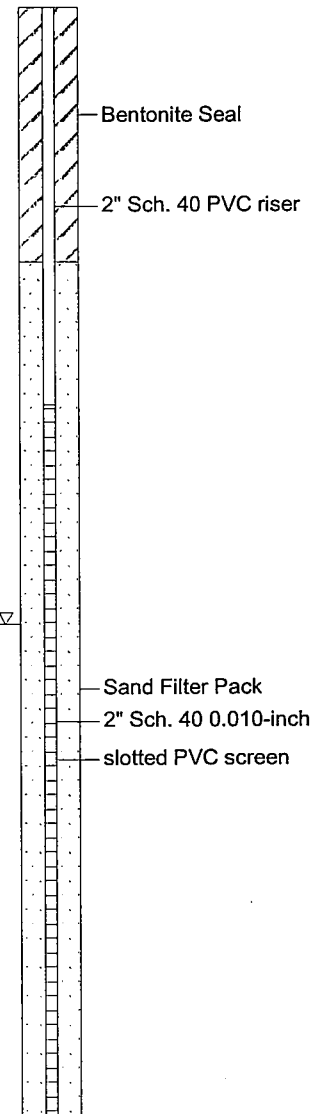
LOG OF BORING HMW-34S

(Page 2 of 2)

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 2020 / 100ppm Iso.
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Soil Samples		Water Levels		DESCRIPTION
								☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling	
16	-16											
17	-17	SS-12 17.0-18.3	24/15	2.0	6-16-11	☒						Light brown coarse SAND and GRAVEL, moist
18	-18					☒						
19	-19	SS-13 19.0-21.0	24/24	2.5	6-14-6	☒						Same as above, very moist
20	-20					☒						
21	-21	SS-14 21.0-22.3	24/15	3.0	5-16-15	☒						Same as above
22	-22					☒						
23	-23	SS-15 23.0-24.7	24/20	3.5	8-17-8	☒						Same as above, saturated at 24.2'
24	-24					☒						
25	-25	SS-16 25.0-26.3	24/15	3.1	3-4-3	☒						Same as above
26	-26					☒						
27	-27	SS-17 27.0-27.4	24/5	2.0	4-8-5	☒						Same as above
28	-28					☒						
29	-29	SS-18 29.0-30.3	24/15	1.5	3-7-5	☒						Same as above
30	-30					☒						
31	-31											End of boring at 31.6'
32												

Well: HMW-34S
 Elev.:



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12-03-2001



& associates, inc.

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/01/01
Date Completed : 08/01/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : Hand Auger
Drilling Method : Grab Sample
Sampling Method : Grab Sample
Total Depth (ft.) : 0.6"
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GS-2

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Foundry SAND
1													

Hull

& associates, inc.

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/01/01
 Date Completed : 08/01/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : Hand Auger
 Drilling Method : Grab Sample
 Sampling Method : Grab Sample
 Total Depth (ft.) : 0.6"
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING GS-3

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 0.0 (10.2 EV)
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Foundry SAND
1													



& associates. inc.

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/09/01
Date Completed : 08/09/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 3.5
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-1

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling	
DESCRIPTION													
0	0												
		SS-1 0.0-1.0	24/12	5.1									GRAVEL, some cinder fill from 0.8 to 1.0'
1	-1												
		SS-2 2.0-3.5	24/18	5.1									Brown coarse SAND, trace gravel, very moist
2	-2												
													End of boring at 3.5'
3	-3												
4	-4												



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/09/01
Date Completed : 08/09/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-2

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples	Water Levels	REMARKS
									<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling		DESCRIPTION
0	0										
		SS-1 0.0-0.8	24/20	7.9							SAND and GRAVEL
		SS-1 0.8-1.7		6.3							Cinder FILL Top 5" is slough
1	-1										
		SS-2 2.4-2.7	24/24	5.7							Cinder FILL
		SS-2 2.7-4.0		3.8							Brown coarse SAND, trace gravel, very moist
3	-3										
											End of boring at 4.0'
4											

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11-28-2001



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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-3

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									☒ Sampled Int.	■ Lab Sample	▼ Static	▽ During Drilling	
DESCRIPTION													
0	0												
		SS-1 0.0-0.5	24/24	6.2									SAND and GRAVEL
		SS-1 0.5-2.0		8.3									Cinder FILL, trace gravel
1	-1												
		SS-2 2.0-2.7	24/24	5.6									Silty SAND, some gravel, moist
		SS-2 2.7-3.9		5.2									Brown SAND, trace gravel, very moist
3	-3												
													End of boring at 4.0'
4													

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11-28-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 5.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-5

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Concrete
1	-1	SS-1 1.5-3.0	24/18	8.8									Dark brown SAND, trace gravel, moist
2	-2												Same as above
3	-3	SS-2 3.5-5.0	24/18	9.7									End of boring at 5.0'
4	-4												
5	-4												

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-8

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												
		SS-1 0.0-1.3	24/24	7.8									Sandy SILT, trace gravel, rootlets
1	-1												
		SS-2 1.3-2.0		10.9									Brown SAND, trace gravel, moist
2	-2												
		SS-3 2.0-3.0	24/24	9.0									Same as above
3	-3												
		SS-4 3.0-4.0		7.0									Light brown SAND, trace gravel, very moist
4													End of boring at 4.0'



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/09/01
Date Completed : 08/09/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-9

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0	SS-1 0.0-2.0	24/24	1.7									Intermittent layers approx. 5" thick of SAND and GRAVEL and cinder fill.
1	-1												
2	-2	SS-2 2.0-4.0	24/24	0.6									Brown fine SAND with gravel, sand is lighter in color and more coarse in the bottom 2 inches (46-48")
3	-3												
4	-4												End of boring at 4.0'

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11-28-2001



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/09/01
 Date Completed : 08/09/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : Geoprobe
 Sampling Method : Split Spoon
 Total Depth (ft.) : 4.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING GB-10

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 0.0 (10.2 EV)
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												SAND and GRAVEL, rootlets
		SS-1 0.0-2.0	24/24	5.4									Dark brown SAND, some gravel intermittent layers of cinder fill approx. 0.5" thick
1	-1												
		SS-2 2.0-4.0	24/24	2.2									Dark brown SAND, trace gravel, very moist, sand becomes lighter in color with increasing depth
2	-2												
3	-3												
4	-4												End of boring at 4.0'

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/10/01
Date Completed : 08/10/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 3.5'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-11

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												
		SS-1 0.0-1.5	24/18	3.6									Silty SAND, some gravel, very moist
													Cinder FILL
1	-1												Brown fine SAND, trace gravel, moist
2	-2	SS-2 2.0-3.5	24/18	2.6									Same as above
3	-3												End of boring at 3.5'
4													

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/09/01
Date Completed : 08/09/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 3.7'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-12

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												
		SS-1 0.0-2.0	24/24	0.2									Brown SAND, trace gravel, rootlets
													Cinder FILL
													Brown SAND, trace gravel
													Cinder FILL
1	-1												Brown coarse SAND, some gravel
2	-2	SS-2 2.0-3.7	24/20	1.6									Same as above
													Cinder FILL
													Dark brown fine SAND, trace gravel, very moist
3	-3												End of boring at 3.7'
4													

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-13

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												
		SS-1 0.0-1.0	24/24	4.2									SAND and GRAVEL Wood fragments
													SAND and GRAVEL
1	-1	SS-2 1.0-2.0		7.2									Black stained SAND with cinders, moist Top 3" is slough
													Brick and cinder FILL
2	-2	SS-3 2.0-2.8	24/24	9.8									Dark brown silty SAND, trace gravel, very moist
													End of boring at 4.0'
3	-3	SS-4 3.0-4.0		12.3									
4													



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 5.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-14

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Concrete
1	-1												
		SS-1 1.5-3.0	24/18	5.6									Silty SAND, trace clay, trace cinder, moist, dark brown
2	-2												
		SS-2 3.5-4.8		9.1									Dark brown silty SAND, trace clay, moist, increasing sand content with depth
3	-3												
4	-4												
5	-5												End of boring at 5.0'

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/07/01
 Date Completed : 08/07/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : Geoprobe
 Sampling Method : Split Spoon
 Total Depth (ft.) : 4.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING GB-15

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 0.0 (10.2 EV)
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Black SAND, some gravel, trace cinder
		SS-1 0.0-1.0	24/24	2.5									
1	-1	SS-2 1.0-2.0		3.9									Cinder FILL
													Black sandy CLAY, slight petro odor
2	-2	SS-3 2.0-2.7	24/24	10.3									Same as above
													Brown SAND, trace gravel
3	-3	SS-4 2.7-4.0		11.9									
													End of boring at 4.0'
4													

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/02/01
Date Completed : 08/02/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-16

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Cinder FILL, some silt and sand, rootlets
		SS-1 0.0-0.7	24/24	16.0									
		SS-2 0.8-2.0		19.4									Dark brown SAND, trace gravel, moist
1	-1												
		SS-3 2.0-3.0		19.4									Same as above
2	-2												
		SS-4 3.0-4.0		19.8									Light brown SAND, trace gravel, moist
3	-3												
													End of boring at 4.0'
4													



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/07/01
Date Completed : 08/07/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-17

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Cinder FILL, trace gravel
		SS-1 0.0-1.5	24/24	15.9									
1	-1												Dark brown SAND, trace gravel, moist
		SS-2 1.5-2.0		14.5									
2	-2												Same as above
		SS-3 2.0-2.5	24/24	18.7									
		SS-4 2.5-4.0		15.2									Light brown fine SAND, trace gravel, moist
3	-3												
4	-4												End of boring at 4.0'

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-19

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Cinder FILL, trace gravel
		SS-1 0.0-1.0	24/24	3.0									
1	-1	SS-2 1.0-2.0		1.1									Sandy SILT, some clay, trace gravel, moist
		SS-3 2.0-3.0	24/24	7.1									Light brown SAND, trace gravel, moist
2	-2												
		SS-4 3.0-4.0		6.7									Same as above
3	-3												
													End of boring at 4.0'
4													

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& associates. inc.

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/07/01
 Date Completed : 08/07/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : Geoprobe
 Sampling Method : Split Spoon
 Total Depth (ft.) : 3.7'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING GB-28

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 0.0 (10.2 EV)
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Light brown fine SAND with gravel
		SS-1 0.0-1.8	24/24	24.0									GRAVEL
1	-1												Brown fine SAND, some cinder fill from 1.0 to 1.2', trace clay
													GRAVEL
2	-2	SS-2 1.8-2.0 SS-3 2.0-2.3	24/20	24.7									Black stained SAND with gravel, no odor, trace clay Same as above
		SS-4 2.3-3.7		22.7									Light brown fine SAND, some gravel, moist
3	-3												End of boring at 3.7'
4													

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/07/01
Date Completed : 08/07/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 3.5'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-29

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Grey SAND and GRAVEL
		SS-1 0.0-0.6	24/15	10.3									
		SS-2 0.7-1.3		8.1									Black stained SAND, some clay, trace gravel, moist, slight petro odor
1	-1												
		SS-3 2.0-2.6	24/18	7.6									Same as above
		SS-4 2.6-3.5		4.3									Light brown fine SAND, some gravel, moist
3	-3												End of boring at 3.5'
4													



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/07/01
Date Completed : 08/07/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 3.7'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-31

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS	
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling		
DESCRIPTION														
0	0													Cinder FILL with wood fragments from 0.2 to 0.7 feet, creosote odor
		SS-1 0.0-1.3	24/24	9.5									Silty clay FILL, some sand, some gravel, moist	
1	-1													
		SS-2 1.3-2.0		2.8									Same as above	
2	-2													End of boring at 3.7'
		SS-3 2.0-3.7	24/20	1.0										
3	-3													
4														

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South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/08/01
Date Completed : 08/08/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 2.8'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-32

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Gravel and cinder FILL, wood fragments.
		SS-1 0.0-1.3	24/24	7.4									
1	-1												Silty SAND, trace clay and gravel, saturated at 1.3 to 1.4' Top 1.3' is slough
		SS-2 1.3-2.0		4.1									
2	-2												Brown SAND, trace gravel, moist
		SS-3 2.0-2.8	24/24	3.5									End of boring at 2.8'
3													

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Date Started : 08/07/01
 Date Completed : 08/07/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : Geoprobe
 Sampling Method : Split Spoon
 Total Depth (ft.) : 4.0'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING GB-33

(Page 1 of 1)

South Bend Area A
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 0.0 (10.2 EV)
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Brown SAND, trace gravel and cinder
		SS-1 0.0-1.0	24/24	4.3									
1	-1												Cinder FILL, trace gravel
		SS-2 1.0-2.0		4.5									
2	-2												Sandy CLAY, trace cinder, moist
		SS-3 2.0-2.8	24/24	0.3									
3	-3												Brown SAND, trace cinder and gravel, slight staining (black) and petro odor
		SS-4 2.8-4.0		0.1									
4													End of boring at 4.0'



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/07/01
Date Completed : 08/07/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 2.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-34

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input checked="" type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static	<input checked="" type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												Asphalt
		SS-1 0.0-1.4	24/17	0.0									Cinder FILL, some gravel, trace sand and silt, wood fragments from 1.3 to 1.4' (likely RR tie, creosote odor)
1	-1		24/24										Light brown SAND, trace gravel, moist
2													End of boring at 2.0'

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11-28-2001

Date Started : 08/07/01
 Date Completed : 08/07/01
 Logged by : Mike Coonfare
 Reviewed by :
 Drilling Contractor : ProbeTech
 Drilling Method : Geoprobe
 Sampling Method : Split Spoon
 Total Depth (ft.) : 3.7'
 S. Water Level Date :
 S. Water Level (ft.) :

LOG OF BORING GB-35

(Page 1 of 1)

South Bend Area A
 Franklin & Sample
 South Bend, IN

SBI002

G. Elev. (ft. USGS) : Not Surveyed
 PID/FID Model : 0.0 (10.2 EV)
 PID/FID Calibration : 100ppm Isobutylene
 Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												
		SS-1 0.0-1.5	24/24	6.4									Silty SAND, some gravel, rootlets
													Black silty SAND, trace gravel, moist, slight petro odor
1	-1												
		SS-2 1.5-2.0		8.6									Brown clayey SILT, trace sand and gravel
													Same as above
2	-2												
		SS-3 2.2-2.5 SS-4 2.5-3.7	24/20	7.7 5.6									Brown fine SAND, trace gravel, moist
													Light brown fine SAND, trace gravel, very moist
3	-3												
													End of boring at 3.7'
4													

South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/10/01
Date Completed : 08/10/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING GB-36

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0												
		SS-1 0.0-2.0	24/24	3.2									Silty SAND, trace gravel, trace clay, moist
1	-1												
		SS-2 2.0-3.6	24/24	3.8									Brown fine SAND, trace gravel, moist
2	-2												
3	-3												
													Brown coarse SAND, trace gravel, moist
													End of boring at 4.0'
4													

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples	Water Levels	REMARKS
									<input type="checkbox"/> Sampled Int. <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling		DESCRIPTION
0	0	SS-1 0.0-1.5	24/24	4.7							Brown silty SAND, trace gravel, rootlets
1	-1	SS-2 1.5-2.0		11.0							Brown SAND and GRAVEL Same as above
2	-2	SS-3 2.0-2.3	24/24	7.6							
3	-3	SS-4 2.3-4.0		9.6							Light brown SAND, trace gravel, moist
4	-4	SS-5 4.0-5.3	24/15	7.7							Same as above
5	-5										
6	-6	SS-6 6.0-7.7	24/20	11.1							Same as above, slightly more gravel
7	-7										
8	-8	SS-7 8.0-9.7	24/20	9.5							Same as above, less gravel
9	-9										
10	-10	SS-8 10.0-11.7	24/20	9.3							Light brown SAND, very moist
11	-11										
12	-12	SS-9 12.0-13.7	24/20	9.0							Light brown SAND, trace gravel, very moist
13	-13										
14	-14	SS-10 14.0-15.7	24/20	8.0							Same as above
15	-15										
16	-16	SS-11 16.0-17.7	24/20								Same as above
17	-17										End of boring at 17.7'
18											



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/15/01
Date Completed : 08/15/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 4.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING SB-7

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples		Water Levels		REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During Drilling	
DESCRIPTION													
0	0	SS-1 0.0-2.0	24/24	2.8									SAND and GRAVEL
1	-1												Cinder FILL
2	-2	SS-2 2.0-4.0	24/24	2.9									Light brown coarse SAND, trace gravel, moist Same as above
3	-3												
4	-4												End of boring at 4.0'

11-30-2001 F:\CLIENTS\SB\SB002\SOIL BORING LOGS\SB-7.BOR



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/15/01
Date Completed : 08/15/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 6.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING SB-8

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples	Water Levels	REMARKS
									☒ Sampled Int.	▼ Static ▽ During Drilling	
DESCRIPTION											
0	0										SAND and GRAVEL
		SS-1 0.0-2.0	24/24	2.4							Cinder FILL
1	-1										Clayey SAND, some gravel (fill), moist
2	-2	SS-2 2.0-4.0	24/24	2.4							Brown coarse SAND, trace gravel, moist, slight staining at 3.8'
3	-3										
4	-4	SS-3 4.0-6.0	24/24	4.4							Same as above, no staining
5	-5										
6	-6										End of boring at 6.0'



South Bend Area A
Franklin & Sample
South Bend, IN

SBI002

Date Started : 08/15/01
Date Completed : 08/15/01
Logged by : Mike Coonfare
Reviewed by :
Drilling Contractor : ProbeTech
Drilling Method : Geoprobe
Sampling Method : Split Spoon
Total Depth (ft.) : 6.0'
S. Water Level Date :
S. Water Level (ft.) :

LOG OF BORING SB-9

(Page 1 of 1)

G. Elev. (ft. USGS) : Not Surveyed
PID/FID Model : 0.0 (10.2 EV)
PID/FID Calibration : 100ppm Isobutylene
Drum Label ID :

