SECTION E

GROUNDWATER MONITORING

MotivePower
A Wabtec company

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E. GROUNDWATER MONITORING

E-0 Groundwater Monitoring

This groundwater monitoring section, including associated appendices, is intended to describe the site characteristics, as required by Idaho Administrative Procedures Act (IDAPA) 58.01.05.012 (40 Code of Federal Regulations [CFR] §270.28). In addition, data relevant to developing and implementing the groundwater monitoring requirements of IDAPA 58.01.05.008 (40 CFR §264.97) for the Wabtec-MotivePower (MP) facility in Boise, Idaho are also presented within this section. The Post-Closure Permit (Permit) application was formatted after the United States Environmental Protection Agency (U.S. EPA) Completeness/Technical Evaluation Checklist, Revision 8, 12/93 (U.S. EPA Checklist) to aid in review of this document. The United States Environmental Protection Agency (U.S. EPA) Checklist is included as Appendix A-1.

Detailed site characterization information, well data, well abandonment, water chemistry, and water level data collected since the 1988 Site Characterization Report were submitted to the appropriate regulatory agencies and are maintained in the permanent operating record at the MP facility. Section E combines the pertinent information that has been developed to provide a consolidated and updated description of the physical and aqueous chemical characteristics of the site. The information and analyses provide the technical basis for the groundwater monitoring program (GWMP) for the Permit renewal period. To help keep Section E to a manageable size, supporting documents and other information contained in the operating record are referenced rather than included as appendices attached to this Permit application.

E-0a *General Background*

As described in Section B of this Permit application, heavy equipment repair and locomotive remanufacturing commenced at the Morrison-Knudsen Company (MK), Boise Industrial Complex in 1969. Solvents were used for cleaning parts and equipment during the repair and remanufacturing process. Wastewater containing solvents generated from the equipment cleaning process was discharged to two in-ground wastewater separation basins (one located adjacent to the Small Paint Shop and one south of the Locomotive Shop) that were connected to buried drain fields via overflow-decant structures. Wastewater treatment consisted of settlement and skimming of petroleum products. The treated wastewater was decanted into overflow pipes that emptied into each respective drain field. This wastewater treatment system was in operation until 1984.

In accordance with the Drain Field Closure Plan (MK, 1986) that was submitted and approved by the Idaho Department of Health and Welfare (IDHW) in November 1987, the buried drain fields were closed as RCRA-regulated waste management units (WMUs) on July 18, 1988. At that time the asphalt cap was completed over the Locomotive Shop Basin and non-regulated Waste Disposal Trench (LSB/WDT) located in the southeastern portion of the facility. This asphalt cap and the pre-existing asphalt cap overlying the Paint Shop Basin (PSB) are located in the central portion of the facility and are designed to minimize infiltration of rain water and the migration of hazardous constituents to groundwater from the WMUs (MK, 1988a). The certification of closure and post-closure notices were signed on August 11, 1988 and submitted to U.S. EPA Region 10 in accordance with IDAPA 16.01.05.008 (40 CFR §264.115 and §264.119) respectively.

MP has conducted extensive environmental sampling and hydrogeologic characterization studies to evaluate conditions associated with releases from the WMUs. Numerous borings were advanced, wells were installed, and chemical and physical testing was conducted to describe the subsurface conditions to help develop an effective GWMP for the site.

The interim status GWMP revealed the migration of dissolved volatile organic compound (VOC) constituents to the uppermost groundwater aquifer (A-Zone), beneath the closed PSB WMU. As a result of identifying these VOCs, an on-site groundwater recovery and treatment system for the A-Zone was initiated in October 1990. This system was generally effective in maintaining the approximate center of the highest VOC levels on-site, thus minimizing potential off-site migration and exposure (IEG, 2000a). The system was shut down in 2002.

The groundwater recovery system consisted of five recovery wells (RW-1, RW-3, RW-4, RW-6, and RW-7). However, RW-7 was used only periodically because of operational problems (IEG, 2000a). The recovery wells were networked to a groundwater treatment plant (GWTP) where groundwater was previously treated by air sparging and carbon absorption prior to discharge to the sewer system under an Industrial Wastewater Acceptance (IWA) Permit administered by the City of Boise, Idaho. Semi-annual compliance reports summarizing the operation and discharge of the GWTP to the City of Boise treatment facility were previously submitted to the Boise treatment facility Public Works Department.

The GWTP operated until September 23, 2002. The system was shut down when the emulsified vegetable oil (EVO, VegOil) treatment pilot program was implemented in September 2002. As of system shut down, approximately 9,047,413.1 gallons of groundwater was recovered, treated and discharged to the sewer system, as measured by the GWTP flow totalizer. In June 2002, a total VOC concentration of 504.2 µg/l was reported for the GWTP influent from the recovery well network. The historical maximum average VOC concentrations of 1,202.6 µg/l and 1,219.5 µg/l occurred in 1995 and 1996, respectively.

MP presently operates under RCRA Permit No. IDD980976831 (effective date of August 7, 2002), which is administered by the Idaho Department of Environmental Quality (IDEQ).

In general, the Permit issued under IDAPA 16.01.05.012 (40 CFR §270) presently requires closure cap maintenance, financial assurance, and semi-annual and annual on-site groundwater monitoring of the shallow A-Zone and deeper B-Zone. MP does not actively treat or dispose of hazardous waste in WMUs at the facility. The regulatory history of the WMUs is briefly described in Section B-1c.

E-0b *On- and Off-Site Investigation History*

Beginning in 1990, MP began installing an extensive network of on- and off-site groundwater wells to monitor and/or collect and treat impacted shallow A-Zone groundwater, to monitor the movement of the shallow plume of dissolved constituents, and to monitor deeper groundwater zones. Because the flow direction of shallow A-Zone water was generally to the north, MP began the groundwater investigation work in that direction. The GWMP revealed the migration of dissolved VOC constituents from the WMUs across three distinct geographic terraces or benches, namely the Sunrise Terrace (where the facility is located), the Whitney Terrace, and the Boise Terrace.

Pertinent investigations and reports that were conducted after the 1988 Site Characterization are summarized below:

- *Engineering Evaluation Report of the Upper Perched Groundwater Zone at the Morrison-Knudsen Boise Industrial Complex* (MK, 1990a): This evaluation was to support the design of corrective action proposed for the spring of 1990 pertaining to groundwater contamination of the A-Zone at the facility. This evaluation was based on the July 1988 Site Characterization and additional work performed in 1989, which consisted of pumping tests, water treatment studies, and groundwater monitoring.

- *Assessment Reports of Corrective Action/Semi-Annual Reports*: These reports were prepared by MK from 1991 to 1993 (MK, 1991a to 1993), MK Rail Corporation (MK Rail) from 1994 to 1996 (MK Rail, 1994a to 1996), MotivePower Industries (MPI) during 1997 (MPI, 1997a), Idaho Engineering & Geology, (IEG) from 1998 to 2000 (IEG, 1998 to 2000a), and AGI from 2000 to the present. These reports have been submitted semi-annually to the IDEQ and include a narrative summary of the groundwater monitoring data that have been collected to date, a discussion of the effectiveness of the corrective action monitoring program (CAMP) with meeting the existing Groundwater Protection Standards (GPS), a summary of maintenance work

conducted on the groundwater monitoring equipment, and tables summarizing the groundwater elevations, constituent concentrations, and other monitored parameters. These reports also include an evaluation of data collected from the B-Zone.

- *Report of Detection Monitoring*: These reports were prepared by MK from 1991 to 1993 (MK, 1991b to 1993), MK Rail from 1994 to 1996 (MK Rail, 1994b to 1996), MPI in 1997 (MPI, 1997b), and IEG from 1998 to 2000 (IEG, 1998 to 2000b): These reports were submitted semi-annually to the IDEQ and include a summary of the groundwater monitoring data, the results of the groundwater flow direction and rate calculations, and a summary of maintenance work conducted on the groundwater monitoring equipment.

- *Report of Off-site Investigation, MKC-BLS* (MK, 1993): This report summarizes the results of additional drilling and sampling activities related to off-site groundwater constituents in the Whitney Terrace. Several geologic cross-section profiles were developed from drilling logs and are included in that report.

- *Phase I Solute Transport Modeling of the A-Zone at the Morrison-Knudsen Boise Locomotive Operations Site, Boise, Idaho* (Ralston, 1994): The purpose of the modeling effort was to better understand the transport characteristics of VOCs in the A-Zone underlying the facility, in support of a risk assessment.

- *Report of Off-Site Investigation, Morrison Knudsen Corporation, MK Rail Corporation, Boise Locomotive Operations*, March 1995 (MK Rail, 1995a): This report summarizes the results of the drilling, well installation, and water sampling activities related to evaluating the presence and extent of off-site groundwater constituents in the Boise Terrace north of the New York Canal. Several geologic cross-section profiles were developed from drilling logs and are included in that report.

- *Report of Off-site Investigation, Boise Locomotive Operations, MK Rail Corporation*, November 1995 (MK Rail, 1995b): This report presents an evaluation of the potential for hydraulic communication between the upper shallow groundwater of the Boise Terrace Deposits and the deeper groundwater zones, potential surface sources of groundwater recharge, natural attenuation of dissolved constituents, and potential groundwater receptors.

- *Phase II Solute Transport Modeling of the A-Zone at the Morrison-Knudsen Boise Locomotive Operations Site, Boise, Idaho* (Ralston, 1996): The purpose of the modeling effort was to support the risk assessment effort related to VOCs in the A-Zone.

- *SE Boise Apple Street, Groundwater Contamination Site, Expanded Site Inspection (ESI), TDD: 97-02-0012,* (Region 10 Superfund Technical Assessment and Response Team [START], 1998): This ESI was prepared by the Region 10 START, in cooperation with the IDHW and IDEQ to support an evaluation of groundwater in the southeast Boise area. The ESI provides information and data regarding potential off-site contamination sources (including site characteristics, source delineation, and potential migration pathways). Data are provided to support the U.S. EPA Hazard Ranking System.

- *Final Risk Assessment for MotivePower Industries, Boise Locomotive Company (formerly MK Rail-BLO) Facility in Boise, Idaho* (RAM Group, 2001): This report provides a detailed evaluation of the potential risks associated with groundwater constituents and includes the results of a solute transport model (Ralston, 1996). This risk assessment report identifies private and municipal wells, and current and expected land use in the area. MP completed the initial human health risk assessment, based on the U.S. EPA guidelines, in 1996 and later updated the risk assessment in 1998 and 2001. The plume was divided into four different areas based upon similarities in factors that affect environmental and public health risk. The four different areas are shown on Figure E-1 (Site Vicinity and Well Location Map). The horizontal and vertical extent of the dissolved constituent plume in Areas 1 through 4 and the critical receptors, pathways, and routes of concern are described in Section E-5c. This document was then updated in December 2011 (The Mahfood Group, 2011). Specifically, the groundwater standards in the Risk Assessment were updated in December 2011 due to changes by the U.S. Environmental Protection Agency in the risk assessment process. A copy of the risk assessment and update/addendum is included in Appendix E-1.

- A pre-design investigation was conducted in the A-Zone (0 to 100 feet below ground surface [bgs]) at the MP facility. The results of the study were presented in a report entitled *Pre-Design Investigation Report, MotivePower Apple Street Facility, Boise, Idaho* (AGI, 2001b). The work was performed in two stages in accordance with work plans that were submitted to the IDEQ. The initial activities were implemented in June and July 2000 in accordance with the Scope of Work Addendum (SOW), dated June 8, 2000 (AGI, 2000a). The second stage was executed in November and December 2000 according to the Supplemental Studies Work Plan (SSWP), dated October 30, 2000 (AGI,

2000d). The purpose of the pre-design investigation was to collect additional hydrogeologic and chemical data to support the design of a source treatment technology to address the identified on-site impacts. Observation wells installed during the pre-design investigation revealed the presence of perched water conditions and the continuous water-bearing zone in the A-Zone at previously unidentified locations on the site. These areas included the western portion of the site adjacent to MW-2 (OW-SS4A), the Closed Locomotive Shop Basin, the Closed Waste Disposal Trench, and along the eastern border between monitoring wells MW-3 and MW-20A (OW-SS3A). The findings of the pre-design investigation, including the results from vadose zone and saturated zone injection testing, supported *insitu* chemical oxidation technology as a feasible remedial approach for treatment of impacted groundwater within the A-Zone at the facility.

- An off-site source demonstration was prepared in accordance with IDAPA 58.01.05.008 [40 CFR 264.98(g)(6)] to demonstrate that sources other than the regulated WMUs have impacted B-Zone groundwater in a report entitled, *Off-Site Source Demonstration – B-Zone, MotivePower Apple Street Facility, Boise, Idaho* (AGI, 2001c). MP received IDEQ concurrence with the findings of the off-site source demonstration in a letter dated October 30, 2001. A copy of the demonstration and IDEQ letter are included as Appendix E-2.