Depth in Feet	Surf. Elev.	Sampler Type/ Sample Number	Sample Interval/ Sample Recovery	PID / FID (ppm)	Blow Count (6"-12"-6")	Soil Samples	Graphic Log	Water Levels	Soil Samples	Water Levels	REMARKS
									<input type="checkbox"/> Sampled Int.	<input type="checkbox"/> Static <input type="checkbox"/> During Drilling	
									DESCRIPTION		
0	0										
		SS-1 0.0-2.0	24/24	5.4							Silty SAND, some gravel, rootlets, moist
											Cinder FILL
1	-1										Brown fine SAND, some gravel
2	-2	SS-2 2.0-4.0	24/24	4.9							Same as above, staining (black) from 3.6 to 3.8'
3	-3										
4	-4	SS-3 4.0-6.0	24/24	4.3							Brown coarse SAND, trace gravel, moist (appears natne)
5	-5										
6	-6										End of boring at 6.0'



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 24.0'

LOG OF BORING SB-9

(Page 1 of 2)

Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	

0	42/42	SS-1 0.5-2.5	0	NA			6" of Concrete. Black sandy FILL, some clay, cinders and slag noted, slightly moist.				
1											
2											
3		SS-2 2.5-3.5	0	NA							
4	48/24	SS-3 3.5-4.0 SS-4 4.0-6.0	0	NA			Brown medium to fine Sand, trace gravel, loose. Same as above.				
5											
6											
7											
8	48/24	SS-5 8.0-10.0	0	NA			Same as above.				
9											
10											
11											
12	48/36	SS-6 12.0-14.0	0	NA			Same as above.				
13											
14		SS-7 14.0-15.0	0	NA			Same as above, increase in gravel content from 14.0 to 14.5'.				
15											



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 24.0'

LOG OF BORING SB-9

(Page 2 of 2)

Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input checked="" type="checkbox"/> Sample Interval <input checked="" type="checkbox"/> Lab Sample	<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During drilling	
15									
16	48/36	SS-8 16.0-18.0	0	NA					Same as above.
17									
18		SS-9 18.0-19.0	0	NA					
19									
20	48/48	SS-10 20.0-22.0	0	NA					Same as above.
21									
22		SS-11 22.0-24.0	0	NA					
23									
24									EOB @ 24.0'
25									
26									
27									
28									
29									
30									



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 9.0'

LOG OF BORING SB-10

(Page 1 of 1)

Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
0									6" of Concrete.
0.5-2.0	42/42	SS-1 0.5-2.0	0	NA					Black sandy FILL, some clay, cinders and gravel noted, slightly moist.
2.0-4.0		SS-2 2.0-4.0	0	NA					
4.0-6.0	48/36	SS-3 4.0-6.0	0	NA					Brown fine to medium Sand, trace gravel, dry, loose.
6.0-7.0		SS-4 6.0-7.0	0	NA					Same as above.
8.0-9.0	48/12	SS-5 8.0-9.0	0	NA					EOB @ 9.0'



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 10.0'

LOG OF BORING SB-11

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
0											6" of Concrete.
0.5-2.5	42/36	SS-1	0	NA							Black sandy FILL, some cinders slag, loose.
2.5-3.0		SS-2	0	NA							Brown sandy CLAY, trace gravel, slightly moist.
3.0-4.0											Brown sandy CLAY, trace gravel, slightly moist.
4.0-5.5	48/36	SS-3	0	NA							Brown fine to medium SAND, trace gravel, dry, loose.
5.5-7.0		SS-4	0	NA							
7.0-8.0											
8.0-10.0	48/24	SS-5	0	NA							Same as above.
10.0											EOB @ 10.0'



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 10.0'

LOG OF BORING SB-12

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							Sample Interval Lab Sample	Static During drilling	
0									12" of Concrete.
1	36/24	SS-1 1.0-2.0	0	NA					Dark brown clayey FILL, some sand and gravel, few cinders, slightly moist.
2		SS-2 2.0-3.0	0	NA					Brown sandy CLAY, trace gravel, slightly moist.
4	48/36	SS-3 4.0-5.5	0	NA					Brown medium to fine SAND, trace gravel, loose.
6		SS-4 5.5-7.0	0	NA					
8	48/24	SS-5 8.0-10.0	0	NA					Same as above.
10									EOB @ 10.0'



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 10.0'

LOG OF BORING SB-13

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							Sample Interval Lab Sample	Static During drilling	
0	48/36	SS-1 0.0-1.5	0	NA					Black cinders and slag, some sand and gravel, loose.
1		SS-2 1.5-2.5	0	NA					
2		SS-3 2.5-3.0	0	NA					Dark brown clayey FILL, some sand and gravel, cinders and slag noted, slightly moist.
3									Brown clayey SAND, trace gravel, slightly moist.
4	48/36	SS-4 4.0-5.5	0	NA					Brown fine to medium SAND, trace gravel, loose.
5		SS-5 5.5-7.0	0	NA					
6									
7									
8	48/24	SS-6 8.0-10.0	0	NA					Same as above.
9									
10									EOB @ 10.0'



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 10.0'

LOG OF BORING SB-14

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							Sample Interval Lab Sample	Static During drilling	
0									12" of Concrete.
1	36/24	SS-1 1.0-2.0	0	NA					Brown clayey SAND, trace gravel, slightly moist.
2		SS-2 2.0-3.0	0	NA					Brown sand CLAY, trace gravel.
4	48/36	SS-3 4.0-5.5	0	NA					Brown fine to medium SAND, trace gravel, loose.
6		SS-4 5.5-7.0	0	NA					
8	48/24	SS-5 8.0-10.0	0	NA					Same as above.
10									EOB @ 10.0'



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 3.0'

LOG OF BORING SB-15

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0							6" of Concrete.	
0.5	42/36	SS-1 0.5-2.0	0	NA			Black sandy FILL, little clay, slag and cinders noted, petroleum odor.	
2.0		SS-2 2.0-3.0	0	NA			Brown fine to medium SAND, trace gravel, loose.	
3.0							EOB @ 3.0'	
4								
5								
6								
7								
8								
9								
10								



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 4.0'

LOG OF BORING SB-16

(Page 1 of 1)

Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input checked="" type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
0									6" of Concrete.
0.5-2.0	42/42	SS-1 0.5-2.0	0	NA					Black sandy FILL, trace clay, trace gravel, slag and cinders noted.
2.0-4.0		SS-2 2.0-4.0	0	NA					Brown clayey SAND, trace gravel, slightly moist.
									Same as above, grading to loose sand.
									EOB @ 4.0'



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 2.5'

LOG OF BORING SB-17

(Page 1 of 1)

Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input checked="" type="checkbox"/> Sample Interval	<input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static	<input type="checkbox"/> During drilling	
0											6" of Concrete.
0.5	42/24	SS-1 0.5-2.5	0	NA							Black fine to medium sand FILL, trace clay, trace gravel, slightly moist.
1											
2											EOB @ 2.5'
3											
4											
5											
6											
7											
8											
9											
10											



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 3.0'

LOG OF BORING SB-18

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels	
							Sample Interval	Lab Sample	Static	During drilling
DESCRIPTION										

0	48/36	SS-1 0.0-2.0	0	NA			Black gravel FILL, some sand, trace clay, cinders and slag noted, slightly moist.			
1										
2		SS-2 2.0-3.0	0	NA			Brown clayey SAND, trace gravel, slightly moist.			
3							EOB @ 3.0'			
4										
5										
6										
7										
8										
9										
10										



Date Started : 7-9-03
 Date Completed : 7-9-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 3.0'

LOG OF BORING SB-19

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
0	48/36	SS-1 0.0-2.0	0	NA							Black/brown clayey FILL, some sand, some gravel, slag, cinders and brick noted, slightly moist.
2		SS-2 2.0-3.0	0	NA							Brown sandy CLAY, trace gravel, slightly moist.
3											EOB @ 3.0'
4											
5											
6											
7											
8											
9											
10											



Former South Bend Stamping
Additional Phase II Activities
City of South Bend, IN
SBI016

Date Started : 7-10-03
Date Completed : 7-10-03
Logged By : M. Young
Reviewed By : M. Young
Drilling Contractor : TopFlight
Drilling Method : DirectPush Geoprobe
Sampling Method : 48" Macrocore
Total Depth : 7.0'

LOG OF BORING SB-20

(Page 1 of 1)

PID Calibration : 100 ppm Isobutylene
PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							Sample Interval Lab Sample	Static During drilling	
0									12" Concrete
1	36/36	SS-1 1.0-3.0	0	NA					Black and Red sandy FILL, trace clay, trace gravel, cinder, slag, and brick fragments noted.
3		SS-2 3.0-4.0	0	NA					Brown fine to medium sand, trace clay, trace gravel.
4	48/36	SS-3 4.0-6.0	0	NA					Same as above, no clay, loose.
6		SS-4 6.0-7.0	0	NA					EOB @ 7.0'
7									
8									
9									
10									



Date Started : 7-10-03
 Date Completed : 7-10-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 7.0'

LOG OF BORING SB-21

(Page 1 of 1)

Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
0											12" Concrete
1	36/36	SS-1 1.0-2.0	0	NA							Black and Red sandy FILL, cinder, slag, and brick fragments noted.
2		SS-2 2.0-3.0	0	NA							Dark brown sand CLAY, trace gravel, slightly moist.
3		SS-3 3.0-4.0	0	NA							Brown fine to medium sand, trace clay, trace gravel.
4	48/36	SS-4 4.0-6.0	0	NA							Same as above, no clay.
5											
6		SS-5 6.0-7.0	0	NA							EOB @ 7.0'
7											
8											
9											
10											



Date Started : 7-10-03
 Date Completed : 7-10-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 7.0'

LOG OF BORING SB-22

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							Sample Interval Lab Sample	Static During drilling	
0									12" Concrete
1	36/18	SS-1 1.0-2.5	0	NA					Black sandy FILL, some cinders, some gravel.
4	48/36	SS-2 4.0-6.0	0	NA					
5									Brown fine to medium sand, trace gravel, loose.
6		SS-3 6.0-7.0	0	NA					EOB @ 7.0'
7									
8									
9									
10									



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Former South Bend Stamping
Additional Phase II Activities
City of South Bend, IN
SBI016

Date Started : 7-10-03
Date Completed : 7-10-03
Logged By : M. Young
Reviewed By : M. Young
Drilling Contractor : TopFlight
Drilling Method : DirectPush Geoprobe
Sampling Method : 48" Macrocore
Total Depth : 6.0'

LOG OF BORING SB-23

(Page 1 of 1)

PID Calibration : 100 ppm Isobutylene
PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input checked="" type="checkbox"/> Sample Interval <input checked="" type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
0									12" Concrete
1	36/24	SS-1 1.0-3.0	0	NA					Black sandy FILL, some cinders, trace gravel, loose.
2									
3									
4	48/24	SS-2 4.0-6.0	0	NA					
5									Brown fine to medium sand, trace gravel, loose.
6									EOB @ 6.0'
7									
8									
9									
10									



Former South Bend Stamping
Additional Phase II Activities
City of South Bend, IN
SBI016

Date Started : 7-10-03
Date Completed : 7-10-03
Logged By : M. Young
Reviewed By : M. Young
Drilling Contractor : TopFlight
Drilling Method : DirectPush Geoprobe
Sampling Method : 48" Macrocore
Total Depth : 7.0'

LOG OF BORING SB-24

(Page 1 of 1)

PID Calibration : 100 ppm Isobutylene
PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							Sample Interval Lab Sample	Static During drilling	
0									12" Concrete
1	36/24	SS-1 1.0-3.0	0	NA					Black sandy FILL, some cinders, trace gravel, loose.
2									
3									
4	48/36	SS-2 4.0-6.0	0	NA					
5									Brown fine to medium sand, trace gravel, loose.
6		SS-3 6.0-7.0	0	NA					
7									EOB @ 7.0'
8									
9									
10									



Date Started : 7-10-03
 Date Completed : 7-10-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 7.0'

LOG OF BORING SB-25

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input checked="" type="checkbox"/> Sample Interval <input checked="" type="checkbox"/> Lab Sample		<input checked="" type="checkbox"/> Static <input checked="" type="checkbox"/> During drilling		
0											18" Concrete
1											
2	30/24	SS-1 1.5-3.5	0	NA							Black sandy FILL, some cinders, some gravel, loose.
3											Dark brown clayey SAND.
4	48/36	SS-2 4.0-6.0	0	NA							Brown fine to medium sand, trace gravel, loose.
5											
6		SS-3 6.0-7.0	0	NA							EOB @ 7.0'
7											
8											
9											
10											



Former South Bend Stamping
Additional Phase II Activities
City of South Bend, IN
SBI016

Date Started : 7-10-03
Date Completed : 7-10-03
Logged By : M. Young
Reviewed By : M. Young
Drilling Contractor : TopFlight
Drilling Method : DirectPush Geoprobe
Sampling Method : 48" Macrocore
Total Depth : 7.0'

LOG OF BORING SB-26

(Page 1 of 1)

PID Calibration : 100 ppm Isobutylene
PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							Sample Interval Lab Sample	Static During drilling	
0									18" Concrete
1	30/24	SS-1 1.5-3.0	0	NA					Black sandy FILL, some cinders, some gravel.
2									
3		SS-2 3.0-3.5	0	NA					Dark brown clayey SAND, trace gravel.
4	48/36	SS-3 4.0-6.0	0	NA					Brown fine to medium sand, trace clay, trace gravel.
5									Same as above, no clay.
6		SS-4 6.0-7.0	0	NA					EOB @ 7.0'
7									
8									
9									
10									



Date Started : 7-10-03
 Date Completed : 7-10-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 4.0'

LOG OF BORING SB-27

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				

0							12" Concrete				
1	30/24	SS-1 1.0-3.0	0	NA			Brown fine to medium sand FILL, loose.				
2											
3							Concrete fragments in end of spoon with solvent odor.				
4							REFUSAL @ 4.0'				
5											
6											
7											
8											
9											
10											



Date Started : 7-10-03
 Date Completed : 7-10-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 4.0'

LOG OF BORING SB-28

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input checked="" type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
0									12" Concrete
1	30/24	SS-1 1.0-3.0	0	NA					Brown fine to medium sand FILL, loose.
2									
3									
4									Concrete fragments in end of spoon. REFUSAL @ 4.0'
5									
6									
7									
8									
9									
10									



Date Started : 7-11-03
 Date Completed : 7-11-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 7.0'

LOG OF BORING SB-29

(Page 1 of 1)

Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input checked="" type="checkbox"/> Sample Interval <input checked="" type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
0									6" Concrete
0.5-2.0	42/30	SS-1	0	NA					Black sandy FILL, some cinders, some gravel, petroleum/solvent odor noted.
2.0-3.0		SS-2	0	NA					Same as above, some clay, odor.
4.0-6.0	48/24	SS-3	0	NA					Brown clayey SAND, trace gravel, slightly moist.
									Same as above, less clay content, loose.
									Same as above.
									EOB @ 6.0'



Date Started : 7-11-03
 Date Completed : 7-11-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 7.0'

LOG OF BORING SB-30

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input checked="" type="checkbox"/> Sample Interval <input checked="" type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
0									6" Concrete
0.5-2.0	42/30	SS-1	0	NA					Black sandy FILL, some cinders, some gravel.
2.0-3.0		SS-2	0	NA					Same as above, some clay.
4.0-6.0	48/36	SS-3	0	NA					Brown clayey SAND, trace gravel, slightly moist.
6.0-7.0		SS-4	0	NA					Same as above, less clay content, loose. Same as above, no clay.
									EOB @ 7.0'



Date Started : 7-11-03
 Date Completed : 7-11-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 6.0'

LOG OF BORING SB-32

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
0											6" Concrete
0.5	42/42	SS-1 0.5-2.5	0.8	NA							Black sandy FILL, some cinders, some gravel, loose.
1.5											Same as above, some clay.
2.5		SS-2 2.5-4.0	0.7	NA							Brown clayey SAND, trace gravel, slightly moist.
4.0	48/24	SS-3 4.0-6.0	0.5	NA							Same as above, no clay, loose.
5.0											Same as above.
6.0											EOB @ 6.0'



Date Started : 7-11-03
 Date Completed : 7-11-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 6.0'

LOG OF BORING SB-34

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input checked="" type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling			
0											6" Concrete
0.5	42/0										No recovery, pushed rock.
1											
2											
3											Brown fine to medium sand, trace gravel, loose.
4	48/24	SS-1 4.0-6.0	0	NA							
5											
6											EOB @ 6.0'
7											
8											
9											
10											



Date Started : 7-11-03
 Date Completed : 7-11-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 6.0'

LOG OF BORING SB-36

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Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
0											6" Concrete
0.5	42/36	SS-1 0.5-2.5	0	NA							Black sandy fill, some gravel, some cinders, loose.
2.0											Same as above, some clay.
2.5		SS-2 2.5-3.5	0	NA							Brown clayey sand, trace gravel, slightly moist.
4.0	48/24	SS-3 4.0-6.0	0	NA							Same as above, no clay, loose.
6.0											EOB @ 6.0'



Date Started : 7-8-03
 Date Completed : 7-8-03
 Logged By : M. Young
 Reviewed By : M. Young
 Drilling Contractor : TopFlight
 Drilling Method : DirectPush Geoprobe
 Sampling Method : 48" Macrocore
 Total Depth : 28.0'

LOG OF BORING SB-7

(Page 1 of 2)

Former South Bend Stamping
 Additional Phase II Activities
 City of South Bend, IN
 SBI016

PID Calibration : 100 ppm Isobutylene
 PID Model : PID-PhotoVac 2020

Depth in Feet	Length Drive/ Sample Recovery (in.)	Sample Number/ Sample Interval	PID	Blow Count (6"-12"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
0											12" of Concrete
1	36/24	SS-1 1.0-3.0	2	NA							Brownish/black sandy FILL, some gravel, some clay.
2											
3											
4	48/36	SS-2 4.0-6.0	1	NA							Brown medium to fine Sand, trace gravel, dry, loose.
5											
6		SS-3 6.0-7.0	3	NA							
7											
8	48/24	SS-4 8.0-10.0	1	NA							Same as above.
9											
10											
11											
12	48/24	SS-5 12.0-14.0	4	NA							Same as above.
13											
14											
15											



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 24.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-SA05

(Page 1 of 2)

Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/3.8	DP1/SS1	0.1	NA			0.0 to 0.5 - TOPSOIL/FILL				
1							0.5 to 3.8 - Loose dark brown medium grain SAND & GRAVEL, dry.				
2		DP1/SS2	0.3	NA							
3											
4											
5	5.0/3.5	DP2/SS3	0.1	NA			5.0 to 8.5 - Loose brown medium grain SAND, few gravel, dry.				
6											
7		DP2/SS4	0.0	NA							
8											
9											
10	5.0/3.3	DP3/SS5	0.0	NA			10.0 to 13.3 - Same As Above (SAA)				
11											
12		DP3/SS6	0.1	NA							
13											
14											
15	5.0/3.1	DP4/SS7	0.0	NA			15.0 to 18.1 - SAA				
16											

Remarks:

Soil samples SBI060:HSBSA05:S005020 and SBI060:HSBSA05:S170181 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 24.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-SA05

(Page 2 of 2)

Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
16											
17		DP4/SS8	0.0	NA							
18											
19											
20	5.0/2.3	DP5/SS9	0.0	NA							20.0 to 24.0 - SAA, wet @ 20.0
21											
22											
23											
24											End of boring.
25											
26											
27											
28											
29											
30											
31											
32											

Remarks:

Soil samples SBI060:HSBSA05:S005020 and SBI060:HSBSA05:S170181 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-72A01

(Page 1 of 1)

Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/4.1	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL.				
1							0.5 to 4.1 - Loose dark brown medium grain SAND & GRAVEL, slightly moist, staining 2-4'.				
2		DP1/SS2	0.1	NA							
3											
4											
5	5.0/3.6	DP2/SS3	0.2	NA			5.0 to 8.6 - Same As Above (SAA): staining 6.5 - 7.0'				
6											
7		DP2/SS4	0.1	NA							
8											
9											
10	5.0/3.0	DP3/SS5	0.0	NA			10.0 to 12.0 - SAA, brown and black.				
11											
12		DP3/SS6	0.0	NA			12.0 to 13.0 - Loose light brown medium grain SAND & GRAVEL, slightly moist.				
13											
14											
15							End of boring.				
16											

Remarks:

Soil samples SBI060:72A01:S005020 and SBI060:HSB72A01:S050070 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-72A02

(Page 1 of 1)

Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/4.2	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL.				
1							0.5 to 4.2 - Loose brown and black medium grain SAND & GRAVEL, slightly moist, stained black.				
2		DP1/SS2	0.1	NA							
3											
4											
5	5.0/3.7	DP2/SS3	0.1	NA			5.0 to 8.7 - Loose brown medium grain SAND & GRAVEL, slightly moist.				
6											
7		DP2/SS4	0.0	NA							
8											
9											
10	5.0/3.4	DP3/SS5	0.0	NA			10.0 to 13.4 - Same As Above (SAA)				
11											
12		DP3/SS6	0.1	NA							
13											
14											
15							End of boring.				
16											

Remarks:

Soil samples SBI060:HSB72A02:S005020 and SBI060:HSB72A02:S020042 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-72A03

(Page 1 of 1)

Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/4.0	DP1/SS1	0.1	NA			0.0 to 0.5 - TOPSOIL/FILL.	
1							0.5 to 4.0 - Loose brown and black medium grain SAND & GRAVEL, dry.	
2		DP1/SS2	0.0	NA				
3								
4								
5	5.0/3.4	DP2/SS3	0.2	NA			5.0 to 8.7 - Same As Above (SAA)	
6								
7		DP2/SS4	0.0	NA				
8								
9								
10	5.0/3.1	DP3/SS5	0.1	NA			10.0 to 13.1 - Loose brown medium grain SAND & GRAVEL, slightly moist.	
11								
12		DP3/SS6	0.1	NA				
13								
14								
15							End of boring.	
16								

Remarks:

Soil samples SBI060:72A03:S005020 and SBI060:HSB72A03:S050070 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-72A04

(Page 1 of 1)

Former Studebaker Site
 South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/4.2	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL.				
1							0.5 to 4.2 - Loose dark brown and black medium grain SAND & GRAVEL, slightly moist to dry, crushed brick @ 3.2', possible staining 2-4'.				
2		DP1/SS2	0.0	NA							
3											
4											
5	5.0/2.7	DP2/SS3	0.1	NA			5.0 to 7.7 - Loose brown medium grain SAND & GRAVEL, dry.				
6											
7		DP2/SS4	0.0	NA							
8											
9											
10	5.0/3.0	DP3/SS5	0.0	NA			10.0 to 13.0 - Same As Above (SAA)				
11											
12		DP3/SS6	0.0	NA							
13											
14											
15							End of boring.				
16											

Remarks:

Soil samples SBI060:72A04:S005020 and SBI060:HSB72A04:S020042 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 20.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-72A05

(Page 1 of 2)

Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/3.0	DP1/SS1	0.0	NA							0.0 to 0.5 - TOPSOIL/FILL.
1											0.5 to 3.0 - Loose dark brown medium grain SAND & GRAVEL, slightly moist.
2		DP1/SS2	0.1	NA							
3											
4											
5	5.0/2.8	DP2/SS3	0.1	NA							5.0 to 7.8 - Same As Above (SAA): brown @ 7.6', possible staining 5-7'.
6											
7		DP2/SS4	0.1	NA							
8											
9											
10	5.0/3.2	DP3/SS5	NA	NA							10.0 to 13.2 - Loose brown to light brown medium grain SAND & GRAVEL, dry.
11											
12											
13											
14											
15	5.0/4.2	DP4/SS6	NA	NA							15.0 to 19.2 - Loose light brown medium to coarse grain SAND & GRAVEL, wet @ 18.5'.
16											

Remarks:

Soil samples SBI060:HSB72A05:S005020 and SBI060:HSB72A05:S050070 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 20.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-72A05

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
16											
17											
18											
19											
20											
							End of boring.				
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											

Remarks:

Soil samples SBI060:HSB72A05:S005020 and SBI060:HSB72A05:S050070 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-0101

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Former Studebaker Site
 South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/4.1	DP1/SS1	0.2	NA			0.0 TO 0.5 - TOPSOIL/FILL.				
1							0.5 to 4.1 - Loose brown to dark brown medium grain SOIL & GRAVEL, slightly moist, staining possible 3-4'.				
2		DP1/SS2	0.1	NA							
3											
4											
5	5.0/3.8	DP2/SS3	0.2	NA			5.0 to 8.5 - Same As Above (SAA).				
6											
7		DP2/SS4	0.1	NA							
8											
9											
10	5.0/3.6	DP3/SS5	0.1	NA			10.0 to 13.6 - Loose light brown medium grain SOIL & GRAVEL, slightly moist.				
11											
12		DP3/SS6	0.0	NA							
13											
14											
15							End of boring.				
16											

Remarks:

Soil samples SBI060:HSB0101:S005020 and SBI060:HSB0101:S020041 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-O102

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels			
							Sample Interval	Lab Sample	Static	During drilling		
							DESCRIPTION					
0	5.0/4.2	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL.					
1							0.5 to 4.2 - Loose dark brown medium grain SAND & GRAVEL, slightly moist.					
2		DP1/SS2	0.1	NA								
3												
4												
5	5.0/3.1	DP2/SS3	0.0	NA				5.0 to 8.1 - Same As Above (SAA): staining 5-7'				
6												
7		DP2/SS4	0.3	NA								
8												
9												
10	5.0/3.2	DP3/SS5	0.0	NA			10.0 to 13.2 - Loose light brown medium grain SAND & GRAVEL, slightly moist.					
11												
12		DP3/SS6	0.0	NA								
13												
14												
15							End of boring.					
16												

Remarks:

Soil samples SBI060:HSBO102:S005020 and SBI060:HSBO102:S050070 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-O104

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels			
							Sample Interval	Lab Sample	Static	During drilling		
							DESCRIPTION					
0	5.0/4.2	DP1/SS1	0.3	NA			0.0 to 0.5 - TOPSOIL/FILL.					
1							0.5 to 4.2 - Loose dark brown medium grain SAND & GRAVEL, slightly moist.					
2		DP1/SS2	0.2	NA								
3												
4												
5	5.0/3.8	DP2/SS3	0.1	NA				5.0 to 8.8 - Same As Above (SAA) : possible staining 5-7'				
6												
7		DP2/SS4	0.1	NA								
8												
9												
10	5.0/3.5	DP3/SS5	0.0	NA				10.0 to 13.5 - Loose light brown medium grain SAND & GRAVEL, dry.				
11												
12		DP3/SS6	0.1	NA								
13												
14												
15								End of boring.				
16												

Remarks:

Soil samples SBI060:HSBO104:S005020 and SBI060:HSBO104:S050070 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 20.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-O105

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Former Studebaker Site
 South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/4.1	DP1/SS1	0.2	NA			0.0 to 0.5 - FILL/ROOTS/TOPSOIL	
1							0.5 to 4.1 - Loose brown medium grain SAND & GRAVEL, slightly moist, trace silty clay.	
2		DP1/SS2	0.7	NA				
3								
4								
5	5.0/3.8	DP2/SS3	0.2	NA			5.0 to 8.8 - Same As Above (SAA): dark brown.	
6		DP2/SS4	0.3	NA				
7								
8		DP2/SS5	0.5	NA				
9								
10	5.0/3.3	DP3/SS6	0.3	NA			10.0 to 10.9 SAA	
11							10.9 to 12.7 - Loose brown medium to coarse grain SAND & GRAVEL, slightly moist.	
12		DP3/SS7	0.2	NA				
13							12.7 to 13.3 - Loose brown medium to coarse grain SAND, few gravel, slightly moist.	
14								
15	5.0/3.7	DP4/SS8	0.3	NA			15.0 to 18.7 - Loose brown medium grain SOIL & GRAVEL, slightly moist.	
16								

Remarks:

Soil samples SBI060:HSBO105:S005020 and SBI060:HSBO105:S017020 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 20.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-O105

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels	
							Sample Interval	Lab Sample	Static	During drilling
DESCRIPTION										
16										
17		DP4/SS9	0.2	NA						
18										
19										
20										
End of boring.										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										

Remarks:

Soil samples SBI060:HSBO105:S005020 and SBI060:HSBO105:S017020 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B101

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Former Studebaker Site
 South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/4.3	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL	
1							0.5 to 4.3 - Loose brown and black SAND & GRAVEL, stained, slightly moist.	
2		DP1/SS2	0.1	NA				
3								
4								
5	5.0/3.0	DP2/SS3	0.0	NA			5.0 to 8.0 - Same As Above (SAA): stained.	
6								
7		DP2/SS4	0.0	NA				
8								
9								
10	5.0/2.2	DP3/SS5	0.0	NA			10.0 to 10.9 - Loose brown medium grain SAND.	
11							10.9 to 11.4 - Crushed CONCRETE.	
12							11.4 to 12.2 - Loose brown medium grain SOIL & GRAVEL, slightly moist to dry.	
13								
14								
15							End of boring.	
16								

Remarks:

Soil samples SBI060:HSBB101:S005020 and SBI060:HSBB101:S070080 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B102

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/4.6	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL	
1							0.5 to 4.6 - Loose brown and black medium grain SAND & GRAVEL, slightly moist, staining @ 2-4'.	
2		DP1/SS2	0.1	NA				
3								
4								
5	5.0/2.6	DP2/SS3	0.2	NA			5.0 to 8.0 - Same As Above (SAA): stained throughout, slight petroleum odor.	
6								
7		DP2/SS4	0.1	NA				
8								
9								
10	5.0/3.2	DP3/SS5	0.1	NA			10.0 to 11.4 - SAA, dark stained.	
11								
12		DP3/SS6	0.1	NA			11.4 to 13.2 - Loose light brown medium grain SAND & GRAVEL, slightly moist.	
13								
14								
15							End of boring.	
16								

Remarks:

Soil samples SBI060:HSBB102:S005020 and SBI060:HSBB102:S100114 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B103

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Former Studebaker Site
 South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/4.2	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL	
1							0.5 to 4.2 - Loose brown and black medium grain SAND & GRAVEL, slightly moist, odor and staining @ 2-4'.	
2		DP1/SS2	0.1	NA				
3								
4								
5	5.0/3.8	DP2/SS3	0.3	NA			5.0 to 8.8 - Same As Above (SAA): dark stained, petroleum odor.	
6								
7		DP2/SS4	0.0	NA				
8								
9								
10	5.0/2.5	DP3/SS5	0.1	NA			10.0 to 11.2 - Loose brown and black medium grain SAND, strong petroleum odor, very moist, very stained.	
11							11.2 to 11.4 - Crushed CONCRETE.	
12		DP3/SS6	0.0	NA			11.4 to 12.5 - Loose brown medium grain SAND & GRAVEL, slightly moist.	
13								
14								
15								
16							End of boring.	

Remarks:

Soil samples SBI060:HSBB103:S005020 and SBI060:HSBB103:S100112 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B104

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/3.5	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL				
1							0.5 to 3.5 - Loose brown and black medium grain SAND & GRAVEL, slightly moist.				
2		DP1/SS2	0.0	NA							
3											
4											
5	5.0/3.2	DP2/SS3	0.1	NA			5.0 to 8.2 - Loose light brown medium grain SAND, slightly moist.				
6											
7		DP2/SS4	0.0	NA							
8											
9											
10	5.0/2.0	DP3/SS5	0.0	NA			10.0 to 12.0 - Same As Above (SAA)				
11											
12											
13											
14											
15							End of boring.				
16											

Remarks:

Soil samples SBI060:HSBB104:S005020 and SBI060:HSBB104:S020035 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 20.0
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B105

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Former Studebaker Site
 South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/4.1	DP1/SS1	0.1	NA			0.0 to 0.5 - TOPSOIL/FILL				
1							0.5 to 4.1 - Loose brown and black medium grain SAND, moist, staining @ 2-4'.				
2		DP1/SS2	0.0	NA							
3											
4											
5	5.0/4.0	DP2/SS3	0.2	NA			5.0 to 8.0 - Loose brown medium grain SAND, slightly moist.				
6											
7		DP2/SS4	0.1	NA							
8											
9											
10	5.0/2.2	DP3/SS5	0.0	NA			10.0 to 12.2 - Same As Above (SAA)				
11											
12		DP3/SS6	0.0	NA							
13											
14											
15	5.0/3.1	DP4/SS7	0.0	NA			15.0 to 18.1 - Loose medium grain SAND & GRAVEL, wet @ 17.5'.				
16											

Remarks:

Soil samples SBI060:HSBB105:S005020 and SBI060:HSBB105:S020041 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 20.0
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B105

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
16											
17		DP4/SS8	0.0	NA							
18											
19											
20											
							End of boring.				
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											

Remarks:

Soil samples SBI060:HSBB105:S005020 and SBI060:HSBB105:S020041 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 20.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B106

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/4.2	DP1/SS1	0.1	NA			0.0 to 0.5 - TOPSOIL/FILL	
1							0.5 to 4.2 - Loose brown and black medium grain SAND & GRAVEL, slightly moist, crushed concrete.	
2		DP1/SS2	0.2	NA				
3								
4								
5	5.0/3.2	DP2/SS3	0.3	NA			5.0 to 8.2 - Loose light brown medium grain SAND, slightly moist.	
6								
7		DP2/SS4	0.1	NA				
8								
9								
10	5.0/3.6	DP3/SS5	0.0	NA			10.0 to 13.0 - Loose light brown medium grain SAND, dry.	
11								
12		DP3/SS6	0.1	NA				
13							13.0 to 15.0 - Loose brown medium grain SAND & GRAVEL, dry.	
14								
15	5.0/2.3	DP4/SS7	0.0	NA			15.0 to 17.3 - Loose brown medium grain SAND & GRAVEL, dry, wet @ 17'.	
16								

Remarks:

Soil samples SBI060:HSBB106:S005020 and SBI060:HSBB106:S020042 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 20.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B106

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
16											
17		DP4/SS8	0.0	NA							
18											
19											
20											
							End of boring.				
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											

Remarks:

Soil samples SBI060:HSBB106:S005020 and SBI060:HSBB106:S020042 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B107

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/4.0	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL				
1							0.5 to 4.2 - Loose brown and black medium grain SAND & GRAVEL, slightly moist.				
2		DP1/SS2	0.1	NA							
3											
4											
5	5.0/3.5	DP2/SS3	0.1	NA			5.0 to 7.0 - Loose light brown medium grain SAND, dry.				
6											
7		DP2/SS4	0.0	NA							
8											
9											
10	5.0/4.3	DP3/SS5	0.0	NA			10.0 to 14.3 - Same As Above (SAA).				
11											
12		DP3/SS6	0.0	NA							
13											
14											
15							End of boring.				
16											

Remarks:

Soil samples SBI060:HSBB107:S005020 and SBI060:HSBB107:S100120 were sent to laboratory for analysis.