- A corrective measures implementation plan (CMIP) was prepared in December 2001 entitled, *Corrective Measures Implementation Plan, MotivePower Apple Street Facility, Boise, Idaho* (AGI, 2001d). As part of the CMIP, MP proposed to use a long-term monitoring plan to monitor the dissolved constituent plume over time and to verify that natural attenuation is occurring at rates sufficient to attain site-specific remediation objectives. This evaluation of natural attenuation processes (e.g., biodegradation, dispersion, sorption, volatilization) for use as a remedial alternative, in conjunction with other active remedies, was conducted to meet the objectives as specified in the U.S. EPA, Office of Solid Waste and Emergency Response (OSWER) Directive Number: 9200.4-17P, *Use of Monitored Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites, April 21, 1999* (OSWER Directive Number: 9200.4-17P). MP's long-term monitoring plan was designed to evaluate long-term behavior of the plume, verify that exposure to contaminants does not occur, verify that natural attenuation breakdown products do not pose additional risks, determine attenuation rates for refining predictions of remediation time frame, to document when site-specific remediation objectives have been attained, and to establish contingencies if groundwater

protection standards are exceeded. In addition, the CMIP detailed the implementation of other active remedies and contingencies such as asphalt cap maintenance, groundwater recovery and treatment, and on-site *insitu* chemical oxidation, which could be used in conjunction with long-term monitoring program. The CMIP has been revised. A copy of the CMIP is included as Appendix E-3.

- An *insitu* chemical oxidation pilot study began in December 2000 as indicated in a work plan submitted to the IDEQ in November 2000 (HSI, 2000). The pilot work was implemented in three phases. The Phase I and II pilot programs were implemented in December 2000 and March 2001, respectively. Phase III of the pilot program was completed in September 2001. The long-term performance of this treatment technology, which was designed to reduce constituent mass at the MP facility, was evaluated as part of the pilot-scale work and implemented in accordance with the proposed CMIP (AGI, 2001d).

- A *Bioremediation Work Plan (AGI, 2005a)* describing the corrective action in Areas 1 and 3 at the MP facility was prepared by AGI, on behalf of MP, and submitted to the IDEQ on March 19, 2005. The Work Plan was approved by the IDEQ in a letter dated June 17, 2005, and implemented by AGI between June and August 2005. The work was performed in accordance with the requirements of Sections IV.J.4 and IV.K of the MP Facility's Permit. A detailed description of the bioremediation injection program was presented in the December 2005 *Semi-Annual Report of A-Zone Corrective Action and B-Zone Compliance Monitoring (AGI, 2005d)*. The objective of bioremediation at the MP site was to reduce the concentration of site-related constituents to protect human health and prevent potential adverse impacts to downgradient groundwater resources. Pilot studies completed in 2003 and 2004 demonstrated that injection of a food grade vegetable oil (VegOil) solution effectively enhanced reductive dechlorination and reduced the concentration of site-related constituents in both on-site and off-site test areas. A total of 33 injection wells (15 on-site and 18 off-site) were installed to supplement the 36 existing onsite injection wells for use as VegOil injection points under the Bioremediation Work Plan.

- A *Supplemental Bioremediation Work Plan* (AGI, 2009c) was submitted in 2009. A supplemental injection was proposed in Areas 1 and 3 using previously installed monitoring wells and wells historically used as recovery wells. The injection was conducted in areas where the highest concentrations of VOCs were detected in the

groundwater. Enhanced bioremediation has been successful at the site, as described in other portions of this document.

A full list of references is provided in Section E-10. Portions of some of these documents are also included as Appendices to this application.

E-0c Historical Permit Modifications

Modifications to the 2002 Permit were made in 2003, 2008, and 2009. Brief descriptions follow.

- A July 2003 Class 3 modification included a revision to the calculations and risk values (risk-based threshold levels, or RBTLs) associated with benzene and xylenes after benzene and xylenes were detected in samples collected from MW-5. The calculations were updated with the toxicological values provided in IDEQ correspondence dated July 15, 2003. The values were included on Table IV-1 (Risk-Based Threshold Levels (RBTL's)) of the Final RCRA Permit issued to MP on August 7, 2002. In addition, a minor modification regarding decontamination procedures was also requested. Specifically, the use of potable water instead of distilled water during decontamination procedures was requested. This change was made to the Sampling & Analysis Plan, Appendix E-12.

- In November 2008, a Class 1 modification request was made to correct a perceived inconsistency in the interpretation of the length of time between detecting a crack in an asphalt cap and repairing the crack. Language in the Permit was changed to indicate that repairs would be made within 60 days of detection of a crack or 90 days for general repairs to the entire surface, dependent upon weather conditions.

- In 2009, a Class 2 Permit modification was made to modify the monitoring program. The modification requested that the sampling frequency of the monitoring wells be changed to semi-annual monitoring with two wells sampled annually; removing well LW-6A (well was abandoned), OW-SS2A4, and OW-SS4A (wells were not associated with bioremediation program) from the CAMP; add RW-5 back to the CAMP; complete water level measurements within a 48-hour period, instead of 24-hour period. This request was granted in 2010.

E-1 Groundwater Waiver

Not applicable. No waiver from the Subpart F groundwater monitoring requirements is requested at this time.

E-2 Interim Status Period Groundwater Data

Interim Status Data is required by IDAPA 58.01.05.012 (40 CFR §270.14(c)(1) and IDAPA 58.01.05.009 (40 CFR §265.90-265.94). The collection of interim status groundwater data generally began in 1986 and concluded upon issuance of the Permit when the MP facility became a permitted RCRA Part B facility on January 18, 1991. A five-year review was performed during the first ten year Permit period, and the first Part B Permit was revised, effective September 1995. Information describing the interim status period prior to the first Part B Permit is contained in the Site Characterization Report (MK, 1988a). Information is also contained in Section E-2 the 2002 Permit Application (AGI, 2001e).

E-2a *Groundwater Assessment Plan*

A groundwater assessment plan was included as part of the Site Characterization Report (MK, 1988a). Groundwater monitoring revealed that hazardous waste constituents migrated to A-Zone groundwater beneath the PSB. The rate and extent of the migration of hazardous constituents and their concentrations in groundwater are described in the 1988 Site Characterization Report and other documents described in the introduction to Section E.

Chlorinated compounds were selected as the indicator parameters in the B-Zone because these constituents are unambiguous and reliable indicators of constituents associated with past usage of the PSB and LSB at the MP facility. These parameters are also the only regulated organic constituents that were reasonably expected to be in, and be derived from, wastes contained in the regulated WMUs. The rationale for selecting the historical DMP Groundwater Monitoring Criteria was based on the waste material characterization and interim status monitoring data.

E-3 General Hydrogeologic Information

This section, including associated appendices, presents the regional setting, site characterization methods, and site hydrogeologic characteristics for the MP facility. This information has been assembled pursuant to IDAPA 58.01.05.012 (40 CFR §270.14(c)(2)). The methods of investigation, evaluation, and additional supporting data, including field methods, drilling logs, and basic data, are provided within the reports and documents identified in Section E-0 and Section E-2. Ongoing monitoring data is

summarized in semi-annual reports submitted to the IDEQ. Additional information on the site vicinity and region is provided in the published reports listed in Section E-10 (References).

E-3a *Regional Hydrogeology and Geology*

E-3a(1) *Location*

The MP property is located in an industrial and commercial setting in the southeastern part of the Boise Valley, southeast Boise, Idaho. The Boise Valley is situated in the western part of the Snake River Plain, which extends westward from Yellowstone Park, Wyoming. The Boise Valley is a broad alluvial plain bordered by the Boise Front foothills to the north and the Mountain Home Plateau to the south. Several step-like terraces exist on the northern and southern sides of the Boise River, but they are more developed and continuous on the southern side. The Boise River is approximately one and one-half miles north of the MP property.

E-3a(2) *Regional Surface Water Features*

The Boise River and its tributaries (perennial and intermittent) are the principal surface drainage features in the area. Numerous man-made surface water structures including canals, irrigation and drainage ditches, and reservoirs are also important factors of surface drainage. The most prominent man-made surface water feature closest to the MP property is the New York Canal. This canal is located approximately one-half mile north of the site. Flow in the canal is seasonally controlled and, typically, occurs from the spring through the fall. Water conveyed within the canal is used for agricultural purposes. The Ridenbaugh Canal is located approximately one mile north of the site. Local surface water features are described in Section B-2a(1).

E-3a(3) *Regional Geology*

The MP facility is located in Boise, Idaho. The site is situated within a sequence of alluvial terraces south of the Boise River. The named terraces ascending the Boise River include the Boise Terrace gravel, the Whitney Terrace gravel, the Sunrise Terrace gravel, and the Gowen Terrace gravel. The line of geologic cross-section and generalized southwest-northeast geologic cross-section in the vicinity of the MP property are presented in Figure E-2 and Figure E-3, respectively. The site is located on the third terrace, the Sunrise Terrace gravel. The terraces were formed by rapid downcutting followed by coarse-gravel deposition of the ancient Boise River during the Pleistocene age, and are progressively younger south to north (on the southern side of the Boise River). A thin surficial deposit of wind-blown deposits (loess) also covers significant areas on the terraces (MK, 1988a).

The Sunrise Terrace gravel is primarily composed of coarse gravel and cobbles within a fine-grained to coarse-grained sand matrix, is approximately 50 to 65 feet thick, and overlies what is recognized as the Idaho Group deposits. The Idaho Group is interpreted to be a widespread alluvial fan deposit that filled a late Pliocene lake basin as it began to empty west of the site. The former lake margin extended from the northwest and its position fluctuated in the vicinity of the site where the ancient Boise River emptied into the lake. Complexly interfingered lacustrine and fluvial materials were deposited during this time period. The sands likely represent fluvial debris flows the overlapping silts and clays are probably lacustrine deposits (Othberg, 1994).

The geology of the Boise Valley is complex because of the depositional and structural history of the area. There are five geologic groups containing one or more formations beneath the area. The Snake River and Idaho Groups are the groups of interest beneath the site. The Snake River Group includes the terrace deposits and Holocene alluvium that are in the vicinity of the MP facility. The Idaho Group underlies the Snake River Group and is composed primarily of lacustrine and fluvial sediments (fine-grained sands, silt, and clay). The top of bedrock is approximately 825 feet bgs (MK, 1988a).

E-3a(4) *Regional Groundwater Features*

Two aquifer systems are generally recognized in the Boise Valley: the Shallow and Deep Aquifers (Neely & Crockett, 1998). The Shallow Aquifer consists of the Snake River Group and the Deep Aquifer includes the Idaho Group. The A-Zone includes the entire Snake River Group and upper portion of the Idaho Group. The B-Zone and C-Zone are entirely within the Idaho Group. The aquifers of the underlying Idaho Group are typically fine-grained, usually confined or partially confined, and may be regional in extent. The Snake River Group aquifers are generally coarse-grained and the lateral and vertical continuities are frequently less than the Idaho Group aquifers.

The overall regional groundwater flow direction for the Snake River Group and Idaho Group aquifers trends to the west with some southwest and northwest components (Neely & Crockett, 1998).

E-3a(5) *Water Supply Wells*

A well inventory is provided in Table E-1 (Summary of Potential Receptor Supply Wells) of this Part B renewal application. The well inventory was updated based upon a review of the Idaho Department of Water Resources (IDWR) online driller's report in September 2011 and includes domestic, irrigation, and commercial water wells that have been installed within a one-mile radius of the MP facility. The approximate location of the potential receptor supply wells are plotted on Figure E-1 and Figure A-1.

The use of groundwater is restricted in areas north, south, and east of the MP facility. The Director of the IDWR issued an order pursuant to the provisions of Section 42-233b, Idaho Code on October 14, 1994, limiting existing and new uses of groundwater in the Southeast Boise area in Ada County because of the effect of additional groundwater pumping on the availability of water to existing wells. According to the provisions of Section 42-233b, Southeast Boise Groundwater Management Area (SBGWMA) includes groundwater basins that may be approaching the condition of having insufficient groundwater for existing and planned uses.

E-3b *Site Geology and Soil Conditions*

E-3b(1) *General*

This section discusses the soil conditions and geology beneath the MP property. The site plan and monitoring well locations are shown on Figure E-1. The cross-section location map and geologic cross-sections for the A-Zone are presented in Appendix E-8. The cross-sections were constructed from lithologic logs of wells installed during the 1988 site characterization (MK 1988a), recovery wells (MK, 1990b), and pre-design investigation wells (AGI, 2001b).

E-3b(2) *Surficial Deposits*

A majority of the MP property is covered with buildings and asphalt pavement. The soils immediately beneath the asphalt typically consist of fill, or wind-blown deposits of silty sand to sandy silt (loess), that typically extend to a depth of approximately 15 feet.

E-3b(3) *Subsurface Soils*

The MP facility is located south of the Boise River and situated on the Sunrise Terrace gravel. This is the third in a series of terrace gravels that ascend the Boise River. The Sunrise Terrace gravel varies in thickness from approximately 8 feet to 50 feet and overlies older interfingered lacustrine and fluvial deposits of the Idaho Group. The A-Zone, as defined in recent investigations, extends from the ground surface to a depth of approximately 100 feet below ground surface. This interval, therefore, includes the entire thickness of the Sunrise Terrace gravel and the upper Idaho Group sediments.

Three discernible lithologic units were identified within the A-Zone during the pre-design investigation (AGI, 2001b). The units described below are from shallowest to deepest:

- Loess Deposits. A light brown silty sand to sandy silt layer at the surface extending to an approximate depth of 15 feet bgs. Man-made fill is also present in some areas.

- Sunrise Terrace. A sandy gravel and cobble deposit that ranges in thickness from approximately 8 feet to 50 feet. This deposit appeared to have the greatest vertical extent beneath the PSB area and generally thinned southward toward the LSB area.

- Upper Idaho Sediments. A predominantly light brown to brown, fine to coarse-grained sand interbedded with numerous typically thin, discontinuous silt and clay layers. The fine-grained soil layers were primarily composed of silt with lesser amounts of clay. The contact between the base of the Sunrise Terrace and Upper Idaho Group sediments was generally deeper beneath the northern portion of the MP facility and shallower in the Southern Area. The A-A' geologic cross-section (Appendix E-8) shows the thinning terrace deposit from north to south.

The complexity of the silt and clay layers deposited within the sand matrix of the upper Idaho Group sediments is a key lithologic feature of the A-Zone. Typically the layers range in composition from silt to clayey silt to silty clay to clay. The layers occur at various depths and are discontinuous over short distances. The thickness of the layers commonly ranges from less than six inches to several feet. The heterogeneity of the lithology is best appreciated by examination of the geologic cross section figures included in Appendix E-8.

Sandy gravel and cobbles are also principal deposits, which form the Whitney Terrace (Whitney Bench) and the Boise Terrace (Boise Bench), located to the north. The terraces were formed as glacial outwash and are deposited on the Idaho Group sediments. Fine-grained silt and clay lenses interbedded with sand layers comprise the Idaho Group sediments.

Several geologic cross-sections were prepared as part of an off-site investigation in September 1993 and March 1995 (MK, 1993 and MK Rail, 1995a). At that time, the correlation of any specific lithologic layer within a stratigraphic unit was found to be very difficult. The contact of the Whitney Terrace gravel sequence and the underlying fine-grained Idaho Group lacustrine sediments was interpreted by MP (MK, 1993 and MK Rail, 1995a) to occur where increases in blow count occur and where the color changes from light to dark. The contact was also identifiable from lithology. Based upon geologic interpretation, it appears that the contact between the Whitney Terrace deposits and the Idaho Group sediments forms an

irregular erosional surface and that A-Zone groundwater is hydraulically connected with groundwater occurring within the Whitney Bench. Geologic cross-sections were developed from drilling logs and generalized off-site geologic cross-sections. These are included in Appendix E-9. The longitudinal hydrogeologic cross-section of the A-Zone across the Sunrise, Whitney and Boise Terraces is depicted on Figure E-4. Additional cross-sections can be found in earlier reports.

The B-Zone is defined to extend from the base of the A-Zone to approximately 170 feet bgs beneath the MP facility. Eight on-site monitoring wells (MW-1B, MW-2, MW-3, MW-8, MW-12, MW-16B, MW-18B, and MW-31) one on-site observation well (OW-SS6B), three off-site monitoring wells (MW-10, MW-17B, and MW-19), and one off-site observation well (OW-SS7B) were installed to monitor the B-Zone.

More drilling has been performed in the A-Zone than the B-Zone, so there is less lithologic information from the B-Zone to evaluate. Based on a review of the well logs, the B-Zone lithology is similar to the lower portion of the A-Zone. The B-Zone is unconsolidated and generally consists predominantly of sand, interbedded with silt and clay layers that occur at various depths. The heterogeneity of the interbedded sand, silt, and clay layers is a significant geologic characteristic of the B-Zone. The horizontal and vertical extents of the silt and clay layers are widely irregular and no single layer appears to be laterally continuous beneath the entire site. However, relatively thick clay layers (greater than 5 feet) were encountered at different depths in the B-Zone in many areas of the site. The generalized structure of the top of the localized, lower confining unit (beneath the B-Zone) was presented in the Site Characterization Report and is included in Appendix E-10.

The C-Zone reportedly extends from the base of the B-Zone to a depth of approximately 280 feet bgs. There are six C-Zone monitoring wells installed on-site at the MP property (MW-13 to MW-15 and MW-16C to MW-18C), and the C-Zone lithology was interpreted using information from their boring logs. These wells were completed in the upper 30 feet of the C-Zone. However, the C-Zone may extend to a depth of 400 feet bgs (MK, 1988a).

The C-Zone is unconsolidated and consists predominantly of sand interbedded with discontinuous clay layers that occur between various depth intervals. It appears that there is no single clay layer that is horizontally continuous beneath the entire site in the C-Zone. Several of the clay layers encountered were relatively thick (greater than 2 feet) and at monitoring well MW-17C, there reportedly is a 35 foot thick clay layer from 212 to 247 feet bgs. Further evaluation of the C-Zone well logs revealed that there is at least one clay layer greater than or equal to 2 feet in thickness at each well location. Multiple thin layers of interbedded silt and clay were also common at various depth intervals at all of the C-Zone well locations. In general, the heterogeneity of the C-Zone lithology is similar to the lower portion of the

A-Zone and the entire B-Zone. However, the thicker, discontinuous clay layers are reportedly more common in the B- and C-Zones (MK, 1988a).

E-3c *Water-Bearing Zone Identification*

E-3c(1) *General*

This section summarizes the characteristics of the subsurface water-bearing zones that have been identified at the MP facility. Identification, descriptions, and supporting data and analyses of the uppermost "continuous" A-Zone water-bearing zone, and the hydraulic interconnection to lower water-bearing zones, are described in the Site Characterization Report (MK, 1988a), and off-site reports (MK, 1992 and MK Rail, 1995b). The various water-bearing zones are as follows, in order from shallowest to deepest:

- A-Zone – Approximately 0 to 100 feet bgs.
- B-Zone – Approximately 100 to 170 feet bgs.
- C-Zone – Approximately 240 to 280 feet bgs. However, the C-Zone wells were completed in the upper 30-feet of the C-Zone and may be hydrologically connected with the "shallow production aquifer" that extends to a depth of 400 feet bgs (MK, 1988a).
- "Deeper production aquifer" - approximately 800 to 1,000 feet bgs (MK, 1988a).

The actual depth intervals and the elevations of each of these zones varies across the site. These "vadose" zone perched layers may be locally important with respect to constituent movement, and the long-term remedial design process.

The top of groundwater within the A-Zone is typically encountered from approximately 0 to 100 feet bgs. However, deeper zones of saturation have been encountered to a depth of 125 feet bgs. Within the general sequence from approximately 75 to 125 feet, there can actually be multiple, vertically distinct zones of saturation of variable thicknesses. These vertically separate layers of saturation within the A-Zone are considered to be hydraulically connected and are consequently referred to as a single water-bearing unit, from a conceptual model standpoint. Finer distinctions of the various saturated layers within the A-Zone, (i.e., using designations such as "A-1," "A-2," etc.) are not feasible due to lateral heterogeneity across the site. A laterally continuous, low permeability confining layer beneath the entire A-Zone has not been documented.

Water associated with the B-Zone is also encountered at variable depths that can typically be located in the range of about 100 to 170 feet bgs. Similar to the A-Zone, the B-Zone appears to consist of vertically separate zones of saturation, at a given location. The B-Zone layers are generally believed to behave hydraulically as a single unit, from a conceptual model standpoint.

A common geologic feature in each zone is the heterogeneous nature of the unconsolidated sand, gravel, silt, and clay deposits. The water-bearing zones are typically associated with the silt and clay layers that restrict downward migration of surface water.

Saturation in the A- and B-Zones has a certain degree of lateral continuity within the respectively defined depth intervals beneath the MP property. However, drilling logs indicate that discontinuities in saturation can exist and that a singular water-bearing zone can be absent at a given location across the property. The lateral and vertical variability in saturation within each zone is a function of heterogeneity, structure and continuity of underlying confining layers, recharge events, the hydraulic influence of groundwater extraction wells, and local topography.

E-3c(2) *Character, Depth, and Hydraulic Properties of Aquifers*

The following subsections describe the hydraulic properties of the three primary zones of saturation at the MP facility.

E-3c(2)a *A-Zone Hydraulic Properties*

Generally, the A-Zone refers to a specific depth interval where saturation is typically encountered, rather than one absolute continuous water-bearing unit beneath the site. As previously mentioned, A-Zone groundwater commonly occurs between 0 to 100 feet bgs.

In the spring of 1986, slug testing was performed on monitoring wells completed in the A- and B-Zones (MW-1 through MW-9, with the exception of MW-4 because it was dry), to help estimate hydraulic conductivities of the aquifer materials. The details of this testing are presented in Section 3.5.1 (Slug Testing) of the July 1988 revision of the Site Characterization Report. Table 3.3 (within that report) summarizes the testing (MK, 1988a).

The first continuous groundwater-bearing unit within the A-Zone occurs within sandy material interbedded with silt and clay layers. This zone is under water table conditions, approximately 0 to 100 feet beneath the site, and consists of multiple saturated layers. The results of A-Zone aquifer testing conducted during the site characterization revealed that estimated transmissivity values ranged from 2 to

130 feet squared per day (ft^2/day). The higher transmissivity values were found in the area around monitoring well MW-9 (RW-1). The aquifer storage coefficient was approximately 0.002 to 0.007 (MK, 1988a and 1990a). A transmissivity value of 60 ft^2/day and a storage coefficient of 0.1 were used for designing the on-site recovery system (MK, 1990a).

A horizontal hydraulic gradient of 0.017 feet/feet (ft/ft) for the A-Zone was determined from August 1, 2000 groundwater data (AGI, 2001b). Average transmissivity values of 500 ft^2/day and 40,000 ft^2/day have been estimated for the uppermost water-bearing zones in the Whitney Bench and Boise Bench, respectively (MK Rail, 1995b).

Information from the Assessment Report of Corrective Action (IEG, 2000a) indicates that the hydraulic conductivities for the uppermost water-bearing zones in the Sunrise, Whitney, and Boise Terraces are 10 feet per day (ft/day), 50 ft/day, and 100 ft/day, respectively. The hydraulic gradients were 0.02 ft/ft for the Sunrise Terrace, 0.02 ft/ft for the Whitney Terrace, and 0.009 ft/ft for the Boise Terrace. Based upon estimated effective porosities, the estimated groundwater seepage velocity in the A-Zone were as follows for March 2000 and December 1999, respectively (IEG, 2000a):

- Sunrise Terrace - 275 to 450 ft/year.
- Whitney Terrace - 1,040 to 2,085 ft/year.
- Boise Terrace - 840 to 1,680 ft/year.

The basis for these estimates is presented in the May 2000 Assessment Report of Corrective Action (IEG, 2000a). More recently, groundwater seepage velocities were estimated in the A-Zone during October 2011.

- Sunrise Terrace - 292 ft/year.
- Whitney Terrace - 639 ft/year.
- Boise Terrace – 1,460 ft/year.

In June of 1988, testing was conducted to evaluate whether the A-Zone was hydraulically connected to the B-Zone. MW-1A1 and MW-1B were used. The locations of the wells are shown on Figure E-1. The report concluded that, according to the data obtained, the A- and B-Zones of saturation were not hydraulically connected at the locations tested (MK, 1988a).

In October 1995, investigation activities were conducted to evaluate the potential for hydraulic communication between the shallow A-Zone aquifer of the Boise Terrace deposits and the deeper regional aquifer system. Monitoring well MW-43A located in Area 4 (constructed to a depth of 33.9 feet) was used to represent the shallow A-Zone aquifer and a water supply well identified as the Bergeson Well (constructed to a depth of 663 feet), was used to represent the deeper regional aquifer system, which is expected to exist beneath the MP facility (Sunrise Terrace) at a depth of 800 to 1,000 ft bgs. The horizontal distance between the two wells is approximately 75 feet. Water levels were measured in MW-43A for a period of eight days to evaluate the water level response in the shallow aquifer, following a halt in pumping in the deeper Bergeson Well. Based upon the proximity of the two wells, the data, and the corrected water level data analysis, hydraulic communication between the shallow aquifer of the Boise Terrace deposits and the deeper regional aquifer system was determined not to exist at this location (MK Rail, 1995b).

Historically, saturation in the A-Zone was thought to be absent in the southern portion of the property because of reportedly dry conditions at wells MW-2, MW-3, MW-4 (abandoned), MW-15, and MW-17A. However, during the pre-design investigation in July 2000, A-Zone groundwater was found to be present in the southeastern area of the property near the LSB (AGI, 2001b), as described below.

The pre-design investigation revealed saturated conditions in the A-Zone at the following locations:

- Two water-bearing zones were encountered in A-Zone at observation wells OW-SS4A and OW-SS4A2 in the vicinity of monitoring well MW-2.

- A-Zone saturation was encountered at observation well OW-SS3A along the property boundary between monitoring wells MW-3 and MW-20A.

- Pilot study injection wells encountered saturated conditions in the A-Zone at a depth between 75 and 90 ft bgs in the southeastern portion of the MP property. Well PD-5 was also installed to monitor a perched water layer in this area.