Date Started : 08/20/2010
 Date Completed : 08/20/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-B108

(Page 1 of 1)

Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/3.8	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL				
1							0.5 to 3.8 - Loose brown medium grain SAND & GRAVEL, slightly moist.				
2		DP1/SS2	0.1	NA							
3											
4											
5	5.0/3.8	DP2/SS3	0.2	NA			5.0 to 8.8 - Loose light brown medium grain SAND, slightly moist to dry.				
6											
7		DP2/SS4	0.1	NA							
8											
9											
10	5.0/4.1	DP3/SS5	0.1	NA			10.0 to 14.1 - Same As Above (SAA).				
11											
12		DP3/SS6	0.0	NA							
13											
14											
15							End of boring.				
16											

Remarks:

Soil samples SBI060:HSBB108:S005020 and SBI060:HSBB108:S100120 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-O101

(Page 1 of 1)

Former Studebaker Site
 South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval	Lab Sample	Static	During drilling	
							DESCRIPTION				
0	5.0/4.1	DP1/SS1	0.2	NA			0.0 TO 0.5 - TOPSOIL/FILL.				
1							0.5 to 4.1 - Loose brown to dark brown medium grain SOIL & GRAVEL, slightly moist, staining possible 3-4'.				
2		DP1/SS2	0.1	NA							
3											
4											
5	5.0/3.8	DP2/SS3	0.2	NA			5.0 to 8.5 - Same As Above (SAA).				
6											
7		DP2/SS4	0.1	NA							
8											
9											
10	5.0/3.6	DP3/SS5	0.1	NA			10.0 to 13.6 - Loose light brown medium grain SOIL & GRAVEL, slightly moist.				
11											
12		DP3/SS6	0.0	NA							
13											
14											
15							End of boring.				
16											

Remarks:

Soil samples SBI060:HSBO101:S005020 and SBI060:HSBO101:S020041 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-SA01

(Page 1 of 1)

Former Studebaker Site
 South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/4.0	DP1/SS1	0.0	NA			0.0 to 0.5 - TOPSOIL/FILL.	
1							0.5 to 4.0 - Loose dark brown medium grain SAND & GRAVEL, slightly moist, staining 2-4'.	
2		DP1/SS2	0.1	NA				
3								
4								
5	5.0/3.2	DP2/SS3	0.2	NA			5.0 to 8.2 - Same As Above (SAA): grades to brown @ 7'.	
6								
7		DP2/SS4	0.1	NA				
8								
9								
10	5.0/3.4	DP3/SS5	0.0	NA			10.0 to 13.4 - Loose light brown medium grain SAND & GRAVEL, slightly moist.	
11								
12		DP3/SS6	0.1	NA				
13								
14								
15							End of boring.	
16								

Remarks:

Soil samples SBI060:HSBSA01:S005020 and SBI060:HSBSA01:S020040 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-SA02

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Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/4.1	DP1/SS1	0.6	NA			0.0 to 0.5 - TOPSOIL/FILL.	
1							0.5 to 4.1 - Loose dark brown medium grain SAND & GRAVEL, dry, odor and staining 2-4'.	
2		DP1/SS2	0.1	NA				
3								
4								
5	5.0/3.2	DP2/SS3	0.0	NA			5.0 to 8.2 - Same As Above (SAA): grades to light brown @ 6.5'.	
6								
7		DP2/SS4	0.1	NA				
8								
9								
10	5.0/2.5	DP3/SS5	0.0	NA			10.0 to 12.5 - Loose light brown medium grain SAND & GRAVEL, slightly moist.	
11								
12		DP3/SS6	0.0	NA				
13								
14								
15							End of boring.	
16								

Remarks:

Soil samples SBI060:HSBSA02:S005020 and SBI060:HSBSA02:S020041 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-SA03

(Page 1 of 1)

Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/3.9	DP1/SS1	0.1	NA			0.0 to 0.5 - TOPSOIL/FILL.	
1							0.5 to 3.9 - Loose dark brown medium grain SAND & GRAVEL, slightly moist, staining @ 3.9'.	
2		DP1/SS2	0.3	NA				
3								
4								
5	5.0/2.4	DP2/SS3	0.1	NA			5.0 to 7.4 - Loose brown medium grain SAND & GRAVEL, slightly moist.	
6								
7		DP2/SS4	0.0	NA				
8								
9								
10	5.0/3.8	DP3/SS5	0.0	NA			10.0 to 13.8 - Same As Above (SAA): light brown.	
11								
12		DP3/SS6	0.0	NA				
13								
14								
15							End of boring.	
16								

Remarks:

Soil samples SBI060:HSBSA03:S005020 and SBI060:HSBSA03:S020039 were sent to laboratory for analysis.



Date Started : 08/19/2010
 Date Completed : 08/19/2010
 Logged By : S. Sojda
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T
 Drilling Method : Geoprobe
 Sampling Method : Macrocore
 Total Depth : 15.0'
 S. Water Level Date : NA
 S. Water Level (ft) : NA

LOG OF BORING HSB-SA04

(Page 1 of 1)

Former Studebaker Site
South Bend, IN

Project Number: SBI060

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 2000
 PID/FID Calibration : 100ppm Isobutylene

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels
							Sample Interval Lab Sample	Static During drilling
							DESCRIPTION	
0	5.0/4.2	DP1/SS1	0.2	NA			0.0 to 0.5 - TOPSOIL/FILL.	
1							0.5 to 4.2 - Loose dark brown medium grain SAND & GRAVEL, slightly moist, staining 2-4'.	
2		DP1/SS2	0.3	NA				
3								
4								
5	5.0/3.2	DP2/SS3	0.1	NA			5.0 to 8.2 - Loose brown medium grain SAND & GRAVEL, slightly moist.	
6								
7		DP2/SS4	0.1	NA				
8								
9								
10	5.0/2.3	DP3/SS5	0.0	NA		10.0 to 12.3 - Loose brown medium grain SAND & GRAVEL, slightly moist.		
11								
12		DP3/SS6	0.0	NA				
13								
14								
15						End of boring.		
16								

Remarks:

Soil samples SBI060:HSBSA04:S005020 and SBI060:HSBSA04:S020042 were sent to laboratory for analysis.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 29'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 24.44

LOG OF BORING AMW-8S

(Page 1 of 2)

Ignition Park Site
 South Bend, Indiana

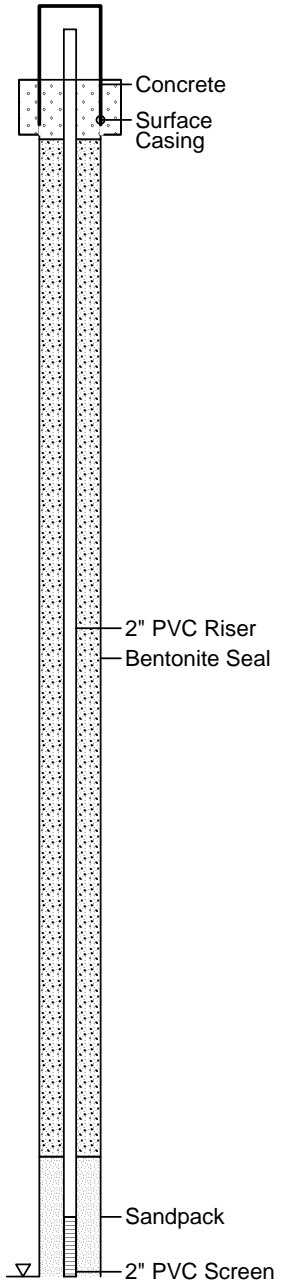
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 725.08
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval 	Lab Sample 	Static 	During drilling 	
							DESCRIPTION				
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Well: AMW-8S
 Elev.: 727.55



Remarks:
 AMW-8S was blank drilled adjacent to AMW-8I. See log of well AMW-8I for a description of soils. No soil samples from AMW-8S were submitted for laboratory analyses.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 29'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 24.44

LOG OF BORING AMW-8S

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 725.08
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
20											<p>Well: AMW-8S Elev.: 727.55</p>
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

End of Boring

Remarks:
 AMW-8S was blank drilled adjacent to AMW-8I. See log of well AMW-8I for a description of soils. No soil samples from AMW-8S were submitted for laboratory analyses.



Date Started : 5/24/2012
 Date Completed : 5/24/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 51'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.43

LOG OF BORING AMW-1D

(Page 1 of 3)

Ignition Park Site
 South Bend, Indiana

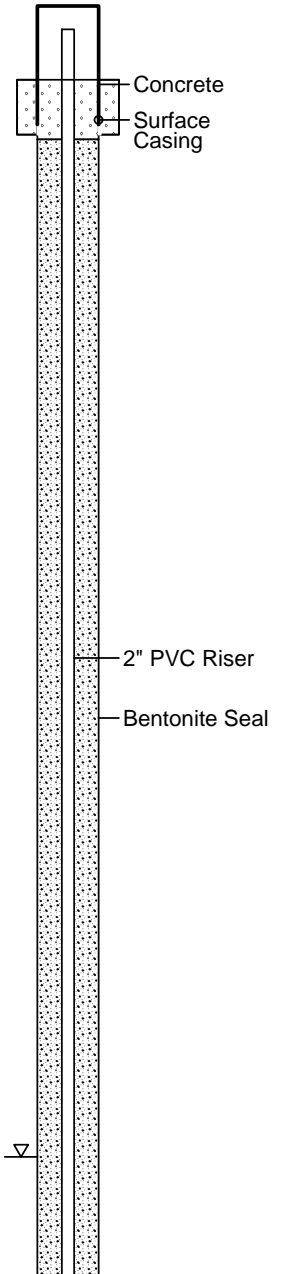
G. Elev. (ft USGS) : 730.12
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval [X]	Lab Sample [■]	Static [▼]	During drilling [▽]	
0	2.0/1.3	SP1/SS1	0.0	5-7-10-12	[X]	[***]					0.0 to 0.3 - Loose dark brown TOPSOIL, dry. very moist to wet, 0.3 to 1.3 - Loose dark brown SAND, dry.
1					[X]						
2	2.0/1.0	SP2/SS2	0.0	4-5-7-7	[X]						2.0 to 3.0 - Loose light tan SAND, dry.
3					[X]						
4	2.0/1.3	SP3/SS3	0.0	3-4-6-7	[X]						4.0 to 5.3 - Same as Above (SAA).
5					[X]						
6	2.0/1.0	SP4/SS4	0.0	3-5-5-4	[X]						6.0 to 7.0 - SAA
7					[X]						
8	2.0/1.3	SP5/SS5	0.0	4-4-5-4	[X]						8.0 to 9.3 - SAA
9					[X]						
10	2.0/1.4	SP6/SS6	0.0	4-5-5-3	[X]						10.0 to 11.4 - SAA
11					[X]						
12	2.0/1.2	SP7/SS7	0.0	3-4-6-7	[X]						12.0 to 13.2 - SAA
13					[X]						
14	2.0/1.5	SP8/SS8	0.0	3-3-3-4	[■]						14.0 to 15.5 - SAA
15					[■]						
16	2.0/1.2	SP9/SS9	0.0	2-2-3-4	[X]						16.0 to 17.2 - SAA
17					[X]						
18	2.0/1.3	SP10/SS10	0.0	3-3-3-4	[■]						18.0 to 19.0 - SAA
19					[■]						
20											19.0 to 19.3 - Loose brown SAND & GRAVEL, wet.

Well: AMW-1D
 Elev.: 732.41



Remarks:
 Soil samples SBI068:AMW1D:S140155 and SBI068:AMW1D:S180190 were submitted to laboratory for analysis.



Date Started : 5/24/2012
 Date Completed : 5/24/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 51'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.43

LOG OF BORING AMW-1D

(Page 2 of 3)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 730.12
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
20	2.0/1.5	SP11/SS11	0.0	3-4-5-6	☒						<p>Well: AMW-1D Elev.: 732.41</p> <p>2" PVC Riser Bentonite Seal</p>
21					☒						
22	2.0/2.0	SP12/SS12	0.0	9-4-4-5	☒						
23					☒						
24	2.0/1.4	SP13/SS13	0.0	2-2-3-3	☒						
25					☒						
26	2.0/1.6	SP14/SS14	0.0	1-1-2-3	☒						
27					☒						
28	2.0/1.5	SP15/SS15	0.0	2-2-2-2	☒						
29					☒						
30	2.0/1.4	SP16/SS16	0.0	3-3-4-6	☒						
31					☒						
32	2.0/1.4	SP17/SS17	0.0	3-3-4-6	☒						
33					☒						
34	2.0/0.8	SP18/SS18	0.0	3-5-7-9	☒						
35					☒						
36	2.0/1.8	SP19/SS19	0.0	4-5-7-9	☒						
37					☒						
38	2.0/0.7	SP20/SS20	0.0	4-6-6-9	☒						
39					☒						
40					☒						

Remarks:
 Soil samples SBI068:AMW1D:S140155 and SBI068:AMW1D:S180190 were submitted to laboratory for analysis.



Date Started : 5/24/2012
 Date Completed : 5/24/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 51'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.43

LOG OF BORING AMW-1D

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Ignition Park Site
 South Bend, Indiana

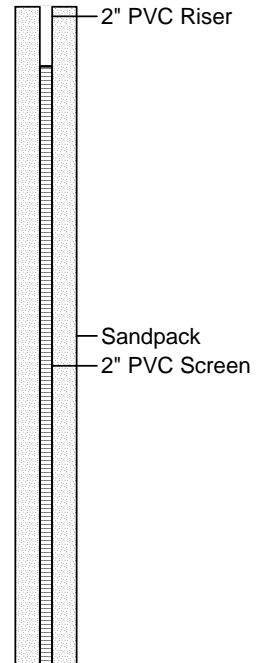
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 730.12
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
40	2.0/1.2	SP21/SS21	0.0	4-4-5-4	<input checked="" type="checkbox"/>				40.0 to 41.2 - SAA
41					<input checked="" type="checkbox"/>				
42	2.0/1.0	SP22/SS22	0.0	2-3-5-6	<input checked="" type="checkbox"/>				42.0 to 43.0 - SAA
43					<input checked="" type="checkbox"/>				
44	2.0/1.1	SP23/SS23	0.0	5-5-5-7	<input checked="" type="checkbox"/>				44.0 to 45.1 - SAA
45					<input checked="" type="checkbox"/>				
46	2.0/0.5	SP24/SS24	0.0	4-6-9-11	<input checked="" type="checkbox"/>				46.0 to 46.5 - SAA
47					<input checked="" type="checkbox"/>				
48	2.0/1.6	SP25/SS25	0.0	5-7-4-9	<input checked="" type="checkbox"/>				48.0 to 49.6 - SAA
49					<input checked="" type="checkbox"/>				
50	2.0/1.0	SP26/SS26	NS	NA	<input checked="" type="checkbox"/>				50.0 to 51.0 - SAA
51					<input checked="" type="checkbox"/>				End of Boring
52									
53									
54									
55									
56									
57									
58									
59									
60									

Well: AMW-1D
 Elev.: 732.41



Remarks:
 Soil samples SBI068:AMW1D:S140155 and SBI068:AMW1D:S180190 were submitted to laboratory for analysis.



Date Started : 5/24/2012
 Date Completed : 5/24/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 39'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.44

LOG OF BORING AMW-11

(Page 1 of 2)

Ignition Park Site
 South Bend, Indiana

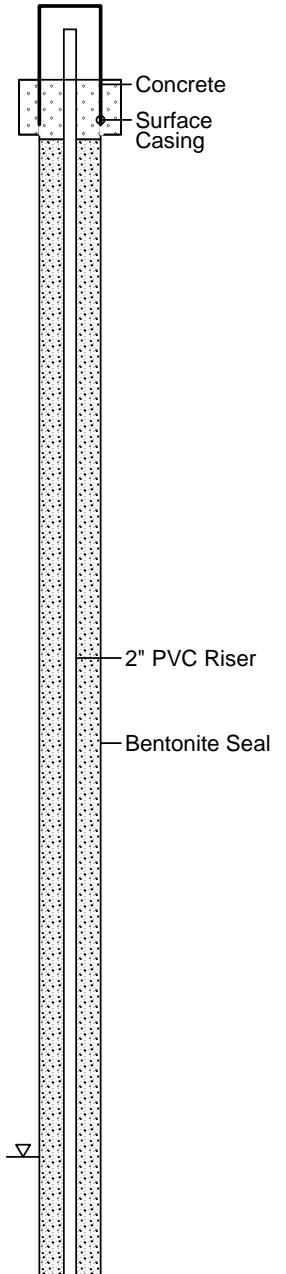
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 730.12
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
							DESCRIPTION				
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Well: AMW-11
 Elev.: 732.40



Remarks:
 AMW-11 was blank drilled adjacent to AMW-1D. See log of well AMW-1D for a description of soils. No soil samples from AMW-11 were submitted for laboratory analyses.



Date Started : 5/24/2012
 Date Completed : 5/24/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 39'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.44

LOG OF BORING AMW-11

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 730.12
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	Well: AMW-11 Elev.: 732.40		
20											<p>2" PVC Riser Bentonite Seal</p> <p>Sandpack 2" PVC Screen</p>
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											End of Boring

Remarks:
 AMW-11 was blank drilled adjacent to AMW-1D. See log of well AMW-1D for a description of soils. No soil samples from AMW-11 were submitted for laboratory analyses.



Date Started : 5/24/2012
 Date Completed : 5/24/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 27'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.47

LOG OF BORING AMW-1S

(Page 1 of 2)

Ignition Park Site
 South Bend, Indiana

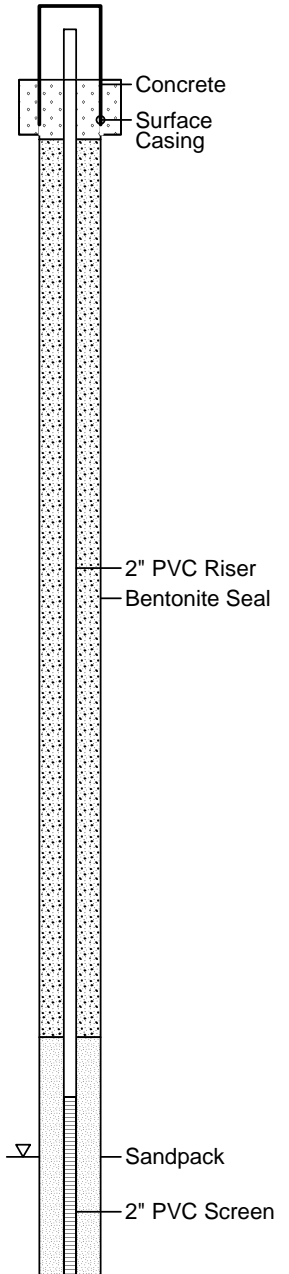
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 730.12
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval 	Lab Sample 	Static 	During drilling 	
							DESCRIPTION				
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Well: AMW-1S
 Elev.: 732.44



Remarks:
 AMW-1S was blank drilled adjacent to AMW-1D. See log of well AMW-1D for a description of soils. No soil samples from AMW-1S were submitted for laboratory analyses.