- A-Zone saturation was encountered at off-site observation wells OW-SS8A, along Federal Way north of the northwestern corner of the MP property, and at OW-SS5A, located between Federal Way and the northeastern corner of the MP property.

- Water-bearing zones in the A-Zone were encountered at the OW-SS2 observation well cluster located south of the MP facility on property reportedly owned by the State of Idaho and leased to Central Paving.

E-3c(2)b *B-Zone Hydraulic Properties*

The B-Zone is encountered at the site at depths ranging from roughly 100 to 170 feet bgs. Generally, the B-Zone refers to a specific depth interval rather than one consistent water-bearing unit. Multiple, perched water layers have reportedly been encountered within the B-Zone beneath the site.

Hydraulic testing of the B-Zone was conducted during the site characterization (MK, 1988a). The results of slug tests performed on B-Zone wells yielded estimated values for hydraulic conductivity that ranged from 0.46 ft/day (MW-2) to 3.97 ft/day (MW-1). The geometric mean of these values is 1.35 ft/day.

A soil sample collected from a B-Zone confining clay layer (163.1 to 164.1 feet) at MW-14 was analyzed for grain size distribution. The result was used to approximate a hydraulic conductivity of 6.6×10^{-5} ft/day for the sample.

E-3c(2)c *C-Zone Hydraulic Properties*

The C-Zone is a "shallow unconfined production aquifer" as described in the 1988 Site Characterization. The upper-most zone of saturation in the C-Zone occurs at a depth of approximately 240 feet bgs and is continuous, both vertically and horizontally, beneath the entire MP property. The C-Zone wells were completed in the upper 30 feet of the water-bearing zone. MK concluded that the C-Zone wells are hydraulically connected with the production interval (shallow production aquifer) between 360 and 400 feet bgs at the MP facility (MK, 1988a).

Limited aquifer testing was conducted at C-Zone wells (MW-13, MW-14, and MW-15) installed in the spring of 1987, using the dedicated pumps that were placed in each well for periodic sampling. The details of this testing are presented in Section 3.5.2 (Pumping Test Procedures) and Section 3.5.3 (Pumping Test Data Analysis) of the July 1988 revision of the Site Characterization Report (MK, 1988a).

The limited aquifer testing of the C-Zone revealed transmissivity values for the upper 30 feet that ranged from 10.2 ft^2/day (MW-15) to 345 ft^2/day (MW-14). Calculated hydraulic conductivities ranged from 0.5 ft/day (MW-13) to 8.10 ft/day (MW-15) (MK, 1988a). Soil samples collected during drilling from the confining layer fine-grained materials at C-Zone wells MW-14 and MW-15 were tested by sieve analysis and falling head tests. The calculated, average hydraulic conductivity of the confining layer fine-grained materials, based on the test results, is approximately 3.6 ft/day (MK, 1988a). The total thickness of saturation in the C-Zone was estimated by previous investigations, and therefore, the calculated transmissivity values are estimates only.

E-3d *Groundwater Levels and Flow Directions*

Following the pre-design investigation fieldwork (AGI, 2001b), MP conducted a comprehensive re-survey of the existing A-and B-Zone monitoring wells and a new survey of all the observation wells and existing U.S. EPA B-Zone monitoring wells. The new survey included horizontal and vertical control. Elevations for the top of PVC, top of outer casing, and ground surface were measured at each well location. The survey data are presented on a table in Appendix E-4.

Water level measurements are collected from the designated A-Zone monitoring wells during sampling of the A-Zone. Potentiometric surface maps are then constructed using these data. Water level information is provided in Table E-2 (A-Zone Groundwater Elevation Data).

As shown by the groundwater contour map for the A-Zone in Figure E-5 the groundwater flow direction is generally north. Historically, pumping at the recovery wells, including RW-3 and RW-4, influenced natural groundwater movement toward the wells at these on-site locations. Water levels in the area wells are influenced by seasonal precipitation patterns, periodic surface infiltration, and changes in groundwater pumping (IEG, 2000a). Barometric pressure changes may also influence groundwater levels in the area. Water level measurements are collected from B-Zone monitoring wells as part of the DMP. The measured water levels are converted to groundwater elevations and are used to construct a potentiometric map.

Groundwater flow in the B-Zone appears to be complex, with localized variations in aquifer conditions and possibly flow directions. Based on the existing data, the water-bearing zone appears to be discontinuous across the site, as evidenced by unsaturated conditions occurring within equivalent elevations and lithologic zones at MW-19 and MW-31, and historically at MW-4 and MW-15. Based on water level data presented in the Report of Detection Monitoring (IEG, 2000b), the western and eastern portions of the property may respond differently to changes in discharge and recharge within the B-Zone.

To help clarify groundwater flow directions, water level measurements were obtained from several off-site monitoring wells installed by the U.S. EPA. These monitoring wells, which are identified as CT-MW-02, IP-MW-05, NS-MW-01, NS-MW-07, PR-MW-04, and YM-MW-03, are located primarily northwest of the site (Figure E-1). Prior to measuring the water level in these wells, a survey was performed to establish their locations and top-of-casing elevations relative to the monitoring wells situated on the MP site.

Water level measurements were obtained from the U.S. EPA monitoring wells and the MP monitoring wells on August 2, 2001. The measured water levels were converted to groundwater elevations and were

used to construct a potentiometric map for the B-Zone. The B-Zone Groundwater Contour Map and measurements are included in Figure E-6A and Table E-3. The water table elevations for wells MW-3 and NS-MW-07 were not used for groundwater contouring, because these wells may be connected to shallower zones, and therefore, may not be representative of B-Zone conditions.

As shown on Figure E-6A, the apparent groundwater flow direction in the B-Zone at the site is generally from the east-southeast to the west-northwest in the eastern portion of the property. The calculated hydraulic gradient in this portion of the site is 0.006 ft/ft. In the western portion of the site, groundwater flow in the B-Zone is generally from north-northwest to south-southeast with a hydraulic gradient of 0.012 ft/ft. It is feasible, as described below, that localized pumping from the deeper groundwater influences the direction of groundwater flow in the B-Zone.

Based on the geometric mean of the hydraulic conductivity values estimated for MW-1 and MW-2 (1.35 ft/day) measured hydraulic gradients in the eastern and western portion of the site (0.006 ft/ft and 0.012 ft/ft, respectively), and an assumed effective porosity (0.30), estimated B-Zone groundwater seepage velocities were calculated for the eastern and western portions of the site In the eastern portion of the site (LSB area and PSB area), the estimated groundwater velocity is 10 ft/year. For the western portion of the site, the estimated groundwater velocity is 20 ft/year.

More recent measurements collected in October 2011 indicate similar flow on-site, as shown on Figure E-6B. On Figure E-6B, groundwater flow was interpreted using the on-site wells, with the exception of MW-3 (appears to be screened in a shallower zone) and MW-12 (appears to be influenced by the on-site water supply well). Groundwater flow is generally to the north.

The complex groundwater conditions of the A- and B-Zones were evaluated during the preparation of the 2002 Permit application and implementation of the pilot testing work. The localized absence of groundwater in the A- and B-Zones is likely to be associated with the long-term dewatering of these zones by the plant production well (WW-1). Data from the well log indicates that the gravel pack for well WW-1 extends from 19 to 401 feet bgs. This material intersects the A-Zone and B-Zone. Static water levels at WW-1 have declined from approximately 192 feet bgs in 1968 to 305 feet bgs in 2000. However, water level data collected from WW-1 between June 2010 and December 2011 indicates that the static water level ranged from 222.01 feet to 226.56 feet bgs and the dynamic water level ranged from 229.85 to 234.59 feet bgs. As described in Section E-3a(5), the regional aquifer is also designated as a SBGWMA, due to the declining groundwater levels in the general vicinity of the plant.

The groundwater flow direction within the C-Zone was historically from southeast to northwest, based on groundwater elevation data collected during the site characterization (MK, 1988a). This flow direction is consistent with the overall groundwater flow direction for Snake River Group and Idaho Group aquifers.

E-4 Topographic Map Requirements

A topographic map (Figure B-3) is presented in Section B of this renewal application and was prepared in accordance with IDAPA 58.01.05.012 (40 CFR §270.14(c)(3),(4)(i)). Groundwater monitoring wells (A- and B-Zone) are depicted on Figure E-1. The groundwater flow direction in the A-Zone is provided on Figure E-5. The groundwater flow direction in the B-Zone is provided on Figures E-6A and B. The extent of the A-Zone constituent plume associated with the WMUs is described in Section E-5, and is shown on figures included in Appendix E-3.

E-5 Constituent Plume Description

Section E-5 provides a description of the dissolved constituent plume in accordance with IDAPA 58.01.05.012 (40 CFR §270.14(c)(4) and (7)(ii)). MP voluntarily completed a considerable amount of investigation work in the shallow A-Zone to the north of the facility, to evaluate the extent of the dissolved constituent plume. The A-Zone plume has been divided along its longitudinal axis into Area 1, Area 2, Area 3, and Area 4, depicted on Figure E-1. The four different areas are described as follows:

- Area 1 is in the Sunrise Terrace and includes the MP facility (industrial use).
- Area 2 is also in the Sunrise Terrace, and includes the commercial and industrial areas adjacent to, and north of the MP facility.
- Area 3 is in the Whitney Terrace and includes both industrial and residential areas. It is located south of the New York Canal and north of Area 2.
- Area 4 is in the Boise Terrace and mostly includes residential areas north of the New York Canal, up to an area south of the Ridenbaugh Canal.

Critical receptors, pathways, and routes of concern are summarized in the risk assessment. The nature and extent of dissolved constituents present are described further in Sections E-5a and E-5c.

E-5a *Nature of Constituents*

The nature of detected constituents in both the A- and B-Zones was evaluated voluntarily by MP during the first Part B Permit period. The parameters that are used in the existing CAMP and future compliance monitoring program (CMP), and DMP for A- and B-Zones were selected by the IDHW based upon monitoring data obtained during the initial waste material characterization, records of solvents and

chemicals used at the facility, and results of Appendix IX sampling. A summary of the analytical data for the A-Zone monitoring program is provided in Appendix E-6. Summaries of the B-Zone analytical data are also included in Appendix E-6. The monitoring data are contained in the CAMP and DMP reports and in the semi-annual monitoring reports. These reports are maintained as part of the permanent operations record at the MP facility.

Cis-1,2-DCE and trans-1,2-DCE were voluntarily included in the A-Zone groundwater monitoring program (IEG, 2000a), and periodic Appendix IX hazardous constituent analyses were performed at select monitoring wells located in Areas 1, 2 and 3. Based upon historical groundwater data including data collected from 2001 to present and the Appendix IX analyses, the following detected parameters have been and are proposed for future analytical parameters for the CAMP, CMP and DMP for the A- and B-Zones:

- Chloroform (CF)
- Chloroethane (CEA)
- 1,1-Dichloroethane (1,1-DCA)
- 1,2-Dichloroethane (1,2-DCA)
- 1,1-Dichloroethene (1,1-DCE)
- cis-1,2-Dichloroethene (cis-1,2-DCE)
- trans-1,2-Dichloroethene (trans-1,2-DCE)
- 1,2-Dichloropropane (1,2-DCP)
- Tetrachloroethylene (PCE)
- 1,1,2,2-Tetrachloroethane (1,1,2,2-PCE)
- 1,1,1-Trichloroethane (1,1,1-TCA)
- 1,1,2-Trichloroethane (1,1,2-TCA)

- Trichloroethylene (TCE)
- Vinyl Chloride (VC)

During the first quarter sampling event in 2000 (IEG, 2000a), total chlorinated VOCs and xylenes were detected in A-Zone wells (MW-5, MW-6, MW-11, MW-18A1) in Area 1, in the northwestern portion of the MP property, and cross-gradient of the closed WMUs. Benzene was also detected during the first quarter sampling event in 2000, in samples collected from MW-5 and RW-5. However, benzene and xylenes have not been detected since 2006 or 2007.

The constituents present in groundwater samples collected since 2009 from A-Zone wells in excess of the IDAPA 58.01.11.200 Ground Water Quality Standards (MCLs) in Areas 1, 2, 3 and 4 are summarized in Table E-4. The Groundwater Quality Rule establishes the minimum requirements for the protection of groundwater quality in the State of Idaho, through the use of an aquifer categorization process and MCLs for biological, radiological, and chemical constituents.

The dissolved constituents detected in the B-Zone during October 2011 include: 1,1-DCA, , PCE, TCE, 1,1-DCE, and cis-1,2-DCE. None of the constituents were detected above the current GPS values with the exceptions of TCE in MW-2 and MW-12.

The detections of TCE in B-Zone wells MW-2 and MW-12 in the northwest portion of Area 1 is inconsistent with the type and concentration of dissolved constituents detected in B-Zone wells used in the DMP and those associated with past usage of the closed WMUs. TCE is the only organic compound historically detected at significant concentration in wells MW-2 and MW-12. A summary of the analytical data collected since 1990 from MW-2 and MW-12 is provided in Appendix E-6. As described in the 2002 Permit application, an off-site source of TCE is strongly indicated by:

- Historical interpretations of B-Zone groundwater flow direction.
- The absence of TCE in identified areas where groundwater has historically been impacted by MP's waste disposal practices.
- Off-site B-Zone groundwater monitoring data.

Although MW-2 and MW-12 were not historically RCRA compliance wells, an off-site source demonstration was prepared in accordance with IDAPA 58.01.05.008 [40 CFR §264.98(g)(6)] to demonstrate that a source other than the regulated WMUs has impacted the B-Zone on the western side of

the MP property MP received IDEQ concurrence with the findings of the demonstration in October 2001 (Appendix E-2).

E-5b *History and Progress of Corrective Action*

A-Zone groundwater underwent extensive evaluation and corrective action from 1991 to 2001. Additional characterization, remediation, and monitoring have been performed since that time. The progress of corrective action from 1991 to 2001 was reported in Assessment Reports of Corrective Action and subsequent semi-annual monitoring reports. Monitoring wells were installed in the A-Zone to monitor the performance of the corrective measures. MP also voluntarily monitored additional on- and off-site wells. Table E-5 identifies the current monitoring wells. The location of on- and off-site wells used to evaluate the extent of the dissolved constituent plume are shown on Figure E-1. A figure depicting the extent of the plume at various points in time is included in Appendix E-3 for reference.

The discharge to the buried drain fields was discontinued in 1984 and the drain fields were closed as RCRA-regulated WMUs in 1988. The asphalt caps are designed to minimize infiltration of rainwater and the migration of hazardous constituents to groundwater from the WMUs. In addition, on-site groundwater recovery and treatment of the A-Zone and subsequent treatment of groundwater was conducted. These measures have reduced impacts to A-Zone groundwater.

The groundwater recovery/treatment system was active from 1990 to 2002. The groundwater recovery system included on-site recovery wells (RW-1, RW-3, RW-4, and RW-6) which have since been converted to monitoring wells and were also used as injection points for enhanced bioremediation activities. RW-2 and RW-5 were converted to monitoring wells prior to 2001 because sustainable pumping was less than 0.25 gallons per minute (gpm) at each location. RW-7 was not used as a recovery well on a continuous basis because of operational problems (IEG, 2001a). The recovery wells were networked to the GWTP where the water was treated by air sparging and carbon absorption. When operational, the treated water was discharged to the sewer system under an IWA Permit administered by the City of Boise.

Two pilot studies were conducted at MP to evaluate the potential effectiveness of VegOil to enhance bioremediation of the groundwater impacts. The studies were completed in 2003. The initial full-scale application of bioremediation at the site, which included injection of approximately 69,000 gallons of VegOil solution into a network of 51 on-site (Area 1) and 18 off-site (Area 3) injection wells, was completed in August 2005. A total of 33 injection wells (15 on-site and 18 off-site) were installed to supplement the 36 existing onsite injection wells for use as VegOil injection points. Well construction details are provided in Appendix E-4. Details of the injection are provided in the January 2006

semi-annual report (AGI, 2006a). In accordance with the Bioremediation Work Plan, bioremediation performance monitoring was conducted in November 2005 during the first regularly scheduled quarterly monitoring event after VegOil injection was completed. The initial results of bioremediation performance monitoring indicated strongly reducing conditions within the treatment areas.

Another full-scale application was conducted in 2009 using the same substrate as in 2005 with an added injection of anaerobic bacteria. Wells in Areas 1 and 3 were used as injection points and areas with the highest VOC concentrations were targeted.

As described, groundwater monitoring data was collected on a quarterly and semi-annual basis from on- and off-site wells. The tabulated data and sample collection details are included in the Semi-Annual Reports of A-Zone Corrective Action and B-Zone Compliance Monitoring (Semi-annual Reports) and are provided in Appendix E-6.

Drawings depicting the extent of 1,1-DCE were prepared for each Semi-annual Report. Initially, the drawings were prepared using isoconcentrations of 1 ug/l, 10 ug/l, and 100 ug/l. Subsequently, the GPS and Remedial Action Criteria (RAC) values of 7 ug/l and 35 ug/l were used, along with a 100 ug/l isoconcentration.

Each of the drawings depicts a constituent plume extending longitudinally in the direction of groundwater flow. In comparing the drawings from 1995, 2000, 2005, and 2010, for 1,1-DCE as shown on Figure 5 within the CMIP, the horizontal extent of area with concentrations above the GPS of 7 ug/l has changed as described below.

- 1995 – Area of 3,783,456 square feet.
- 2000 – Area of 3,226,204 square feet.
- 2005 – Area of 4,537,159 square feet.
- 2010 – Area of 2,689,936 square feet.

In 1995, the 1,1-DCE plume extended off-site into Area 4 (to MW-38A) and laterally to OW-SS8A (west) and MW-31A (east). In 2000, the area was slightly smaller, extending close to MW-38A and somewhat narrower than the extent in 1995. The plume appears to have expanded in 2005, extending close to Area 4 wells MW-40A (5.1 ug/l) and MW-37A (2.6 ug/l), although it has since reduced in size to the area between MW-35A (32.3 ug/l) and MW-38A (5.67 ug/l).

The number of groundwater wells with concentrations of 1,1-DCE above 100 ug/l has greatly decreased. In 1995, the area of the plume with concentrations above 100 ug/l extended from the facility off-site into Area 3 to MW-30AA and MW-28A. In 2010, only one well (RW-3) had a concentration of 1,1-DCE greater than 100 ug/l.

Graphs showing the concentrations of 1,1-DCE in each area from 2002 to the present are provided as Figure E-7 (1,1-DCE Concentration Trends). Data from the following wells were selected for use in the graphs:

- Area 1 – RW-1, RW-3, and RW-7.
- Area 2 – MW-21A and MW-25A.
- Area 3 – MW-28A, MW-30AA, and MW-35A.
- Area 4 – MW-37A and MW-40A.

In addition to the concentration data, dates of VegOil injection (enhanced bioremediation) and pilot testing are depicted on the graphs. Concentrations of 1,1-DCE are generally above the GPS in Areas 1 and 2, although the concentrations have decreased in recent years. Concentrations in Area 3 are above and below the GPS and concentrations in Area 4 are generally below the GPS.

E-5c *Current Horizontal and Vertical Extent of Constituents*

Sections E-5c(1) and (2) describes the current horizontal and vertical extent of dissolved constituents in the A- and B-Zones beneath the MP facility, and in off-site areas.

E-5c(1) *Current Horizontal and Vertical Extent of Constituents – A-Zone*

Analytical results and figures depicting the horizontal extent of dissolved constituents were reported in the semi-annual reports. The locations of on- and off-site wells used to evaluate the extent of the constituent plume are shown on Figure E-1. The figures that were prepared for the CMIP depicting the extent of the A-Zone plume are included in Appendix E-3 for reference. Other figures of the extent of the A-Zone plume were provided in the semi-annual reports.

Groundwater sampling results from the October 2011 sampling event (AGI, 2011) were used to assess the current conditions of the plume. A summary of the A-Zone data is presented in Appendix E-6.

Area 1 (October 2011 Results)

Area 1 includes the MP property and is located in the Sunrise Terrace. The concentration of total VOCs ranged from ND (MW-5, MW-11, OW-SS2A4, and OW-SS4A) to 1,117 µg/L (RW-4). Concentrations of PCE, TCE, 1,1-DCE, 1,2-DCA, and VC were detected in samples collected at concentrations exceeding the GPS or RAC. The October 2011 groundwater sample results are summarized as follows:

- The GPS was exceeded at RW-1, RW-5, RW-6, RW-7, MW-7, MW-16A, and OW-SS3A.
- The RAC was exceeded at RW-3, RW-4, and MW-6.
- The GPS and RAC were met at MW-5, MW-11, and MW-20A.

The sample collected from RW-4 exceeds the RAC for 1,1-DCA and VC and concentrations of PCE, TCE, and 1,2-DCA were detected above the GPS.

Area 2 (October 2011 Results)

Area 2 is located in the Sunrise Terrace and covers the commercial and industrial area adjacent to and downgradient of the site. The concentration of total VOCs ranged from 19.38 µg/L (MW-22A) to 218 µg/L (MW-21A). Concentrations of PCE, TCE, VC, and 1,1-DCE were detected in samples at concentrations above the RAC or GPS. The Area 2 groundwater sampling results are summarized as follows:

- The RAC for 1,1-DCE was exceeded at MW-21A.
- The GPS for 1,1-DCE was exceeded at MW-22A, MW-25A, and OW-SS5A.
- The GPS for PCE and TCE were exceeded at MW-21A and MW-25A (TCE only).
- The GPS for VC was exceeded at OW-SS5A and MW-25A.

Area 3 (October 2011 Results)

Area 3 is located in the Whitney Terrace and includes the first residential area downgradient of Areas 1 and 2 and south of the New York Canal. The concentration of total VOCs ranged from ND (MW-24A) to 147 µg/L (MW-28A).

Concentrations of PCE, TCE, 1,1-DCE, CF, and VC were detected above the GPS in the samples collected from the Area 3 wells. The RAC were not exceeded during this round. The Area 3 groundwater sampling results are summarized as follows:

- The GPS for 1,1-DCE was exceeded at MW-28A, MW-30AA, MW-34A, and MW-35A.
- The GPS for PCE was exceeded at MW-28A, and MW-30AA.
- The GPS for TCE was exceeded at MW-28A and MW-34A.
- The GPS for VC was exceeded at MW-30AA.
- The GPS for CF was exceeded at MW-29A and MW-35A.
- The GPS was met at MW-24A, MW-31A, and MW-32A.

Area 4 (October 2011 Results)

Area 4 is situated in the Boise Terrace and includes the residential area downgradient of Areas 1 through 3. Area 4 is north of the New York Canal and south of the Ridenbaugh Canal. The concentration of total VOCs ranged from ND µg/L (MW-37A and MW-41A) to 14.74 µg/L (MW-40A). Concentrations of constituents in Area 4 were below the GPS. Low concentrations of 1,1,1-TCA, 1,1-DCA, 1,1-DCE, chloroform, and PCE were detected in the samples collected from Area 4. Constituents were not detected in the samples collected from MW-37A and MW-41A.

E-5c(2) *Current Horizontal and Vertical Extent of Constituents – B-Zone*

The horizontal extent of on- and off-site constituents was reported in the semi-annual reports. The locations of on- and off-site wells used to evaluate the concentrations of dissolved constituents are shown on Figure E-1.

Nine monitoring wells are sampled on a semi-annual basis to evaluate the groundwater quality in the B-Zone within Area 1, in accordance with the existing Permit. Wells MW-3[1], MW-8, MW-10, and MW-17B are used to monitor B-Zone groundwater quality within the LSB/WDT area. Wells MW-1B, MW-16B, and MW-18B are used to monitor the groundwater within the PSB area. MP voluntary samples wells MW-2 and MW-12, to monitor the potential for an off-site constituent plume originating from the west or northwest of the MP property. During October 2011, the dissolved constituents were not detected at concentrations above the current GPS values.

Monitoring wells MW-2 and MW-12 are located in the northwestern portion of Area 1. These wells are used to voluntarily monitor the TCE impacts to B-Zone groundwater in this area, which is not expected to be associated with past usage of the closed WMUs. During October 2011, the concentrations of TCE were 61 µg/L at MW-12 and 258 µg/L at MW-2.

Supplemental studies to further investigate the on-site geology and hydrogeology of the B-Zone were conducted to better define the groundwater flow direction and to establish chemical and hydrogeological background data for this area (AGI, 2000d). Based upon the supplemental studies and the expanded site investigation by EPA (Region 10 START, 1998), an off-site source demonstration was prepared in accordance with IDAPA 58.01.05.008 [40 CFR 264.98(g)(6)] to demonstrate that sources other than the regulated WMUs have impacted B-Zone groundwater (AGI, 2001c) in the western portion of the MP property. MP received IDEQ concurrence with the findings of the off-site source demonstration in October 2001 ((Appendix E-2).

E-6 Groundwater Program Requirements

Section E-6 summarizes the groundwater monitoring programs (GWMPs) utilized at the facility to meet the general groundwater monitoring requirements of the IDAPA 58.01.05.008 (40 CFR §264.97(a)). This information is summarized in the current Permit. Facilities with permitted, regulated WMUs are required to conduct groundwater monitoring to detect, characterize, and respond to releases of hazardous waste constituents into the uppermost aquifer. Groundwater programs under 40 CFR §264, Subpart F consist of three types of monitoring programs, including:

- Detection Monitoring Program (DMP) – to detect if a release has occurred.
- Compliance Monitoring Program (CMP) – to determine if the groundwater protection standards (GPS) have been exceeded once a release is detected.

[1] The water level data from MW-3 and MW-12 are not used to construct the potentiometric surface map as described in Section E-7a(2).

- Corrective Action Monitoring Program (CAMP) – to remediate a release to the uppermost aquifer.

The specific requirements that apply to each of the three monitoring programs are found in IDAPA 58.01.05.008 (40 CFR §264.98, 264.99, and 264.100, respectively).

Two specific groundwater monitoring programs are in effect in the PSB and LSB/WDT [i.e., closed Waste Management Units (WMUs)] at the MP facility. The closed WMUs are in corrective action within the A-Zone and the compliance monitoring program within the B-Zone.