Date Started : 5/24/2012
 Date Completed : 5/24/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 27'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.47

LOG OF BORING AMW-1S

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 730.12
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
20											<p>Well: AMW-1S Elev.: 732.44</p> <p>Sandpack 2" PVC Screen</p>
21											
22											
23											
24											
25											
26											
27											
End of Boring											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

Remarks:
 AMW-1S was blank drilled adjacent to AMW-1D. See log of well AMW-1D for a description of soils. No soil samples from AMW-1S were submitted for laboratory analyses.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 51'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.33

LOG OF BORING AMW-2D

(Page 1 of 3)

Ignition Park Site
 South Bend, Indiana

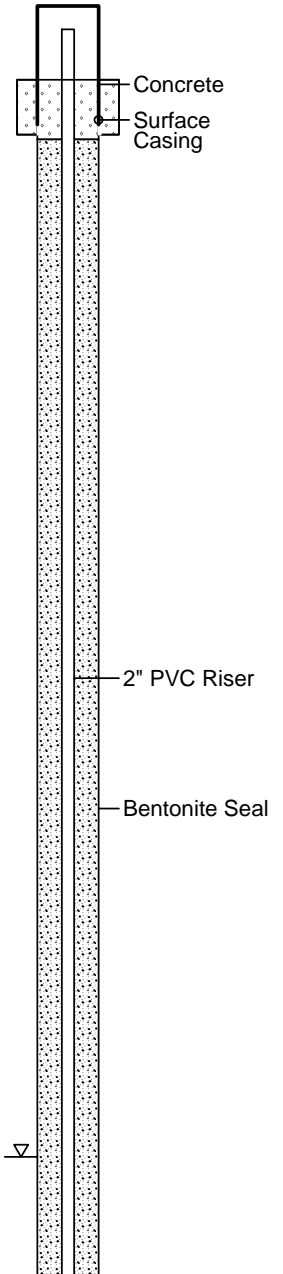
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.32
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							Sample Interval Lab Sample	Static During drilling	
0	2.0/1.3	SP1/SS1	0.0	7-3-10-10					0.0 to 0.6 - Loose dark brown TOPSOIL, dry.
1									0.6 to 1.3 - Loose dark brown SAND & GRAVEL, dry.
2	2.0/1.6	SP2/SS2	0.0	2-2-3-5					2.0 to 3.6 - Loose brown SAND, dry.
3									
4	2.0/1.1	SP3/SS3	0.0	3-3-4-4					4.0 to 5.1 - Loose brown SAND, trace gravel, dry.
5									
6	2.0/0.9	SP4/SS4	0.0	2-2-3-3					6.0 to 6.9 - Same as Above (SAA).
7									
8	2.0/1.0	SP5/SS5	0.0	2-2-3-4					8.0 to 9.0 - Loose brown SAND & GRAVEL, dry.
9									
10	2.0/0.8	SP6/SS6	0.0	3-3-4-6					10.0 to 10.8 - SAA
11									
12	2.0/1.1	SP7/SS7	10.5	6-4-5-5					12.0 to 13.1 - SAA
13									
14	2.0/1.0	SP8/SS8	6.4	3-3-3-4					14.0 to 15.0 - SAA
15									
16	2.0/1.1	SP9/SS9	0.0	3-5-5-6					16.0 to 17.1 - SAA
17									
18	2.0/1.2	SP10/SS10	NA	6-3-3-6					18.0 to 18.7 - SAA
19									18.7 to 19.2 - Loose brown SAND & GRAVEL, wet.
20									

Well: AMW-2D
 Elev.: 730.66



Remarks:
 Soil samples SBI068:AMW2D:S120131 and SBI068:AMW2D:S180187 were submitted to laboratory for analysis.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 51'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.33

LOG OF BORING AMW-2D

(Page 2 of 3)

Ignition Park Site
 South Bend, Indiana

G. Elev. (ft USGS) : 728.32
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
20	2.0/1.2	SP11/SS11	NA	4-5-6-6	☒						<p>Well: AMW-2D Elev.: 730.66</p> <p>2" PVC Riser</p> <p>Bentonite Seal</p>
21					☒					20.0 to 21.2 - SAA	
22	2.0/1.1	SP12/SS12	NA	4-4-4-7	☒					22.0 to 23.1 - SAA	
23					☒						
24	2.0/1.0	SP13/SS13	NA	4-6-5-6	☒					24.0 to 25.0 - SAA	
25					☒						
26	2.0/1.6	SP14/SS14	NA	3-3-4-6	☒					26.0 to 27.6 - SAA	
27					☒						
28	2.0/0.7	SP15/SS15	NA	2-2-3-3	☒					28.0 to 28.7 - SAA	
29					☒						
30	2.0/1.2	SP16/SS16	NA	2-2-3-3	☒					30.0 to 31.2 - SAA	
31					☒						
32	2.0/0.7	SP17/SS17	NA	2-3-3-5	☒					32.0 to 32.7 - SAA	
33					☒						
34	2.0/0.5	SP18/SS18	NA	2-6-7-9	☒					34.0 to 34.5 - SAA	
35					☒						
36	2.0/1.5	SP19/SS19	NA	4-7-6-9	☒					36.0 to 37.5 - SAA	
37					☒						
38	2.0/0.0	SP20/SS20	NA	3-7-6-6						38.0 to 40.0 - No recovery.	
39											
40											

Remarks:
 Soil samples SBI068:AMW2D:S120131 and SBI068:AMW2D:S180187 were submitted to laboratory for analysis.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 51'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.33

LOG OF BORING AMW-2D

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Ignition Park Site
 South Bend, Indiana

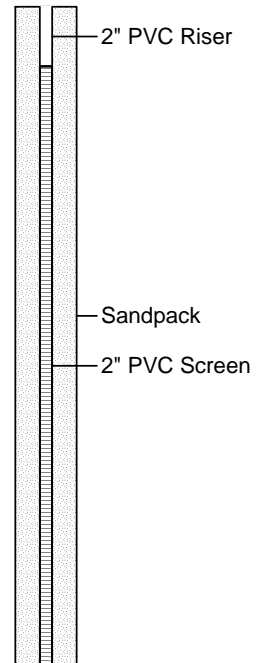
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.32
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
40	2.0/1.1	SP21/SS21	NA	3-4-5-5	<input checked="" type="checkbox"/>				40.0 to 41.1 - Loose brown SAND & GRAVEL, wet.
41					<input checked="" type="checkbox"/>				
42	2.0/0.5	SP22/SS22	NA	3-10-10-12	<input checked="" type="checkbox"/>				42.0 to 42.5 - SAA
43					<input checked="" type="checkbox"/>				
44	2.0/1.3	SP23/SS23	NA	7-8-10-13	<input checked="" type="checkbox"/>				44.0 to 45.3 - SAA
45					<input checked="" type="checkbox"/>				
46	2.0/1.5	SP24/SS24	NA	4-6-6-8	<input checked="" type="checkbox"/>				46.0 to 47.5 - SAA
47					<input checked="" type="checkbox"/>				
48	NA	SP25/SS25	NA	3-6-6-2					48.0 to 50.0 - No recovery
49									
50	NA	SP26/SS26	NA	NA					50.0 to 51.0 - SAA
51									End of Boring
52									
53									
54									
55									
56									
57									
58									
59									
60									

Well: AMW-2D
 Elev.: 730.66



Remarks:
 Soil samples SBI068:AMW2D:S120131 and SBI068:AMW2D:S180187 were submitted to laboratory for analysis.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 39'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.41

LOG OF BORING AMW-2I

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Ignition Park Site
 South Bend, Indiana

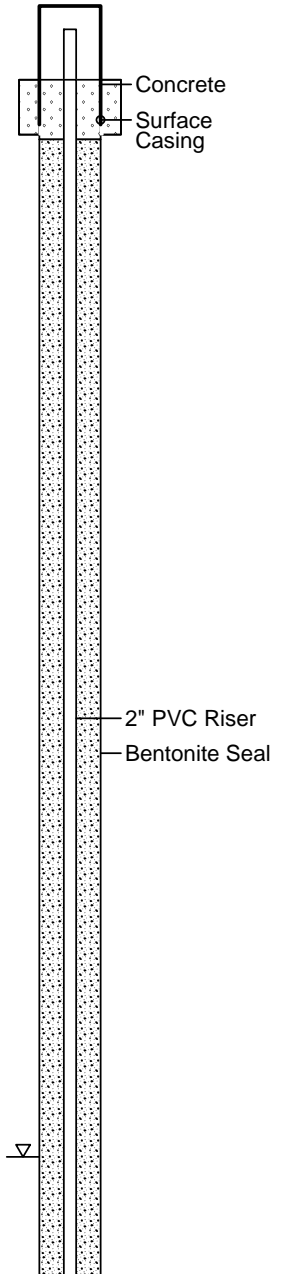
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.36
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
							DESCRIPTION				
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Well: AMW-2I
 Elev.: 730.73



Remarks:
 AMW-2I was blank drilled adjacent to AMW-2D. See log of well AMW-2D for a description of soils. No soil samples from AMW-2I were submitted for laboratory analyses.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 39'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.41

LOG OF BORING AMW-2I

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.36
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	Well: AMW-2I Elev.: 730.73		
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											End of Boring

Remarks:
 AMW-2I was blank drilled adjacent to AMW-2D. See log of well AMW-2D for a description of soils. No soil samples from AMW-2I were submitted for laboratory analyses.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 27'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.40

LOG OF BORING AMW-2S

(Page 1 of 2)

Ignition Park Site
 South Bend, Indiana

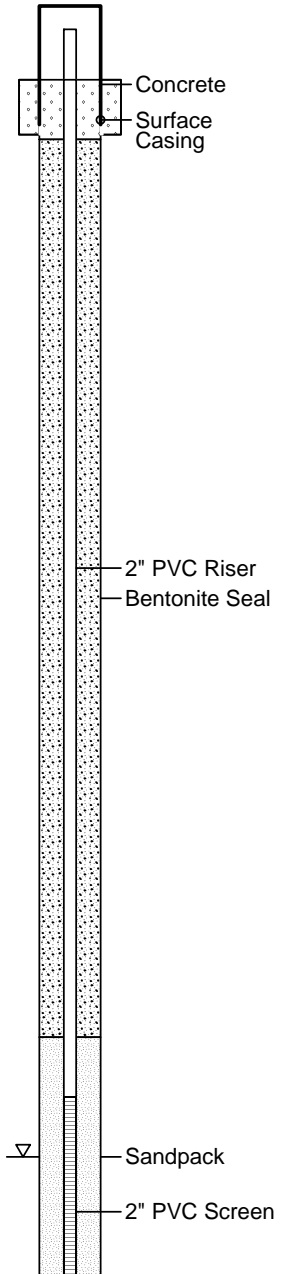
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.44
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval 	Lab Sample 	Static 	During drilling 	
							DESCRIPTION				
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Well: AMW-2S
 Elev.: 730.70



Remarks:
 AMW-2S was blank drilled adjacent to AMW-2D. See log of well AMW-2D for a description of soils. No soil samples from AMW-2S were submitted for laboratory analyses.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 27'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.40

LOG OF BORING AMW-2S

(Page 2 of 2)

Ignition Park Site
South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.44
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
20											<p>Well: AMW-2S Elev.: 730.70</p> <p>Sandpack 2" PVC Screen</p>
21											
22											
23											
24											
25											
26											
27											
End of Boring											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

Remarks:
 AMW-2S was blank drilled adjacent to AMW-2D. See log of well AMW-2D for a description of soils. No soil samples from AMW-2S were submitted for laboratory analyses.



Date Started : 5/29/2012
 Date Completed : 5/29/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 50'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 21.54

LOG OF BORING AMW-3D

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Ignition Park Site
 South Bend, Indiana

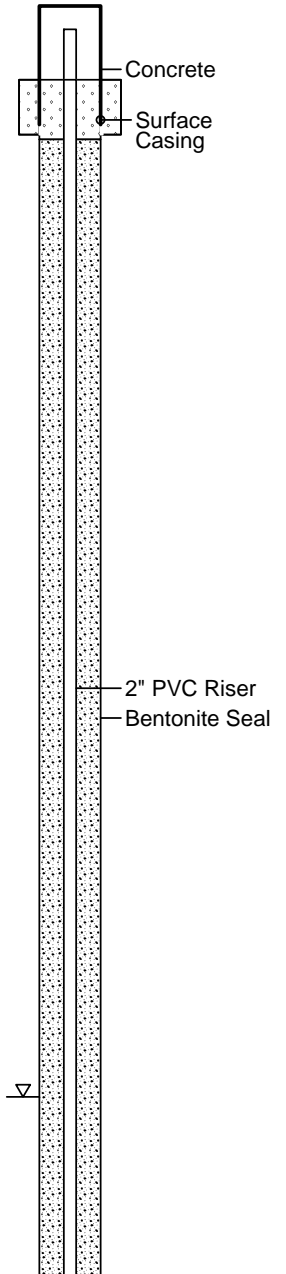
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval 	Lab Sample 	Static 	During drilling 	
0	2.0/1.5	SP1/SS1	0.0	4-4-6-6							0.0 to 0.5 - Loose dark brown TOPSOIL., dry.
1											0.5 to 1.5 - Loose light brown SAND, trace gravel, dry.
2	2.0/1.0	SP2/SS2	0.0	4-4-7-6							2.0 to 3.0 - Loose light brown SAND, trace gravel, dry.
3											
4	2.0/1.4	SP3/SS3	0.0	2-2-4-5							4.0 to 5.4 - Same as Above (SAA).
5											
6	2.0/0.9	SP4/SS4	0.0	5-7-10-12							6.0 to 6.9 - SAA
7											
8	2.0/1.3	SP5/SS5	0.0	4-7-7-8							8.0 to 9.3 - SAA
9											
10	2.0/1.1	SP6/SS6	0.0	3-8-7-7							10. to 11.1 - SAA
11											
12	2.0/1.3	SP7/SS7	0.0	4-4-5-2							12.0 to 13.3 - SAA
13											
14	2.0/1.3	SP8/SS8	0.0	3-4-5-5							14.0 to 15.3 - SAA
15											
16	2.0/1.6	SP9/SS9	0.0	3-3-5-6							16.0 to 17.6 - Loose light brown SAND, trace silt, moist.
17											
18	2.0/0.8	SP10/SS10	NA	4-4-5-6							18.0 to 18.8 - Loose brown SAND, trace silt, wet.
19											
20											

Well: AMW-3D
 Elev.: 729.18



Remarks:
 Soil samples SBI068:AMW3D:S040054 and SBI068:AMW3D:S160176 were submitted to laboratory for analysis.



Date Started : 5/29/2012
 Date Completed : 5/29/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 50'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 21.54

LOG OF BORING AMW-3D

(Page 2 of 3)

Ignition Park Site
 South Bend, Indiana

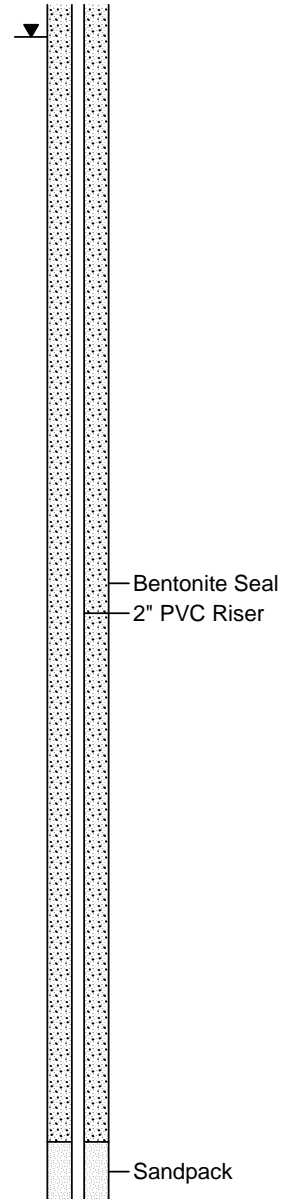
G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
20	2.0/1.3	SP11/SS11	NA	7-8-10-12	☒						20.0 to 21.3 - SAA
21					☒						
22	2.0/1.7	SP12/SS12	NA	3-4-4-5	☒						22.0 to 23.7 - Loose brown SAND & GRAVEL, wet.
23					☒						
24	2.0/1.8	SP13/SS13	NA	3-4-4-6	☒						24.0 to 25.8 - SAA
25					☒						
26	2.0/1.7	SP14/SS14	NA	2-2-4-4	☒						26.0 to 27.7 - SAA
27					☒						
28	2.0/1.3	SP15/SS15	NA	2-4-5-7	☒						28.0 to 29.3 - SAA
29					☒						
30	2.0/0.5	SP16/SS16	NA	2-2-1-2	☒						30.0 to 30.5 - SAA
31											
32	2.0/0.0	SP17/SS17	NA	4-4-5-6							32.0 to 34.0 - No recovery.
33											
34	2.0/0.8	SP18/SS18	NA	2-4-6-9	☒						34.0 to 34.8 - Loose brown SAND & GRAVEL, wet.
35											
36	2.0/0.7	SP19/SS19	NA	5-5-4-7	☒						36.0 to 36.7 - SAA
37											
38	2.0/0.7	SP20/SS20	NA	4-4-6-8	☒						38.0 to 38.7 - SAA
39											
40											

Well: AMW-3D
 Elev.: 729.18



Remarks:
 Soil samples SBI068:AMW3D:S040054 and SBI068:AMW3D:S160176 were submitted to laboratory for analysis.



Date Started : 5/29/2012
 Date Completed : 5/29/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 50'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 21.54

LOG OF BORING AMW-3D

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Ignition Park Site
 South Bend, Indiana

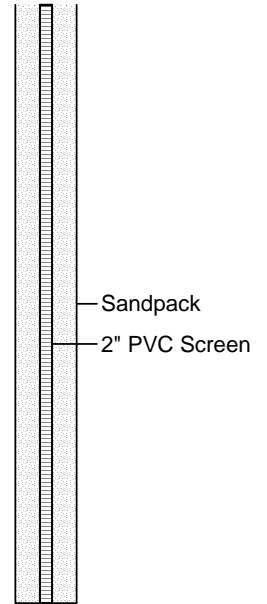
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : NA
 PID/FID Model : MiniRae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input type="checkbox"/> Sample Interval <input checked="" type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
40	2.0/0.5	SP21/SS21	NA	4-2-5-6	<input checked="" type="checkbox"/>				40.0 to 40.5 - SAA
41									
42	2.0/0.0	SP22/SS22	NA	7-8-10-12					42.0 to 44.8 - No recovery.
43									
44	2.0/0.8	SP23/SS23	NA	3-3-7-6	<input checked="" type="checkbox"/>				44.0 to 44.0 - Loose brown SAND & GRAVEL, wet.
45									
46	2.0/1.3	SP24/SS24	NA	7-8-10-13	<input checked="" type="checkbox"/>				46.0 to 47.3 - SAA
47									
48	2.0/0.7	SP25/SS25	NA	7-7-10-12	<input checked="" type="checkbox"/>				48.0 to 48.7 - SAA
49									
50									End of Boring
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

Well: AMW-3D
 Elev.: 729.18



Remarks:
 Soil samples SBI068:AMW3D:S040054 and SBI068:AMW3D:S160176 were submitted to laboratory for analysis.