Three action levels have been established, including the Groundwater Protection Standards, Risk-based Threshold Limits, and Remedial Action Criteria. Contingency Criteria have been developed for MW-38A located in Area 4. These criteria are defined as follows:

- The Groundwater Protection Standard (GPS) is equal to the USEPA Maximum Contaminant Level[2] (MCL) of the constituent[3].

- Remedial Action Criteria (RAC) are multiples of the MCL and presented for the areas of active remediation (Areas 1 and 3).

- The Risk-Based Threshold Limits (RBTLs) are based on the most likely and greatest risk exposure to the most sensitive population in a given area. These risks were identified and calculated during the initial 2001 risk assessment in accordance with EPA guidance and protocol at that time. Risk assumptions, population exposures, and anticipated risks were reviewed and modified slightly in the 2011 risk assessment modification which incorporated updated risk factors, including slope factors and reference doses, and EPA risk assessment protocol.

- Contingency Criteria (CC) are multiples of the MCL and only applied in Area 4.

[2] The MCLs are standards used to protect public health by limiting levels of contaminants in drinking water.
[3] Where MCLs were not available, a risk-based screening level was obtained from the Oak Ridge National Laboratory (ORNL) database at 1×10^{-5} risk level. In this case, ORNL database values for 1,1,2,2-tetrachloroethane, 1,1-dichloroethane, and chloroethane were used because MCLs were not available for these constituents.

Specific details of the A-Zone and B-Zone monitoring well network, data evaluation procedures and contingencies for the CAMP are presented below.

The groundwater monitoring well network for the A-Zone is presented in Table E-6 of this document and on Table III-3 in the current Permit. The updated GPS, which are equivalent to MCLs or risk-based criteria of 1 x 10^{-5} risk and established to protect human health and the environment in accordance with IDAPA 58.01.05.008 (40 CFR § 264.94), are summarized on Table E-7 (A-Zone, Proposed Groundwater Protection Standards). This is the same table as Table 1 from the Risk Assessment Addendum (Appendix E-1). The GPSs were updated in 2011 based on the most recent risk data and information. The locations of the A-Zone wells are shown on Figure E-8 (A-Zone, Well Location Map).

The groundwater monitoring network for the B-Zone CMP is presented in Table E-8 (B-Zone, Groundwater Monitoring Network), and the locations of the B-Zone wells are shown on Figure E-9 (B-Zone, Well Location Map). The updated GPS for B-Zone are presented in Table E-9 (B-Zone, Groundwater Protection Standards)[4].

The type and status of the A- and B-Zone GWMPs used at the site (according to each specified area) are summarized below.

A-Zone Groundwater Monitoring Program

The closed WMUs are in corrective action within the A-Zone. MP has been and will continue to utilize wells within Areas 1, 2, 3, and 4 for evaluating data from each monitoring event with the GPS and RBTLs, listed in Table E-7, which were established for each area based upon the critical receptors, pathways, and routes of concern as described in the risk assessment and 2011 Addendum (Appendix E-1). The GPS and RBTLs are used to indicate when corrective action may be necessary to address potential risks associated with the closed WMUs.

The goal of the GWMP is to monitor constituent concentrations to ensure that the concentrations of dissolved constituents in the uppermost aquifer do not exceed acceptable levels. By allowing each specific area to be evaluated separately, long-term risk management and potential corrective measures can be applied where appropriate and necessary. The strategy for implementing the GWMP is summarized below.

[4] The GPS in the A-Zone and B-Zone are equivalent to maximum contaminant levels (MCLs) with the exception of 1,1,2,2-tetrachloroethane; 1,1-dichloroethane; and chloroethane; which do not have MCLs. In the case of these constituents, a risk-based screening value of 1 x 10^{-5} residential scenario was obtained from the Oak Ridge National Laboratory (ORNL) database.

The CAMP for the A-Zone shall remain in effect until analytical results from the corrective action monitoring events criteria described in Section E-9 have been met for two years. If and when the CAMP ends, following a permit modification, the CMP for the A-Zone will begin.

B-Zone Groundwater Monitoring Program

The closed WMUs are in compliance monitoring in the B-Zone. MP will utilize wells within Area 1 for evaluating data from each monitoring event with the monitoring criteria established in Section E-7. In the event that a release is detected in the B-Zone during the implementation of the CMP, the CMP will revert to the CAMP and the CAMP will be used for evaluating monitoring data. The GPS will be used to indicate when corrective action may be necessary to address potential risks associated with the closed WMUs.

The goal of the B-Zone GWMP is to monitor constituent concentrations to ensure that the concentrations of dissolved constituents do not exceed acceptable levels. The strategy for implementing the GWMP is summarized below.

The CMP for the closed WMUs in B-Zone will end when the Post-Closure period is over, or the detection monitoring criteria are exceeded and the CAMP begins.

E-6a *Description of Wells*

The A-Zone and B-Zone wells included in each of the groundwater monitoring programs are presented in Table E-6 (A-Zone, Groundwater Monitoring Network) and Table E-8 (B-Zone, Groundwater Monitoring Network), respectively (Table III-3 from current Permit). The well depths and materials of construction are presented on a summary table in Appendix E-4. The well locations for the A- and B-Zones GWMP are shown on Figures E-8 and E-9, respectively.

E-6a(1) *Location of Wells*

The wells in the A-Zone are positioned to characterize and monitor the plume of constituents at on- and off-site locations.

E-6a(2) *Construction of RCRA Program Wells*

The currently approved RCRA monitoring well network includes both 2- and 4-inch diameter wells. Casing materials include Schedule 40 polyvinyl chloride (PVC), 304 stainless steel, and carbon steel.

Well screen materials include Schedule 40 PVC, Teflon, 304 stainless steel, and 316 stainless steel. Well construction materials are varied based upon the purpose, location, and date of installation.

In the future, new wells may be installed to enhance the groundwater monitoring network or to replace some existing wells, as needed. All wells will meet the then current requirements of IDAPA 58.01.05.008 (40 CFR §264.97(c)) regarding materials used, construction techniques, and procedures to maintain the integrity of the borehole and subsequent sampling. Available site characterization data and conditions encountered during drilling will be used to guide well construction activities, so that the appropriate groundwater zone is properly monitored. The objective is to install wells that are protected from surficial contaminant sources, are adequately sealed from subsurface contaminant sources, and allow for the collection of representative water sample and level data. Throughout the monitoring period, various on- and off-site wells have been repaired. Details are provided in semi-annual reports. During October 2011, well caps were replaced with keyed-alike, locking caps. The procedures that have been and will be used to advance boreholes and install new or replacement wells at the MP facility are described below.

Hollow stem auger techniques will be used to advance the boreholes to the projected depths, in most cases. Rotary drilling may also be utilized, if appropriate. Discrete soil samples will be collected from selected depths with decontaminated split-barrel samplers, in accordance with ASTM D 1586-84 (Method for Penetration Test and Split-Barrel Sampling of Soils). The soil samples will be field-classified according to the Unified Soil Classification System (USCS), and lithologic logs will be prepared for each well location.

New monitoring well materials will consist of flush-threaded, 2- or 4-inch ID, Schedule 40 PVC riser pipes and either PVC or stainless steel well screens, depending upon location. Typically, the on-site wells will include stainless steel screens with PVC risers, while off-site wells will include PVC screens and risers. The bottoms of the well screens will be fitted with either flush-threaded PVC or stainless steel bottom plugs, as appropriate. The well screens will typically be five or ten feet in length, based on the thickness of the saturated zones, and will typically have 0.010- or 0.020-inch slotted openings. Offset, cluster well installations may also be appropriate at some locations.

The base of the well screen for each well will typically be positioned near the top of any confining layer associated with the targeted saturated interval, when encountered. Graded sand, compatible with the aquifer material and the well screen slot size, will be placed in the borehole annulus around the screened interval. The sand pack will extend upwards to approximately two feet above the top of the well screen. A two foot thick bentonite plug will then be emplaced in the borehole. The remaining annular space will be backfilled with cement/bentonite grout to approximately one foot below the ground surface. The well

construction will be completed by installing an aboveground protective steel casing or a flush-mount manhole cover over the well, depending on location. The protective casing will be set in a concrete pad that is slightly sloped to divert water away from the well and an expandable locking cap will be used to seal the well casing. Construction details of a typical monitoring well are shown on Figure E-10.

The wells will be developed to remove fines from the well screens and sand pack intervals to help ensure proper hydraulic communication with the aquifer materials. Industry-accepted procedures will be used to develop the new wells. The well screens will be agitated with a surge block, or bailer, and the fines will be pumped or bailed from the wells. Hydraulic jetting may also be used, in some cases. The wells will then be surveyed for horizontal and vertical control.

E-6b *Description of Sampling and Analysis Procedures*

MP has developed sampling procedures designed to help ensure that representative groundwater samples are collected in accordance with IDAPA 58.01.05.008 (40 CFR §264.97(d)). The sampling procedures include methods for sample collection; sample preservation and handling; chain-of-custody control; analytical procedures; and field and laboratory quality assurance/quality control. MP will use the groundwater sampling and analytical techniques and procedures specified in the Sampling and Analysis Plan (SAP) included as Appendix E-12 during groundwater monitoring program activities. The sampling procedures may be updated to reflect regulatory changes, changes in the sampling equipment, sampling methods, changed field conditions, or when laboratory analytical protocol are modified in accordance with IDAPA 58.01.05.012 (40 CFR §270.42).

MP will provide training, as required under IDAPA 58.01.05.008 (Standards Applicable to Generators of Hazardous Waste), for personnel responsible for carrying out Post-Closure sampling activities. This training will be conducted in accordance with procedures presented in Appendix E-13 (Training Programs and Responsibility).

The analytical parameters are listed in Section E-5a. The selection of these constituents is based on the 1984 waste material characterization, historical groundwater monitoring data, the Appendix IX analyses (Appendix E-5 and E-7), historical usage of the closed WMUs, and subsequent groundwater monitoring data. MP will utilize EPA approved analytical procedures.

E-6c *Procedures for Establishing Background*

During the pre-design and supplemental studies investigations (AGI, 2001b), the A-Zone was found to be present in the southeastern and western areas of the MP property. Upgradient A-Zone monitoring wells

for Area 1, which were installed and evaluated under the supplemental studies program, are included in the CAMP.

MP assumes that background concentrations of the analytical parameters are below the estimated quantitation limit (EQL) for each analytical parameter in the A- and B-Zones, unless background groundwater quality is deemed necessary to be established in upgradient areas for the A- and B-Zones. If, in the future, MP believes that significant concentrations of dissolved constituents are migrating onto or are impacting the facility, MP will prepare an off-site source demonstration for the DMP or CMP, in accordance with IDAPA 58.01.05.008 (40 CFR §264.98(g) or 264.99(i), respectively).

E-6d *Statistical Procedures*

The Estimated Quantitation Limit (EQL) was established in the Part B Permit at 1.0 ug/l to represent the statistical criteria by which groundwater analytical results are compared to determine compliance with the DMP. EPA Method 8260 is the analytical method by which groundwater compounds are analyzed for this project. The EQL is typically 5 to 10 times the method detection limit for these compounds, which helps eliminate the potential for false positives but is low enough to meet constituent MCLs and conservative risk-based criteria for all groundwater constituents. Criteria for determining compliance with the CMP and CAMP programs are defined in Table III-1 of the Part B Permit as the groundwater protection standards which are based on constituent MCLs and/or risk based concentrations.

E-6d(1) *Statistical Procedures – A-Zone*

Statistical procedures call for comparing the sampling results at each well with the EQL, or GPS set forth in Table E-7.

E-6d(2) *Statistical Procedures – B-Zone*

Statistical procedures call for comparing the sampling results at each well with the EQL or GPS.

E-7 Detection Monitoring Program

IDAPA 58.01.05.008 (40 CFR §264.98) and IDAPA 58.01.05.012 (40 CFR §270.14(c)) specify the conditions that must be met by the owner/operator to develop a DMP. If and when in the DMP, the goal of a DMP is to detect and characterize any release of hazardous constituents from a regulated WMU into the uppermost aquifer. The DMP is described in Section III.G. of the Permit. Refer to Section E-6 of this document for additional details.

E-7a *Groundwater Monitoring Network*

The monitoring well network that will be used to establish the A- and B-Zone DMP is presented in Table E-6 and E-8, respectively. Note that wells listed in Table E-6 include CAMP wells. DMP wells will be selected from this list following a permit modification. The well locations are shown on Figure E-8 and E-9, respectively. A summary of well construction details are included in Appendix E-4.

E-7a(1) *Proposed Groundwater Monitoring Network – A-Zone*

If or when Area 1 enters the DMP, it is anticipated that corrective measures will have been met. A permit modification is required to enter the DMP. At that time, wells will be selected for sampling and a sampling frequency established.

E-7a(2) Proposed *Groundwater Monitoring Network – B-Zone*

In the B-Zone, detection monitoring will be conducted at monitoring wells on a specified frequency for the parameters listed in Section E-5a. MP will continue using the existing compliance monitoring well system to monitor the B-Zone. Specifically, MW-1B, MW-16B, MW-18B, MW-3, MW-8, MW-10, and MW-17B will be used to monitor the closed WMUs. MW-3 and possibly MW-12 will not be used for evaluating the direction of groundwater flow. MW-3 appears to be connected to a shallower zone and MW-12 appears to be influenced by the on-site water supply well. Periodic monitoring of MW-2 and MW-12 will be conducted to measure static water levels and monitor off-site impacts to the B-Zone.

E-8 Compliance Monitoring Program and Monitoring Well Network

IDAPA 58.01.05.008 (40 CFR §264.99) and IDAPA 58.01.05.012 (40 CFR §270.14(c)(7)) specify the conditions that must be met by the owner/operator when developing a CMP once a release has occurred. The goal of the CMP is to ensure that the concentration of hazardous constituents present in the uppermost aquifer does not exceed acceptable levels (i.e., the GPS). The CMP is described in Section III.F. of the Permit. Refer to Section E-6 of this document for additional details.

A permit modification may be required to enter the CMP. At that time, wells will be selected for sampling and a sampling frequency established.

In the B-Zone, the closed WMUs are currently undergoing compliance monitoring. Should a statistically significant increase occur, the CAMP would be implemented at the affected well(s).

MP will utilize wells within Areas 1, 2, 3, and 4 for evaluating data from each monitoring event with the CMP criteria. Wells will be selected from the well network. The specific CMP wells used and frequency sampled will be established with a permit modification. The locations of the A-Zone wells are shown on Figure E-8. The locations of the B-Zone wells are shown on Figure E-9.

E-9 Corrective Action Program

IDAPA 58.01.05.008 (40 CFR §264.100) and IDAPA 58.01.05.012 (40 CFR §270.14(c)(8)) specify the conditions that must be met by the owner/operator to develop a corrective action program. The goal of the corrective action program is to bring groundwater back into compliance with GPS at the POC and beyond the facility boundary, when necessary to protect human health and the environment. The CAMP is described in Section III.E. of the Permit. Refer to Section E-6 of this document for additional details.

The strategy for monitoring, compliance, and corrective action for the MP facility is summarized in the following paragraphs and focuses on the A-Zone in Areas 1, 2, 3 and 4 along with global issues that may apply throughout all areas. In addition, the strategy incorporates the finding that the A-Zone is the uppermost water-bearing zone of interest at each closed WMU, wherein it was formerly believed to be absent from the LSB and WDT areas in the southeastern portion of the facility.

The corrective measures, trigger conditions, and contingency measures for the MP facility include the following:

- Prevent the spread of contaminants from the facility (Area 1) to downgradient receptors and reduce the concentration of contaminants on-site.
- Prevent further degradation of the currently unaffected portions of the aquifer in Area 4.
- Verify the current level of exposure to residents in Area 3 in order to validate the current risk assessment.

Area 1

The A-Zone wells are monitored semi-annually. The closed WMUs are capped and closed in place. The caps will be maintained for the term of the post-closure care period. In-situ bioremediation is the selected remediation measure, which will be continued until the RAC are achieved.

Enhanced bioremediation has been selected as the likely contingency measure for treatment of the Area 1 A-Zone.

Area 2

The A-Zone wells are monitored semi-annually. Monitored natural attenuation is the selected remediation measure. After constituents are reduced to concentrations below the GPS (Section III.A. of Permit), Area 2 will move into the CMP.

Contingency measures in Area 2 will include soil venting or enhanced bioremediation.

Area 3

The A-Zone wells are monitored semi-annually. In-situ bioremediation is the selected remediation measure, which will be continued until the RAC are achieved.

Additional VegOil injection (enhanced bioremediation) was selected as the likely contingency measure for reducing risk to less than $1x10^{-5}$ carcinogenic risk factor and non-carcinogenic hazard index of 1.0 in Area 3.

Area 4

The A-Zone wells are monitored semi-annually. Monitored natural attenuation is the selected remediation measure. After constituents are reduced to concentrations below the GPS (Section III.A. of Permit), Area 4 will move into the CMP.

Permeable reactive barrier (PRB) technology was selected as a likely contingency measure for addressing groundwater impacts in Area 4. Because advancements in remediation technologies during the Permit period are likely, a review of additional remedial technologies that may be better suited for Area 4 will also be performed in the event a contingency is necessary.

E-9a *Corrective Action Plan*

The Corrective Measures Implementation Plan (CMIP) was updated (December 2011). It includes the use of a long-term monitoring plan to monitor the dissolved constituent plume over time and to verify that natural attenuation is occurring at rates sufficient to attain site-specific remediation objectives. The long-term monitoring plan was designed to evaluate long-term behavior of the plume, verify that unacceptable

exposure to contaminants does not occur, verify that natural attenuation breakdown products do not pose additional risks, determine attenuation rates for refining predictions of remediation time frame, to document when site-specific remediation objectives have been attained, and to establish contingencies. In addition, the CMIP details the implementation of other active remedies and contingencies such as asphalt cap maintenance, and soil venting, which may be used in conjunction with a long-term monitoring program. The CMIP is supported by the conclusions of a risk assessment (Appendix E-1) that the current and potential future risks are within acceptable levels for all areas of the dissolved constituent plume. A copy of the CMIP is included as Appendix E-3.

Active remediation will be conducted where necessary. The corrective measures and contingency measures that were selected for the MP facility generally include the following:

- MNA for all areas of the constituent plume.
- Maintenance of the Area 1 closed WMU asphalt caps.
- Enhanced bioremediation.
- Soil vapor venting or other measures, if necessary to control unacceptable risk.

E-9a(1) *Location*

The location of engineered caps, drains, wells and treatment system associated with the existing corrective action system are presented in Figure B-2 (General Facility Map) and Figure B-3 (Topographic Map). The location of A-Zone monitoring wells used in the CAMP are shown on Figure E-8.

E-9a(2) *Construction Detail*

Features of the existing engineered caps, drains, wells and treatment system that are used to contain, redirect, and treat groundwater or precipitation are described in Section B-2a(7) (Improvements) and Section I (Closure and Post-Closure Plans and Financial Requirements) and are presented in Figure B-2 and Figure B-3.

E-9a(3) *Plans for Removing Wastes*

Wastewater that was generated from the equipment cleaning process containing solvents was discharged to in-ground wastewater separation basins that were connected to the paint shop and locomotive shop

buried drain fields, via an overflow-decant structure. Use of this wastewater treatment system was discontinued in 1984. Wastes were covered and capped in place, under a Drain Field Closure Plan (MK, 1986) that was approved by IDHW in November 1987. The direct excavation of buried wastes is not feasible at this time.

E-9a(4) *Treatment Technologies*

Enhanced bioremediation has been utilized to remediate groundwater. Pilot testing was conducted in 2003 and 2004 and injection of VegOil was performed in 2005 and 2009. Results have been favorable, as discussed in other areas of this document.

E-9a(5) *Effectiveness of Corrective Action Program*

The history and progress of corrective action conducted on-site in A-Zone groundwater has undergone considerable evaluation. The progress of corrective action has been reported in the semi-annual reports and is more fully described in Section E-5b in accordance with IDAPA 58.01.05.008 and IDAPA 58.01.05.012 (40 CFR §264.100(b) and (40 CFR §270.14(c)(8)(iii) and (iv)).

E-9a(6) *Re-injection System*

Treated groundwater or surface water will not be reinjected at the site.

E-9a(7) *Additional Hydrogeologic Data*

Hydrogeologic data used in the design and evaluation of the corrective action are summarized in Section E-3 and referenced in documents listed in Section E-10.

E-9a(8) *Operation and Maintenance*

An equipment information manual for groundwater monitoring equipment is maintained at the MP facility. Post-closure care maintenance is presented in Section I of this application.

E-9a(9) *Closure and Post-Closure Plans*

WMUs at the MP facility are closed and are in the post-closure care period. The post-closure care period officially began on July 13, 1988, and will extend for 30 years from the date of closure (IDHW, 1995).

MP will maintain the closed PSB and LSB WMUs during the post-closure care period as specified in the Part B Permit, and will be responsible for the following inspections and maintenance activities:

- Maintaining the integrity and effectiveness of the two covers, and all groundwater monitoring equipment utilized in the CAMP in accordance with IDAPA 58.01.05.008 (40 CFR §264.310(b)(1)).

- Maintaining the security of the facility in accordance with IDAPA 58.01.05.008 (40 CFR §264.14).

- Preventing run-on and run-off from eroding or otherwise damaging the two covers in accordance with IDAPA 58.01.05.008 (40 CFR §264.310(b)(4)).

- Protecting and maintaining the surveyed benchmarks, used to comply with IDAPA 58.01.05.008 (40 CFR §264.310(b)(5)).

E-9b *Groundwater Monitoring Program*

The groundwater monitoring program is summarized in Section E-6. Additional information is included in the current Permit.

E-10 References

American Geosciences, Inc. (AGI). 2000a. *Scope of Work Addendum, MotivePower Apple Street Facility, Boise, Idaho,* June 8.

---. 2000b. *Revisions to the Proposed Vapor Monitoring Program, MotivePower Project, Boise, Idaho,* July 17.

---. 2000d. *Supplemental Studies Work Plan, MotivePower, Apple Street Facility, Boise, Idaho,* October 30.

---. 2001a. *Supplemental B-Zone Study, MotivePower Project, Boise, Idaho,* August 14.

---. 2001b. *Pre-Design Investigation Report, MotivePower Apple Street Facility, Boise, Idaho,* August 15.

---. 2001c. *Off-Site Source Demonstration-B-Zone, MotivePower Apple Street Facility, Boise, Idaho,* August 24.

---. 2001d. *Proposed Corrective Measures Implementation Plan, MotivePower Apple Street Facility, Boise, Idaho,* December 11.

---. 2001e. *RCRA Part B Permit Application*, December 19.

---. 2001f. *Monitored Natural Attenuation Report, MotivePower Apple Street Facility, Boise, Idaho,* August 31.

---. 2001g. *Off-Site Source Demonstration – B-Zone, MotivePower Facility, Apple Street Facility, Boise, Idaho,* September 28.

---. 2001h. *Semi-Annual Assessment Report of A-Zone Corrective Action (April 2001 – September 2001), MotivePower, Inc., A Wabtec Company, Boise, Idaho,* November 2001.

---. 2001i. *Risk Assessment for MotivePower, Apple Street Facility, Boise, Idaho,* December 2001.

---. 2002a. *Semi-Annual Assessment Report of A-Zone Correction Action (October 2001 – March 2002), MotivePower Facility, Boise, Idaho,* June 2002.

---. 2002b. *Sampling and Analysis Plan, Wabtec Corporation, MotivePower Facility, Boise, Idaho,* Revised July 26.

---. 2002c. *Semi-Annual Assessment Report of A-Zone Correction Action (April 2002 – October 2002), MotivePower Facility, Boise, Idaho,* December 18.

---. 2003a. *Off-Site Source Demonstration – A-Zone, MotivePower Inc., A Wabtec Company, Apple Street Facility, Boise, Idaho,* January 14.

---. 2003b. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (October 2002 – April 2003), MotivePower Facility, Boise, Idaho,* June 20.

---. 2003c. *Summary of VegOil Pilot Test Results and Supplemental VegOil Pilot Test Work Plan,* MotivePower Facility, Boise, Idaho, September 8.

---. 2003d. *Permit Modification Request Table IV-1 Risk-Based Threshold Levels (RBTL's), Decontamination Procedures and Definitions, Wabtec Facility, MotivePower Facility, Boise, Idaho,* October 9.

---. 2003e. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (May 2003 – November 2003), MotivePower Facility, Boise, Idaho,* December 22.

---. 2004a. *Supplemental VegOil Pilot Test Update, MotivePower Facility, Boise, Idaho,* April 30.

---. 2004b. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (November 2003 – April 2004), MotivePower Facility, Boise, Idaho,* June 25.

---. 2004c. *Supplemental VegOil Pilot Test Completion Report, MotivePower Facility, Boise, Idaho,* October 22.

---. 2004d. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (July 2004 – December 2004), MotivePower Facility, Boise, Idaho,* December 20.

---. 2005e. *Bioremediation Work Plan, MotivePower, Apple Street Facility, Boise, Idaho,* March 18.

---. 2005f. *Bioremediation Work Plan Revision 1, MotivePower, Apple Street Facility, Boise, Idaho,* June 9.

---. 2005g. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (January 2005 – June 2005), MotivePower Facility, Boise, Idaho,* June 24.

---. 2005h. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (July 2005 – December 2005), MotivePower Facility, Boise, Idaho,* December 21.

---. 2006a. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (January 2006 – June 2006), MotivePower Facility, Boise, Idaho,* June 16.

---. 2006b. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (July 2006 – December 2006), MotivePower Facility, Boise, Idaho,* December 19.

---. 2007. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (January 2007 – June 2007), MotivePower Facility, Boise, Idaho,* June 27.

---. 2008. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (July 2008 – December 2008), MotivePower Facility, Boise, Idaho,* December 29.

---. 2009a. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (January 2009 – June 2009), MotivePower Facility, Boise, Idaho,* June 29.

---. 2009b. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (July 2009 – December 2009), MotivePower Facility, Boise, Idaho,* December 30.