Date Started : 5/29/2012
 Date Completed : 5/29/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 38'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 21.61

LOG OF BORING AMW-3I

(Page 1 of 2)

Ignition Park Site
South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 727.65
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling			
0											<p>Well: AMW-3I Elev.: 729.27</p> <p>Concrete Surface Casing 2" PVC Riser Bentonite Seal</p>
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Remarks:
 AMW-3I was blank drilled adjacent to AMW-3D. See log of well AMW-3D for a description of soils. No soil samples from AMW-3I were submitted for laboratory analyses.



Date Started : 5/29/2012
 Date Completed : 5/29/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 38'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 21.61

LOG OF BORING AMW-3I

(Page 2 of 2)

Ignition Park Site
South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 727.65
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	Well: AMW-3I Elev.: 729.27		
20											<p> Bentonite Seal 2" PVC Riser Sandpack 2" PVC Screen </p>
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

Remarks:
 AMW-3I was blank drilled adjacent to AMW-3D. See log of well AMW-3D for a description of soils. No soil samples from AMW-3I were submitted for laboratory analyses.



Date Started : 5/29/2012
 Date Completed : 5/29/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 26'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 21.51

LOG OF BORING AMW-3S

(Page 1 of 2)

Ignition Park Site
South Bend, Indiana

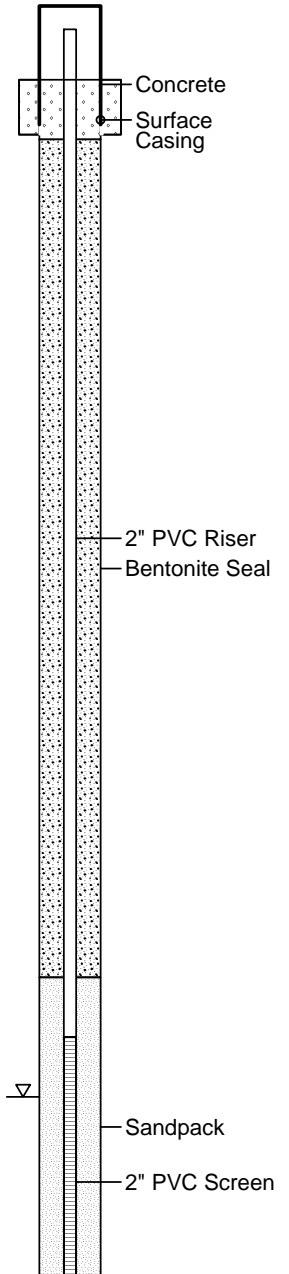
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 727.54
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels	
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	DESCRIPTION	
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Well: AMW-3S
Elev.: 729.18



Remarks:
 AMW-3S was blank drilled adjacent to AMW-3D. See log of well AMW-3D for a description of soils. No soil samples from AMW-3S were submitted for laboratory analyses.



Date Started : 5/29/2012
 Date Completed : 5/29/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 26'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 21.51

LOG OF BORING AMW-3S

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 727.54
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
20											<p>Well: AMW-3S Elev.: 729.18</p> <p>Sandpack 2" PVC Screen</p>
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

End of Boring

Remarks:
 AMW-3S was blank drilled adjacent to AMW-3D. See log of well AMW-3D for a description of soils. No soil samples from AMW-3S were submitted for laboratory analyses.



Date Started : 5/23/2012
 Date Completed : 5/23/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 51'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.10

LOG OF BORING AMW-4D

(Page 1 of 3)

Ignition Park Site
 South Bend, Indiana

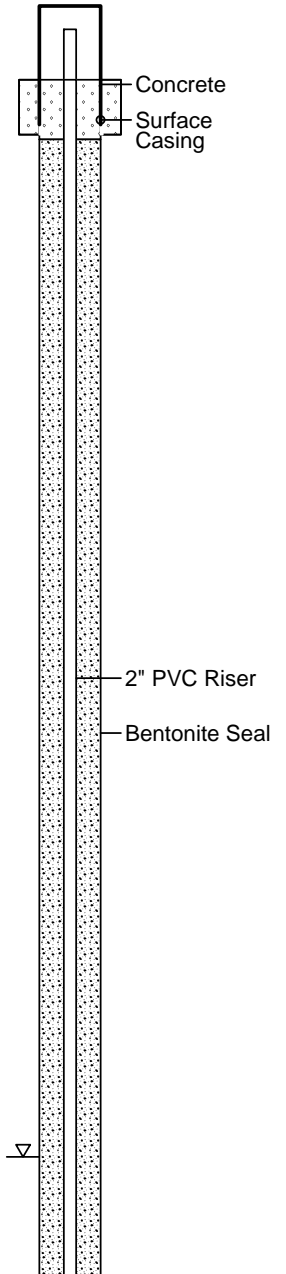
G. Elev. (ft USGS) : 727.73
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
0	2.0/1.3	SP1/SS1	6.6	4-5-5-7	☒	*****					0.0 to 0.3 - Loose dark brown TOPSOIL.
1					☒						0.3 to 1.3 - Loose dark brown SAND, trace silt, trace gravel, dry.
2	2.0/1.2	SP2/SS2	4.6	6-7-7-10	☒						2.0 to 2.3 - Same as Above (SAA).
3					☒						
4	2.0/1.2	SP3/SS3	7.5	6-10-12-13	☒						4.0 to 4.9 - SAA
5					☒						4.9 to 5.0 - Loose light tan SAND & GRAVEL, dry.
6	2.0/1.2	SP4/SS4	9.3	2-3-5-7	☒						5.0 to 5.2 - Loose dark brown SAND & GRAVEL, dry
7					☒						6.0 to 7.2 - Loose brown SAND, trace silt, dry.
8	2.0/1.4	SP5/SS5	8.3	4-4-2-2	☒						8.0 to 9.4 - SAA
9					☒						
10	2.0/0.7	SP6/SS6	8.8	2-2-2-3	☒						10.0 to 10.7 - Loose brown SAND & GRAVEL, dry.
11					☒						
12	2.0/1.1	SP7/SS7	8.9	2-3-4-7	☒						12.0 to 13.1 - SAA
13					☒						
14	2.0/1.0	SP8/SS8	9.6	4-6-7-10	☒						14.0 to 15.0 - Loose brown SAND, dry.
15					☒						
16	2.0/1.2	SP9/SS9	9.8	7-7-9-10	■						16.0 to 17.2 - SAA
17					■						
18	2.0/1.0	SP10/SS10	10.5	4-4-7-10	■						18.0 to 18.5 - SAA
19					■						18.5 to 19.0 - Loose brown SAND & GRAVEL, wet.
20					■						

Well: AMW-4D
 Elev.: 729.95



Remarks:
 Soil samples SBI068:AMW4D:S160172 and SBI068:AMW4D:S180185 were submitted to laboratory for analysis.



Date Started : 5/23/2012
 Date Completed : 5/23/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 51'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.10

LOG OF BORING AMW-4D

(Page 2 of 3)

Ignition Park Site
 South Bend, Indiana

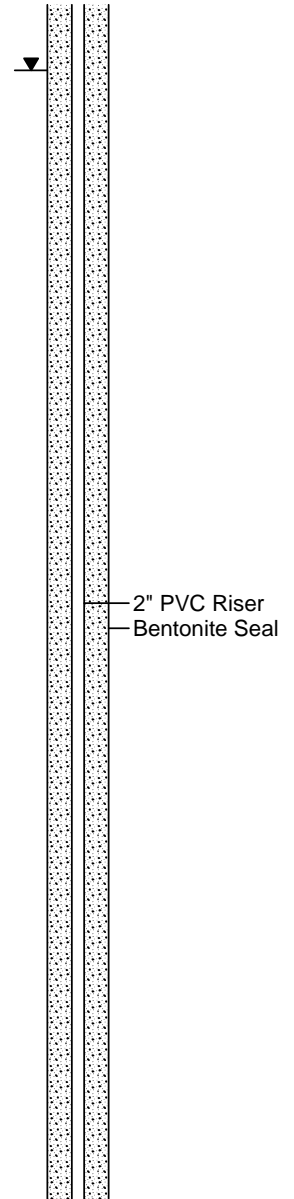
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 727.73
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
20	2.0/1.5	SP11/SS11	NA	5-5-6-6	☒						20.0 to 20.5 - SAA
21					☒						20.5 to 21.5 - Loose brown SAND, trace silt, wet.
22	2.0/2.0	SP12/SS12	NA	4-4-5-7	☒						22.0 to 24.0 - Loose brown SAND & GRAVEL, wet.
23					☒						
24	2.0/2.0	SP13/SS13	NA	2-2-3-5	☒						24.0 to 26.0 - SAA
25					☒						
26	2.0/1.4	SP14/SS14	NA	2-2-1-2	☒						26.0 to 27.4 - SAA
27					☒						
28	2.0/1.6	SP15/SS15	NA	3-3-4-3	☒						28.0 to 29.6 - SAA
29					☒						
30	2.0/1.0	SP16/SS16	NA	2-3-5-7	☒						30.0 to 31.0 - SAA
31					☒						
32	2.0/1.6	SP17/SS17	NA	2-2-3-5	☒						32.0 to 33.6 - SAA
33					☒						
34	2.0/0.0	SP18/SS18	NA	3-3-5-7							34.0 to 36.0 - No recovery
35											
36	2.0/1.4	SP19/SS19	NA	4-4-5-6	☒						36.0 to 37.4 - Loose brown SAND & GRAVEL, wet.
37					☒						
38	2.0/0.5	SP20/SS20	NA	4-4-5-7	☒						38.0 to 38.5 - SAA
39											
40											

Well: AMW-4D
 Elev.: 729.95



Remarks:
 Soil samples SBI068:AMW4D:S160172 and SBI068:AMW4D:S180185 were submitted to laboratory for analysis.



Date Started : 5/23/2012
 Date Completed : 5/23/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 51'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.10

LOG OF BORING AMW-4D

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Ignition Park Site
 South Bend, Indiana

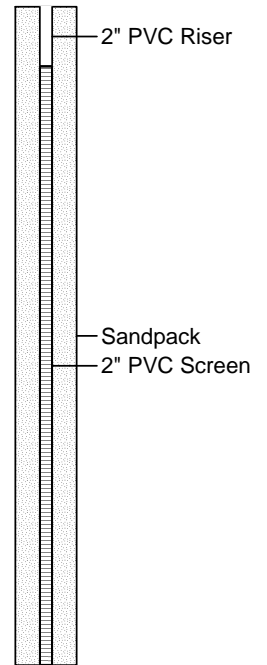
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 727.73
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
40	2.0/1.7	SP21/SS21	NA	3-5-6-7	<input checked="" type="checkbox"/>				40.0 to 41.7 - SAA
41					<input checked="" type="checkbox"/>				
42	2.0/1.1	SP22/SS22	NA	7-10-12-14	<input checked="" type="checkbox"/>				42.0 to 43.1 - SAA
43					<input checked="" type="checkbox"/>				
44	2.0/0.0	SP23/SS23	NA	5-6-8-9					44.0 to 46.0 - No recovery.
45									
46	2.0/1.5	SP24/SS24	NA	3-7-9-13	<input checked="" type="checkbox"/>				46.0 to 47.5 - Loose brown SAND & GRAVEL, wet, increased gravel.
47					<input checked="" type="checkbox"/>				
48	2.0/1.2	SP25/SS25	NA	5-6-7-9	<input checked="" type="checkbox"/>				48.0 to 49.2 - SAA
49					<input checked="" type="checkbox"/>				
50	NA	SP26/SS26	NA	NA	<input checked="" type="checkbox"/>				50.0 to 51.0 - SAA
51									End of Boring
52									
53									
54									
55									
56									
57									
58									
59									
60									

Well: AMW-4D
 Elev.: 729.95



Remarks:
 Soil samples SBI068:AMW4D:S160172 and SBI068:AMW4D:S180185 were submitted to laboratory for analysis.



Date Started : 5/23/2012
 Date Completed : 5/23/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 39'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.61

LOG OF BORING AMW-4I

(Page 1 of 2)

Ignition Park Site
 South Bend, Indiana

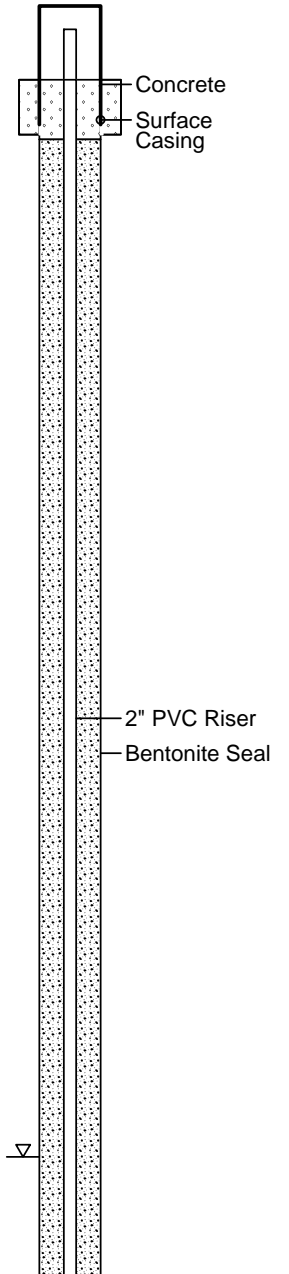
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.33
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
							DESCRIPTION				
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Well: AMW-4I
 Elev.: 730.49



Remarks:
 AMW-4I was blank drilled adjacent to AMW-4D. See log of well AMW-4D for a description of soils. No soil samples from AMW-4I were submitted for laboratory analyses.



Date Started : 5/23/2012
 Date Completed : 5/23/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 39'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.61

LOG OF BORING AMW-4I

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

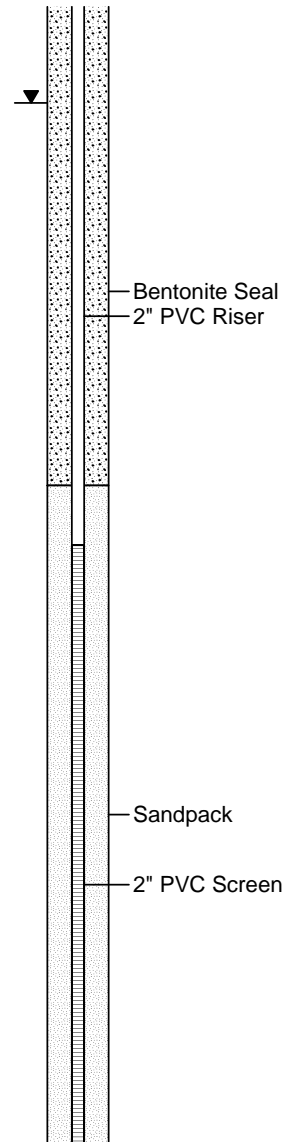
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.33
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
							DESCRIPTION				
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

Well: AMW-4I
 Elev.: 730.49



End of Boring

Remarks:
 AMW-4I was blank drilled adjacent to AMW-4D. See log of well AMW-4D for a description of soils. No soil samples from AMW-4I were submitted for laboratory analyses.



Date Started : 5/23/2012
 Date Completed : 5/23/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 27'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.88

LOG OF BORING AMW-4S

(Page 1 of 2)

Ignition Park Site
 South Bend, Indiana

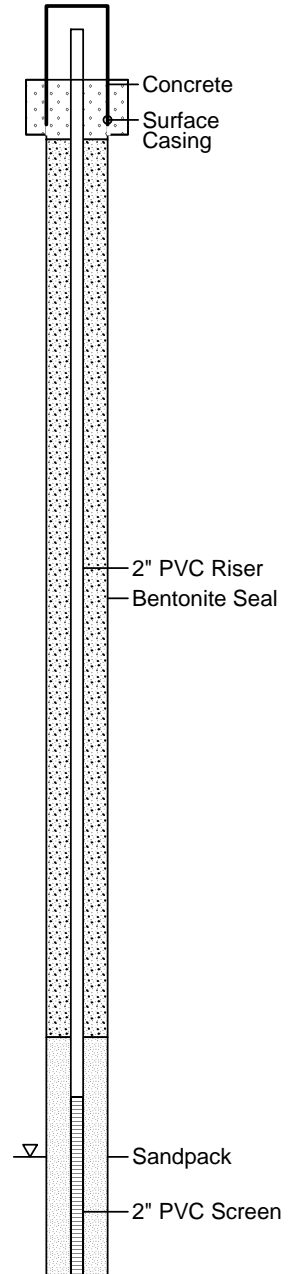
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.49
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels	
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	DESCRIPTION	
0										
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Well: AMW-4S
 Elev.: 730.77



Remarks:
 AMW-4S was blank drilled adjacent to AMW-4D. See log of well AMW-4D for a description of soils. No soil samples from AMW-4S were submitted for laboratory analyses.



Date Started : 5/23/2012
 Date Completed : 5/23/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 27'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 22.88

LOG OF BORING AMW-4S

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 728.49
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
20											<p>Well: AMW-4S Elev.: 730.77</p> <p>Sandpack 2" PVC Screen</p>
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

End of Boring

Remarks:

AMW-4S was blank drilled adjacent to AMW-4D. See log of well AMW-4D for a description of soils. No soil samples from AMW-4S were submitted for laboratory analyses.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 54'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.81

LOG OF BORING AMW-5D

(Page 1 of 3)

Ignition Park Site
 South Bend, Indiana

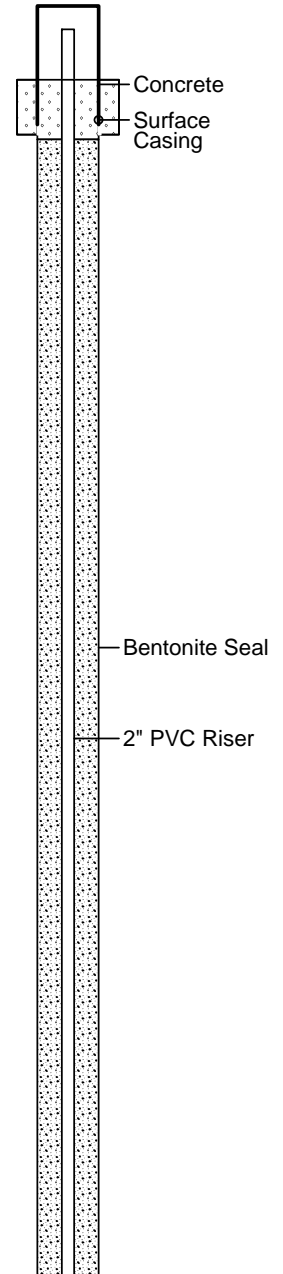
G. Elev. (ft USGS) : 729.36
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	DESCRIPTION	Soil Samples		Water Levels	
								Sample Interval	Lab Sample	Static	During drilling
0	2.0/0.5	SP1/SS1	NA	8-10-10-15	☒		0.0 to 0.5 - Loose dark brown TOPSOIL, dry.				
1											
2	2.0/2.0	SP2/SS2	NA	4-5-7-9	☒		2.0 to 4.0 - Loose dark brown SAND & GRAVEL, dry.				
3											
4	2.0/1.3	SP3/SS3	NA	5-8-10-12	☒		4.0 to 5.3 - Same as Above (SAA).				
5											
6	2.0/1.6	SP4/SS4	NA	5-7-5-5	☒		6.0 to 7.6 - SAA				
7											
8	2.0/1.1	SP5/SS5	NA	4-6-9-10	☒		8.0 to 9.1 - SAA				
9											
10	2.0/1.3	SP6/SS6	NA	6-8-9-10	☒		10.0 to 11.3 - SAA				
11											
12	2.0/1.1	SP7/SS7	NA	4-5-4-4	☒		12.0 to 13.1 - Loose light brown SAND, moist.				
13											
14	2.0/1.1	SP8/SS8	NA	4-4-3-5	☒		14.0 to 15.1 - SAA				
15											
16	2.0/1.2	SP9/SS9	NA	5-7-10-14	■		16.0 to 17.2 - SAA				
17											
18	2.0/1.1	SP10/SS10	NA	7-7-10-9	☒		18.0 to 19.1 - SAA				
19											
20											

Well: AMW-5D
 Elev.: 731.60



Remarks:
 Soil samples SBI068:AMW5D:S160172 and SBI068:AMW5D:S220225 were submitted to laboratory for analysis.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 54'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.81

LOG OF BORING AMW-5D

(Page 2 of 3)

Ignition Park Site
 South Bend, Indiana

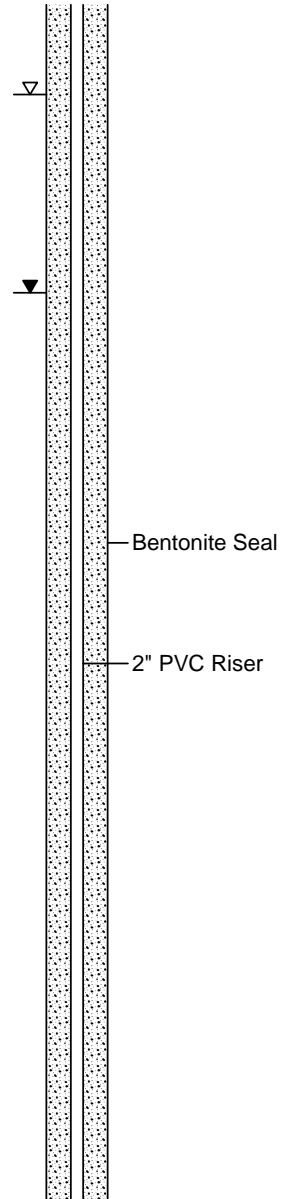
G. Elev. (ft USGS) : 729.36
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
20	2.0/1.1	SP11/SS11	NA	6-7-7-9							20.0 to 21.1 - SAA
21											
22	2.0/1.2	SP12/SS12	NA	NA							22.0 to 22.5 - SAA
23											22.5 to 23.2 - Coarse brown SAND & GRAVEL, trace cobble, wet
24	2.0/0.9	SP13/SS13	NA	5-5-4-5							24.0 to 24.9 - SAA
25											
26	2.0/1.4	SP14/SS14	NA	4-7-9-8							26.0 to 27.4 - SAA
27											
28	2.0/0.6	SP15/SS15	NA	7-7-10-12							28.0 to 28.6 - SAA
29											
30	2.0/0.8	SP16/SS16	NA	6-7-7-12							30.0 to 30.8 - SAA
31											
32	2.0/1.0	SP17/SS17	NA	5-5-6-8							32.0 to 33.0 - SAA
33											
34	2.0/1.1	SP18/SS18	NA	6-6-6-9							34.0 to 35.1 - SAA
35											
36	2.0/1.1	SP19/SS19	NA	4-6-5-6							36.0 to 37.1 - Loose brown SAND & GRAVEL, wet
37											
38	2.0/1.3	SP20/SS20	NA	5-7-7-10							38.0 to 39.3 - SAA
39											
40											

Well: AMW-5D
 Elev.: 731.60



Remarks:
 Soil samples SBI068:AMW5D:S160172 and SBI068:AMW5D:S220225 were submitted to laboratory for analysis.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 54'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.81

LOG OF BORING AMW-5D

(Page 3 of 3)

Ignition Park Site
 South Bend, Indiana

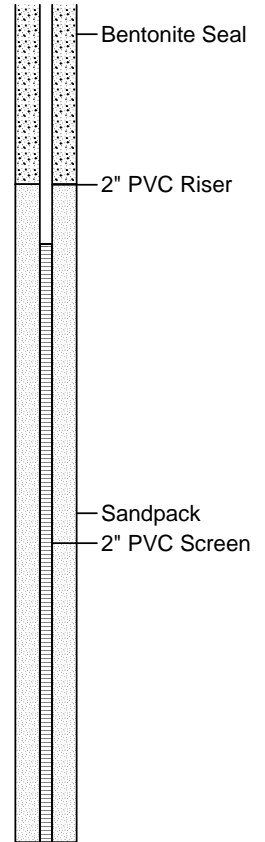
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 729.36
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples	Water Levels	DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	
40	2.0/0.8	SP21/SS21	NA	5-7-7-9	<input checked="" type="checkbox"/>				40.0 to 40.8 - SAA
41									
42	2.0/0.7	SP22/SS22	NA	4-6-6-8	<input checked="" type="checkbox"/>				42.0 to 42.7 - SAA
43									
44	2.0/0.8	SP23/SS23	NA	4-6-6-8	<input checked="" type="checkbox"/>				44.0 to 44.8 - SAA
45									
46	2.0/1.4	SP24/SS24	NA	5-7-8-11	<input checked="" type="checkbox"/>				46.0 to 47.4 - SAA
47									
48	2.0/0.4	SP25/SS25	NA	4-4-6-8	<input checked="" type="checkbox"/>				48.0 to 48.4 - SAA
49									
50	2.0/0.9	SP26/SS26	NA	5-8-5-9	<input checked="" type="checkbox"/>				50.0 to 50.9 - SAA
51									
52	2.0/0.8	SP27/SS27	NA	5-6-5-9	<input checked="" type="checkbox"/>				52.0 to 52.8 - SAA
53									
54									End of Boring
55									
56									
57									
58									
59									
60									

Well: AMW-5D
 Elev.: 731.60



Remarks:
 Soil samples SBI068:AMW5D:S160172 and SBI068:AMW5D:S220225 were submitted to laboratory for analysis.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 42'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.69

LOG OF BORING AMW-5I

(Page 1 of 3)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 729.36
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling			
0											<p>Well: AMW-5I Elev.: 731.49</p> <p>Concrete Surface Casing 2" PVC Riser Bentonite Seal</p>
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Remarks:
 AMW-5I was blank drilled adjacent to AMW-5D. See log of well AMW-5D for a description of soils. No soil samples from AMW-5I were submitted for laboratory analyses.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 42'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.69

LOG OF BORING AMW-5I

(Page 2 of 3)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 729.36
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	Well: AMW-5I Elev.: 731.49		
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

Remarks:
 AMW-5I was blank drilled adjacent to AMW-5D. See log of well AMW-5D for a description of soils. No soil samples from AMW-5I were submitted for laboratory analyses.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 42'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.69

LOG OF BORING AMW-5I

(Page 3 of 3)

Ignition Park Site
 South Bend, Indiana

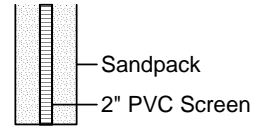
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 729.36
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
40											Well: AMW-5I Elev.: 731.49
41											
42											
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											

End of Boring



Remarks:
 AMW-5I was blank drilled adjacent to AMW-5D. See log of well AMW-5D for a description of soils. No soil samples from AMW-5I were submitted for laboratory analyses.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 30'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.88

LOG OF BORING AMW-5S

(Page 1 of 2)

Ignition Park Site
 South Bend, Indiana

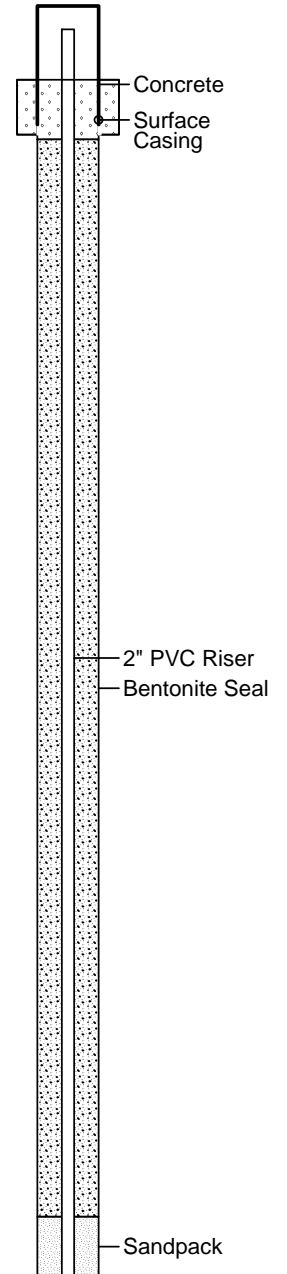
G. Elev. (ft USGS) : 729.40
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
							DESCRIPTION				
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Well: AMW-5S
 Elev.: 731.67



Remarks:
 AMW-5S was blank drilled adjacent to AMW-5D. See log of well AMW-5D for a description of soils. No soil samples from AMW-5S were submitted for laboratory analyses.



Date Started : 5/31/2012
 Date Completed : 5/31/2012
 Logged By : Ryan Sievers
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 30'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.88

LOG OF BORING AMW-5S

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 729.40
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							<input type="checkbox"/> Sample Interval <input type="checkbox"/> Lab Sample	<input type="checkbox"/> Static <input type="checkbox"/> During drilling	Well: AMW-5S Elev.: 731.67		
20											<p>Sandpack 2" PVC Screen</p>
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

End of Boring

Remarks:
 AMW-5S was blank drilled adjacent to AMW-5D. See log of well AMW-5D for a description of soils. No soil samples from AMW-5S were submitted for laboratory analyses.



Date Started : 5/21/2012
 Date Completed : 5/21/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 42'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 26.03

LOG OF BORING AMW-6I

(Page 1 of 3)

Ignition Park Site
 South Bend, Indiana

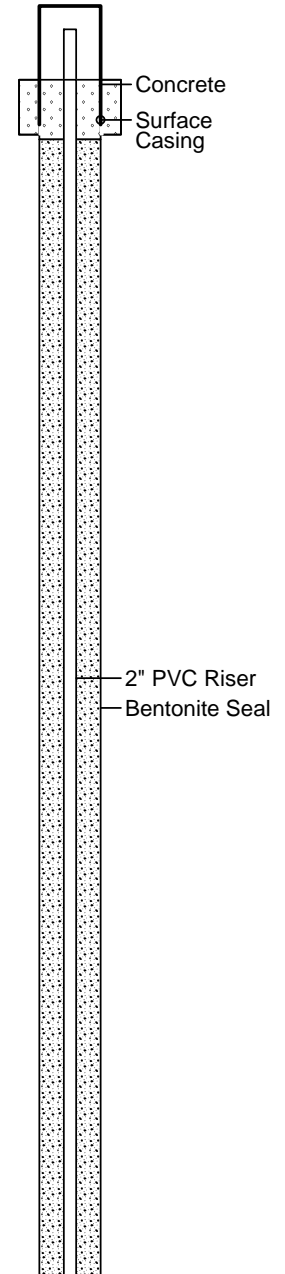
G. Elev. (ft USGS) : 726.70
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
0	2.0/1.5	SP1/SS1	NA	10-10-8-5	☒						0.0 to 1.5 - Loose brown SAND, trace silt, dry
1					☒						
2	2.0/1.0	SP2/SS2	NA	6-6-4-4	☒						2.0 to 3.0 - Loose light brown SAND, trace gravel, dry.
3					☒						
4	2.0/1.3	SP3/SS3	NA	4-4-5-5	■						4.0 to 5.3 - Same as Above (SAA).
5					■						
6	2.0/1.0	SP4/SS4	NA	2-3-4-3	☒						6.0 to 7.0 - SAA
7					☒						
8	2.0/0.5	SP5/SS5	NA	1-2-2-4	☒						8.0 to 8.5 - SAA
9					☒						
10	2.0/1.0	SP6/SS6	NA	3-2-2-4	☒						10.0 to 11.0 - SAA
11					☒						
12	2.0/1.3	SP7/SS7	NA	2-3-3-3-4	☒						12.0 to 13.3 - SAA
13					☒						
14	2.0/0.7	SP8/SS8	NA	6-7-9-10	☒						14.0 to 14.7 - Loose light brown SAND & GRAVEL, dry.
15					☒						
16	2.0/1.0	SP9/SS9	NA	6-6-9-8	☒						16.0 to 17.0 - SAA
17					☒						
18	2.0/1.0	SP10/SS10	NA	9-9-10-11	☒						18.0 to 19.0 - SAA
19					☒						
20					☒						

Well: AMW-6I
 Elev.: 728.84



Remarks:
 Soil samples SBI068:AMW6I:S040053 and SBI068:AMW6I:S200210 were submitted to laboratory for analysis.



Date Started : 5/21/2012
 Date Completed : 5/21/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 42'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 26.03

LOG OF BORING AMW-6I

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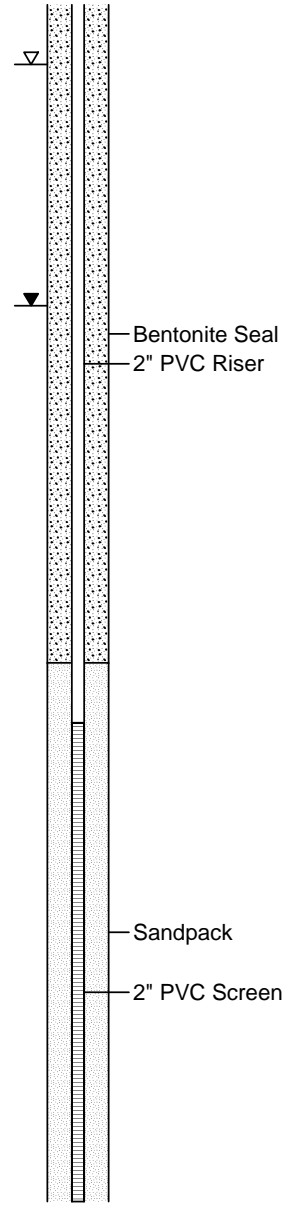
Ignition Park Site
 South Bend, Indiana

G. Elev. (ft USGS) : 726.70
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION	Well: AMW-6I Elev.: 728.84
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling		
20	2.0/1.3	SP11/SS11	NA	5-6-8-8	■							
21												
22	2.0/0.8	SP12/SS12	NA	6-6-8-4	☒							
23												
24	2.0/1.2	SP13/SS13	NA	4-3-6-6	☒							
25												
26	2.0/0.7	SP14/SS14	NA	3-4-6-6	☒							
27												
28	2.0/0.7	SP15/SS15	NA	4-4-5-7	☒							
29												
30	2.0/1.0	SP16/SS16	NA	4-6-6-7	☒							
31												
32	2.0/0.5	SP17/SS17	NA	4-4-4-5	☒							
33												
34	2.0/1.0	SP18/SS18	NA	3-3-4-6	☒							
35												
36	2.0/1.3	SP19/SS19	NA	4-4-5-8	☒							
37												
38	2.0/1.0	SP20/SS20	NA	4-4-6-8	☒							
39												
40												



Remarks:
 Soil samples SBI068:AMW6I:S040053 and SBI068:AMW6I:S200210 were submitted to laboratory for analysis.



Date Started : 5/21/2012
 Date Completed : 5/21/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 42'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 26.03

LOG OF BORING AMW-6I

(Page 3 of 3)

Ignition Park Site
 South Bend, Indiana

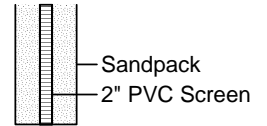
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 726.70
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
40	2.0/1.0	SP21/SS21	NA	3-3-4-4							40.0 to 41.0 - SAA
41											
42											End of Boring
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											

Well: AMW-6I
 Elev.: 728.84



Remarks:
 Soil samples SBI068:AMW6I:S040053 and SBI068:AMW6I:S200210 were submitted to laboratory for analysis.



Date Started : 5/21/2012
 Date Completed : 5/21/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 30'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 26.03

LOG OF BORING AMW-6S

(Page 1 of 2)

Ignition Park Site
 South Bend, Indiana

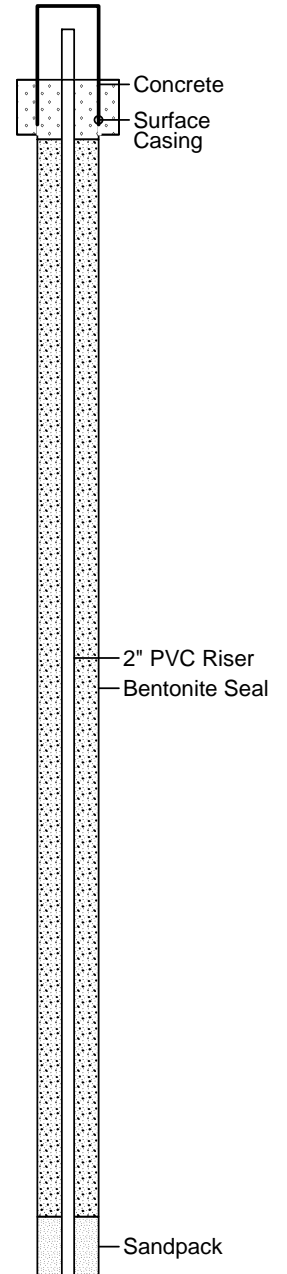
G. Elev. (ft USGS) : 726.69
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval 	Lab Sample 	Static 	During drilling 	
							DESCRIPTION				
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Well: AMW-6S
 Elev.: 728.85



Remarks:
 AMW-6S was blank drilled adjacent to AMW-6I. See log of well AMW-6I for a description of soils. No soil samples from AMW-6S were submitted for laboratory analyses.



Date Started : 5/21/2012
 Date Completed : 5/21/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 30'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 26.03

LOG OF BORING AMW-6S

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 726.69
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
20											<p>Well: AMW-6S Elev.: 728.85</p> <p>Sandpack 2" PVC Screen</p>
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

End of Boring

Remarks:
 AMW-6S was blank drilled adjacent to AMW-6I. See log of well AMW-6I for a description of soils. No soil samples from AMW-6S were submitted for laboratory analyses.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 42'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.96

LOG OF BORING AMW-71

(Page 1 of 3)

Ignition Park Site
 South Bend, Indiana

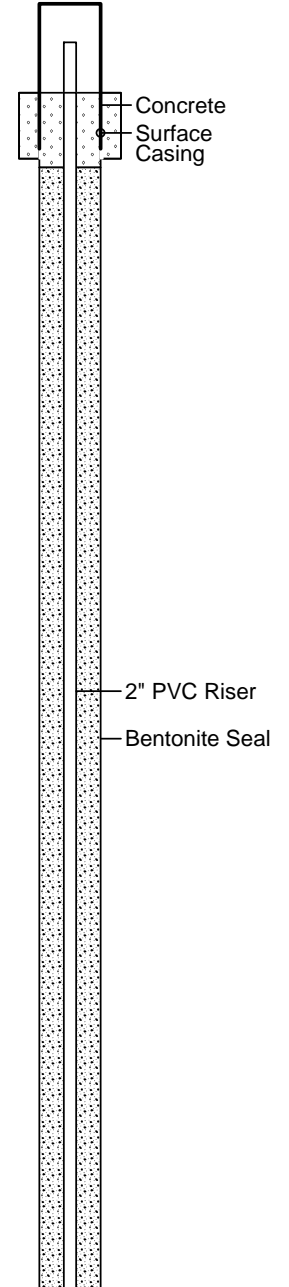
G. Elev. (ft USGS) : 726.08
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
0	2.0/1.1	SP1/SS1	NA	7-8-10-10	☒						0.0 to 0.3 - Loose dark brown TOPSOIL, dry.
1											0.3 to 1.1 - Loose dark brown SAND, trace silt, trace gravel, dry.
2	2.0/1.5	SP2/SS2	NA	4-4-6-4	☒						2.0 to 2.3 - Same as Above (SAA).
3											2.3 to 3.5 - Loose light brown SAND & GRAVEL, dry.
4	2.0/1.5	SP3/SS3	NA	4-5-5-7	■						4.0 to 5.5 - SAA
6	2.0/1.1	SP4/SS4	NA	3-3-4-4	☒						6.0 to 7.1 - SAA
8	2.0/0.8	SP5/SS5	NA	2-3-3-3	☒						8.0 to 8.8 - SAA
10	2.0/0.8	SP6/SS6	NA	4-4-6-6	☒						10.0 to 10.8 - SAA
12	2.0/1.2	SP7/SS7	NA	4-6-8-11	☒						12.0 to 13.2 - SAA
14	2.0/1.0	SP8/SS8	NA	4-6-7-4	☒						14.0 to 15.0 - SAA

Well: AMW-71
 Elev.: 728.63



Remarks:
 Soil samples SBI068:AMW71:S040055 and SBI068:AMW71:S200211 were submitted to laboratory for analysis.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 42'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.96

LOG OF BORING AMW-71

(Page 2 of 3)

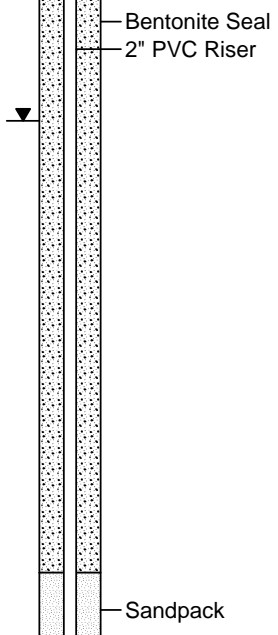
Ignition Park Site
 South Bend, Indiana

G. Elev. (ft USGS) : 726.08
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	DESCRIPTION	Soil Samples		Water Levels		Well: AMW-71 Elev.: 728.63
								☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
16	2.0/1.0	SP9/SS9	NA	7-9-10-14	☒		16.0 to 17.0 - SAA					
17												
18	2.0/0.9	SP10/SS10	NA	7-8-10-12	☒		18.0 to 18.9 - SAA					
19												
20	2.0/1.1	SP11/SS11	NA	4-6-8-10	■		20.0 to 21.1 - SAA					
21										▽		
22	2.0/1.3	SP12/SS12	NA	6-7-10-12	☒		22.0 to 23.3 - Loose light brown SAND & GRAVEL, very moist.					
23												
24	2.0/0.9	SP13/SS13	NA	5-6-6-6	☒		24.0 to 24.9 - Loose brown SAND & GRAVEL, wet.					
25										▼		
26	2.0/1.3	SP14/SS14	NA	8-14-8-8	☒		26.0 to 27.3 - SAA					
27												
28	2.0/0.9	SP15/SS15	NA	6-6-7-10	☒		28.0 to 28.9 - SAA					
29												
30	2.0/0.9	SP16/SS16	NA	5-5-8-8	☒		30.0 to 30.9 - SAA					
31												
32												



Remarks:
 Soil samples SBI068:AMW71:S040055 and SBI068:AMW71:S200211 were submitted to laboratory for analysis.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 42'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 25.96

LOG OF BORING AMW-71

(Page 3 of 3)

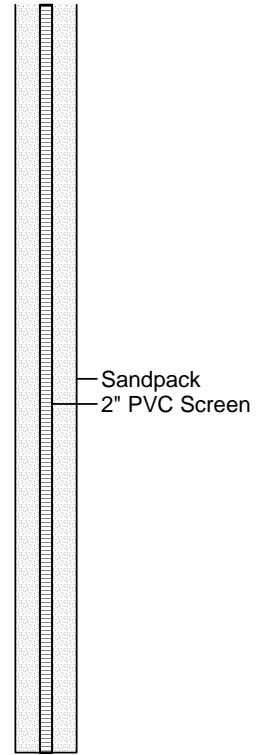
Ignition Park Site
 South Bend, Indiana

G. Elev. (ft USGS) : 726.08
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION	Well: AMW-71 Elev.: 728.63
							Sample Interval	Lab Sample	Static	During drilling		
32	2.0/1.0	SP17/SS17	NA	4-4-5-6								
33												
34	2.0/0.9	SP18/SS18	NA	5-5-6-7								
35												
36	2.0/1.3	SP19/SS19	NA	5-5-7-9								
37												
38	2.0/0.9	SP20/SS20	NA	5-7-9-13								
39												
40	2.0/1.1	SP21/SS21	NA	6-6-6-7								
41												
42												
43												
44												
45												
46												
47												
48												



End of Boring

Remarks:
 Soil samples SBI068:AMW71:S040055 and SBI068:AMW71:S200211 were submitted to laboratory for analysis.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 30'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 26.20

LOG OF BORING AMW-7S

(Page 1 of 2)

Ignition Park Site
 South Bend, Indiana

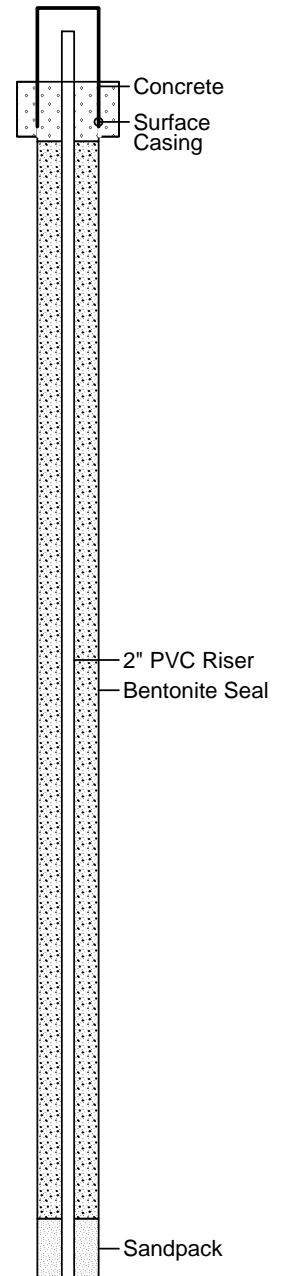
Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 726.02
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		
							Sample Interval 	Lab Sample 	Static 	During drilling 	
							DESCRIPTION				
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Well: AMW-7S
 Elev.: 728.37



Remarks:
 AMW-7S was blank drilled adjacent to AMW-71. See log of well AMW-71 for a description of soils. No soil samples from AMW-7S were submitted for laboratory analyses.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 30'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 26.20

LOG OF BORING AMW-7S

(Page 2 of 2)

Ignition Park Site
 South Bend, Indiana

Project Number: SBI068

Project Manager: Doug Stuart

G. Elev. (ft USGS) : 726.02
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION
							Sample Interval	Lab Sample	Static	During drilling	
20											<p>Well: AMW-7S Elev.: 728.37</p> <p>Sandpack 2" PVC Screen</p>
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											

End of Boring

Remarks:
 AMW-7S was blank drilled adjacent to AMW-71. See log of well AMW-71 for a description of soils. No soil samples from AMW-7S were submitted for laboratory analyses.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 41'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 24.30

LOG OF BORING AMW-8I

(Page 1 of 3)

Ignition Park Site
 South Bend, Indiana

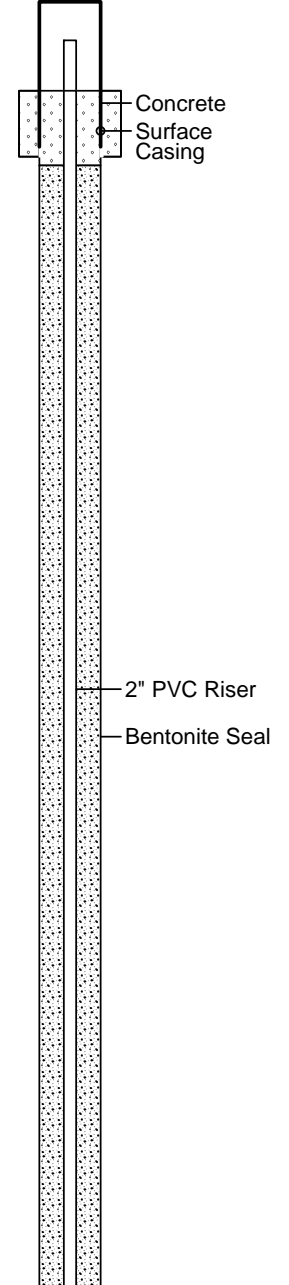
G. Elev. (ft USGS) : 725.08
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	DESCRIPTION	Soil Samples		Water Levels	
								☒ Sample Interval	▀ Static	▾ During drilling	
0	2.0/1.0	SP1/SS1	NA	10-12-15-19	☒		0.0 to 0.2 - Loose brown TOPSOIL, dry. 0.2 to 1.0 - Loose dark brown SAND, trace silt, dry.				
1											
2	2.0/1.0	SP2/SS2	NA	5-7-9-13	☒		2.0 to 3.0 - Same as Above (SAA).				
3											
4	2.0/0.9	SP3/SS3	NA	11-13-13-15	☒		4.0 to 4.9 - Loose light brown SAND & GRAVEL, dry.				
5											
6	2.0/1.3	SP4/SS4	NA	2-5-8-8	☒		6.0 to 7.3 - SAA				
7											
8	2.0/1.1	SP5/SS5	NA	5-5-7-9	☒		8.0 to 9.1 - SAA				
9											
10	2.0/1.0	SP6/SS6	NA	4-4-3-3	☒		10.0 to 11.0 - SAA				
11											
12	2.0/1.2	SP7/SS7	NA	7-7-9-8	☒		12.0 to 13.2 - SAA				
13											
14	2.0/1.2	SP8/SS8	NA	6-6-7-6	☒		14.0 to 15.2 - SAA				
15											
16											

Well: AMW-8I
 Elev.: 727.38



Remarks:
 Soil sample SBI068:AMW8I:S200212 was submitted to laboratory for analysis.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 41'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 24.30

LOG OF BORING AMW-8I

(Page 2 of 3)

Ignition Park Site
 South Bend, Indiana

G. Elev. (ft USGS) : 725.08
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	DESCRIPTION	Soil Samples		Water Levels		Well: AMW-8I Elev.: 727.38
								☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling	
16	2.0/0.8	SP9/SS9	NA	6-7-10-14	☒		16.0 to 16.8 - SAA					
17												
18	2.0/1.1	SP10/SS10	NA	6-6-7-9	☒		18.0 to 19.1 - SAA					
19												
20	2.0/1.2	SP11/SS11	NA	4-5-7-7	■		20.0 to 20.5 - SAA			▽		
21							20.5 to 21.2 - Loose light brown SAND & GRAVEL, wet.					
22	2.0/1.0	SP12/SS12	NA	7-7-7-9	☒		22.0 to 23.0 - SAA					
23												
24	2.0/1.3	SP13/SS13	NA	5-5-7-8	☒		24.0 to 25.3 - SAA			▼		Bentonite Seal 2" PVC Riser
25												
26	2.0/0.4	SP14/SS14	NA	4-4-6-6	☒		26.0 to 26.9 - SAA					
27												
28	2.0/1.3	SP15/SS15	NA	6-7-5-7	☒		28.0 to 29.3 - SAA					
29												
30	2.0/0.9	SP16/SS16	NA	6-6-6-7	☒		30.0 to 30.4 - SAA					
31												
32												Sandpack 2" PVC Screen

Remarks:
 Soil sample SBI068:AMW8I:S200212 was submitted to laboratory for analysis.



Date Started : 5/22/2012
 Date Completed : 5/22/2012
 Logged By : B. Anderson
 Reviewed By : Doug Stuart
 Drilling Contractor : D&T Drilling
 Drilling Method : 4.25" HSA
 Sampling Method : Split Spoon
 Total Depth : 41'
 S. Water Level Date : 6/5/2012
 S. Water Level (ft) : 24.30

LOG OF BORING AMW-8I

(Page 3 of 3)

Ignition Park Site
 South Bend, Indiana

G. Elev. (ft USGS) : 725.08
 PID/FID Model : Mini Rae 3000
 PID/FID Calibration : 0=0.0 / 100ppm=100.1

Project Number: SBI068

Project Manager: Doug Stuart

Depth in Feet	Sample Interval/ Sample Recovery	Sampler Type/ Sample Number	PID/FID (ppm)	Blow Count (6"-6"-6"-6")	Samples	GRAPHIC	Soil Samples		Water Levels		DESCRIPTION	Well: AMW-8I Elev.: 727.38
							☒ Sample Interval	■ Lab Sample	▼ Static	▽ During drilling		
32	2.0/1.0	SP17/SS17	NA	6-9-9-7	☒						32.0 to 33.0 - SAA	<p>Sandpack 2" PVC Screen</p>
33												
34	2.0/0.6	SP18/SS18	NA	4-4-9-7	☒						34.0 to 34.6 - SAA	
35												
36	2.0/1.3	SP19/SS19	NA	4-4-6-7	☒						36.0 to 36.8 - SAA	
37											36.8 to 37.3 - Loose dark gray SAND & GRAVEL, strong odor, wet.	
38	2.0/1.5	SP20/SS20	NA	6-6-6-7	☒						38.0 to 39.5 - SAA	
39												
40	2.0/1.0	SP21/SS21	NA	6-5-8-6	☒						40.0 to 41.0 - SAA	
41											End of Boring	
42												
43												
44												
45												
46												
47												
48												

Remarks:
 Soil sample SBI068:AMW8I:S200212 was submitted to laboratory for analysis.

APPENDIX A

Soil Boring Logs and Monitoring Well Construction Diagrams

APPENDIX B

**Environmental Investigation, South Bend Lathe, 400 W. Sample Street, South Bend,
Indiana by EIS Environmental Engineers, Inc.**

APPENDIX C

Spill Report, Allied Products Incorporated Facility, South Bend, Indiana by APT

APPENDIX D

Site Investigation Report, Allied Products Corporation Stamping Plant Facility, South Bend, Indiana by APT

APPENDIX E

UST Closure Assessment – Studebaker Building 92 by Grauvogel & Associates

APPENDIX F

**Report for an Initial Phase II Environmental Site Assessment for the South Bend Area A
Properties by Hull**

APPENDIX G

Site Assessment Report, South Bend Stamping Site by Tetra Tech EM

APPENDIX H

**Soil Remediation Completion Report, Studebaker/Oliver Redevelopment Project, Area A
Stamping Plant Property by KERAMIDA**

APPENDIX I

Laboratory Reports from Phase I Demolition Project by STAT Analysis

APPENDIX J

UST Closure Report from Phase I Demolition by Amereco

APPENDIX K

**In-Situ Chemical Oxidation Pilot Study and Groundwater Sampling Event Reports by
Weaver Boos**

APPENDIX L

Phase I ESA of the Indiana and Michigan Electric Company Substation Property by Hull

APPENDIX M

CERCLA Removal Action Report for the South Bend Lathe Site by WESTON

APPENDIX N

Documentation for Phase II Demolition by Amereco et al.

APPENDIX O

Soil Characterization of Former Studebaker Foundry Reservoir by Weaver Boos

APPENDIX P

Additional Phase II ESA of Huckins Tool & Die and South Bend Lathe by Hull

APPENDIX Q

Report Documenting Soil Remediation Activities by Hull

APPENDIX R

**Documentation of Removal of USTs from Former Studebaker Engineering Building by
Weaver Boos**

APPENDIX S

Laboratory Analytical Reports from Temporary Groundwater Sampling Event – April 2012

APPENDIX T

**Laboratory Analytical Reports from Groundwater and Soil Gas Sampling Events – May
through August 2012**

APPENDIX U

Off-Site Water Usage Research Documentation