---. 2009c. *Supplemental Bioremediation Work Plan Areas 1 and 3, MotivePower, Apple Street Facility, Boise, Idaho,* March 6.

---. 2010a. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (January 2010 – June 2010), MotivePower Facility, Boise, Idaho,* June 29.

---. 2010b. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (July 2010 – December 2010), MotivePower Facility, Boise, Idaho,* December 28.

---. 2011a. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (January 2011 – June 2011), MotivePower Facility, Boise, Idaho,* June 28.

---. 2011b. *Semi-Annual Report of A-Zone Correction Action and B-Zone Compliance Monitoring (July 2011 – December 2011), MotivePower Facility, Boise, Idaho,* December 21.

---. 2012. *Revised Contingency Measures Implementation Plan*, February.

HSI Geotrans (HSI). 2000. *Work Plan In Situ Chemical Oxidation Pilot Study, MotivePower Facility, Boise, Idaho*, November 10.

Idaho Department of Environmental Quality (IDEQ). 2000. Correspondence to Todd R. Shingleton, Manager, Corporate Environmental Safety, December 4.

---. 2002. *HWMA Post-Closure Permit Public Participation Package, Wabtec Corporation, MotivePower Facility, Boise, Idaho,* May 2002.

Idaho Department of Health and Welfare (IDHW). 1988. Correspondence to J.A. McIntosh, BIC Plant Manager, July 7.

---. 1991/1995 (revised). MK Rail Corporation, Post-Closure Permit IDD980976831, January 18, 1991, revised September 1995.

Idaho Engineering & Geology (IEG). 1998. Correspondence to Brian Monson, IDEQ (re: *RW-1 Replacement Well Update*), December 8.

---. 2001a. *Assessment Report of Corrective Action*, 1998 to May 2001.

---. 2001b. *Report of Detection Monitoring Wabtec - MotivePower - Boise*, 1998 to June 2001.

---. 2000c. Correspondence to Brian Monson, IDEQ (re: *MW-36A Wellhead Repair and Updated Well Summary Table*), June 17.

The Mahfood Group, LLC. 2011. *Groundwater Standards Revisions*, December.

Morrison-Knudsen (MK) Company, Inc. 1985. *Final Report on Hydrologic Investigation of Boise Industrial Complex*, January.

---. 1986. *Part B Permit Application, Drain Field Closure Plan, Boise Industrial Complex*, May, revised September.

---. 1988a. *Site Characterization Report Boise Industrial Complex Volume 1 – Text* and *Volume 2 - Appendices*, submitted April 1986, revised July.

---. 1988b. *Part B Permit Application Post-Closure Plan, Boise Industrial Complex*, July.

---. 1990a. *Engineering Evaluation Report of the Upper Perched Groundwater Zone at the Morrison-Knudsen Boise Industrial Complex*, January.

---. 1990b. *1990 Drilling Program Summary, MKC-BLS.*

---. 1991a to 1993. *Assessment Report of Corrective Action*, May 1991 to 1993.

---. 1991b to 1993. *Report of Detection Monitoring*, May 1991 to 1993.

---. 1991c. *April-May 1991 Drilling Program Summary, MKC-BLS*, July.

---. 1992. *Report of Off-Site Investigation, MKC-BLS*, December.

---. 1993. *Report of Off-Site Investigation, MKC-BLS*, September.

MK Rail Corporation (MK Rail). 1994a to 1996. *Assessment Report of Corrective Action.*

---. 1994b to 1996. *Report of Detection Monitoring.*

---. 1994c. Correspondence to Brian Monson at the IDEQ (re: *Off-Site Groundwater Investigation*), November 21.

---. 1995a. *Report of Off-Site Investigation, Morrison-Knudsen Corporation, MK Rail Corporation, Boise Locomotive Operations*, March.

---. 1995b. *Report of Off-Site Investigation, Morrison-Knudsen Corporation, MK Rail Corporation, Boise Locomotive Operations,* June/November.

MotivePower Industries (MPI). 1997a. *Assessment Report of Corrective Action.*

---. 1997b. *Report of Detection Monitoring.*

MotivePower. 2001. *Sampling and Analysis Plan, Wabtec Corporation, MotivePower Facility, Boise, Idaho,* Revised December 11.

Neely, Kenneth W. and Crockett, Janet K. 1998. *Groundwater Quality Characterization and Initial Trend Analysis for the Treasure Valley Shallow and Deep Hydrogeologic Subareas,* March.

Nyer, Evan K., et al. 1996. *Insitu Treatment Technology, Geraghty & Miller Environmental Science and Engineering Series.*

Othberg, Kurt L. 1994. *Geology and Geomorphology of the Boise Valley and Adjoining Areas, Western Snake River Plain, Idaho,* January.

Ralston, Dr. Dale R. 1988. *The Analysis of Hydrogeology of the Boise Industrial Complex*, February.

---. 1994. *Phase I Solute Transport Modeling of the A-Zone at the Morrison-Knudsen Boise Locomotive Operations Site, Boise, Idaho*, July.

---. 1996. *Phase II Solute Transport Modeling of the A-Zone at the Morrison-Knudsen Boise Locomotive Operations Site, Boise, Idaho*, May.

---. 1998. *Phase II Solute Transport Modeling of the A-Zone at the Boise Locomotive Operations Site, Boise , Idaho, Analysis of Model Calibration*, October.

Region 10 Superfund Technical Assessment and Response Team (START). 1998. *SE Boise Apple Street, Groundwater Contamination Site, Expanded Site Inspection (ESI), TDD: 97-02-0012*, September.

Risk Assessment & Management Group (RAM Group), Inc. 2001. *Final Risk Assessment for MotivePower Apple Street Facility in Boise, Idaho*, addended December 2001.

United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. 1999. Directive Number: 9200. 4-17P, *Use of Monitored Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites*, April.

TABLES

MotivePower
A Wabtec company

Table E-1
Summary of Potential Receptor Supply Wells
Wahlco-Motive Power Facility
U.S. EPA ID No. ID0980978831
Boise, Idaho

OBJECTID	WellID	PermitID	MetalTagNo	Owner	Driller	Driller Lic	Basin Number	County Name	Township	Range	Sec	QQQ	QQ	Q	WellAddress	lot	block	subdivprop	WellUse	Production	Static Water	Surface Diam	Casing Diam	Casing Depth	Total Depth	Construction	DataSource	WellURI
128	306525	721991		CEO ENGINEERS	BOISE VALLEY PUMP & WELL DRILLING	207	63	ADA	03N	02E	35		NE	NE					Domestic-Single Residence	28	246	6	0	322	0	11/15/1983	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=306525
312	306802	722267		H F P TRUST	PHIPPS PUMPS & DRILLING	311	63	ADA	03N	02E	26	NE	SE	NW	3621 FEDERAL WAY	003			Domestic-Single Residence	0	0	0	0	0	0		QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=306802
237	306356	722598		ALUMAX BUILDING PRODUCTS	DENNIS PHIPPS WELL DRILLING INC	332	63	ADA	03N	02E	26		SE	SE					Domestic-Single Residence	37	220	6	0	292	0	8/16/1988	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=306356
295	305586	723383		BOISE WATER CORP	STEVENS & SONS WELL DRILLING INC	153	63	ADA	03N	02E	26		NE	SE	BERGERON ST				Municipal	1200	121	20	0	0	663	2/11/1990	Digitized	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=305586
129	304712	724070		BOISE WATER CORP	STEVENS & SONS WELL DRILLING INC	153	63	ADA	03N	02E	35		NE	NW	MARKET STREET				Municipal	1500	270	20	0	462	944	5/15/1991	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=304712
4	303824	724712		CROMAN CORP	DENNIS PHIPPS WELL DRILLING INC	332	63	ADA	03N	02E	36		SW	SE	1625 YAMHILL RD				Commercial	120	325	10	0	474	0	11/30/1991	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=303824
317	303529	725187		CITY OF BOISE	STEVENS & SONS WELL DRILLING INC	153	63	ADA	03N	02E	25		SW	NE	CENTENNIAL PARK LAW STREET				Commercial	350	12	12	0	75	0	7/21/1992	GPS - Downloaded	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=303529
19	302914	725354		NELSON SAND & GRAVEL	STEVENS & SONS WELL DRILLING INC	153	63	ADA	03N	02E	35		SW	NE					Domestic-Single Residence	50	214	6	0	330	0	3/2/1992	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=302914
7	302654	725877		JERRY IBARRA	HIDDLESTON DRILLING & PUMP	35	63	ADA	03N	02E	36		SE	SE	4350 BANNER				Domestic-Single Residence	35	78	6	0	136	0	7/14/1992	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=302654
233	301280	727550		ALUMAX BUILDING PRODUCTS	DENNIS PHIPPS WELL DRILLING INC	332	63	ADA	03N	02E	26		SE	SE	555 BOEING				Domestic-Single Residence	30	240	6	0	306	0	10/15/1993	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=301280
234	301281	727551		ALUMAX BUILDING PRODUCTS	DENNIS PHIPPS WELL DRILLING INC	332	63	ADA	03N	02E	26		SE	SE	555 BOEING				Domestic-Single Residence	30	240	6	0	306	0	10/15/1993	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=301281
371	299881	728396		BURTON L WAITE	STEVENS & SONS WELL DRILLING INC	153	63	ADA	03N	02E	26		NW	NE	530 E OLD SAYBROOK DR	053	009		Domestic-Single Residence	0	0	0	0	0	0		QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=299881
213	296297	731703	D0000027	JIM HUTCHINGS	TREASURE VALLEY DRILLING AND PUMP INC	260	63	ADA	03N	02E	23		SE	SE					Domestic-Single Residence	20	15	6	0	37	0	10/22/1997	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=296297
363	296443	731847		JOAN A PRICKETT	HAZ-TECH DRILLING INC	470	63	ADA	03N	02E	25		NW	NW	3402 APPLE ST				Domestic-Single Residence	0	8	6	0	0	0	2/25/1998	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=296443
364	296444	731848		MARILYN GIACALONE	HAZ-TECH DRILLING INC	470	63	ADA	03N	02E	25		NW	NW	3330 APPLE ST				Domestic-Single Residence	0	8	8	0	0	0	2/25/1998	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=296444
313	335348	763352		AMERICAN PAVING	STEVENS & SONS WELL DRILLING INC	153	63	ADA	03N	02E	26	NE	SE	NW	FEDERAL WAY & GEKELER			ATLASTA TRAILER COURT	Domestic-Single Residence	0	10	6	6	-100	100	2/12/2000	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=335348
287	345561	773722		EDWARD J NELSON	BOISE VALLEY PUMP & WELL DRILLING	207	63	ADA	03N	02E	26		NW	SE					Domestic	0	155	0	0	0	242	10/20/1982	Digitized	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=345561
212	347160	775307		JACK VINCENT	ENGLEMAN WELL DRILLING	47	63	ADA	05N	03E	30		SE	SW					Domestic	0	95	0	0	0	115	6/22/1971	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=347160
365	349629	777855		LELAND SANTON	KELSEY WELL DRILLING	39	63	ADA	03N	02E	25		NW	NW					Domestic	9	12	0	0	0	44	5/30/1954	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=349629
263	349630	777856		ARTHUR M HICKEY	KELSEY WELL DRILLING	39	63	ADA	03N	02E	25		NE	SE					Domestic	9	20	0	0	0	42	12/31/1953	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=349630
297	349631	777857		JOE PROKESH	KELSEY WELL DRILLING	39	63	ADA	03N	02E	26								Domestic	18	4	0	0	0	40	5/27/1969	Section	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=349631
18	349635	777861		VERNON J BROLLIER	S & H DRILLING & PUMP CO	24	63	ADA	03N	02E	36		SE	NE					Domestic	30	120	0	0	0	280	6/1/1956	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=349635
215	349855	778112		JESSIE S LOREE	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	25		SW	SE					Domestic	0	0	0	0	0	205	12/31/9999	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=349855
241	349895	778158		RUDY NELSON	CACHE VALLEY DRILLING	122	63	ADA	03N	02E	26		SE	SE					Domestic	30	105	0	0	0	160	6/12/1957	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=349895
293	349897	778160		BOISE PROJECT BOARD OF CONTROL	S & H DRILLING & PUMP CO	24	63	ADA	03N	02E	26		NW	SE					Domestic	30	36	0	0	0	160	7/22/1964	Parcel	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=349897
16	349967	778244		HOWARD DANIAL	AMERICAN INTERSTATE DRILLING INC	251	63	ADA	03N	02E	35				Amity & Five Mile				Domestic	0	0	0	0	0	0	3/11/1965	Section	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=349967
262	352921	781848		L & C CONSTRUCTION	PHIPPS PUMPS & DRILLING	98	63	ADA	03N	03E	30		NW	SW					Domestic	9999	12	0	0	0	52	6/26/1973	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=352921
5	354617	783553		J C BLY	WITT DRILLING	55	63	CANYON	03N	02E	36		SW	SW					Domestic	3000	9999	0	0	0	120	9/5/1967	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=354617
8	354633	783569		TOM WILLIAMS	JAY-O TILBY DRILLING CO	191	63	CANYON	03N	02E	35		SE	SW		1	2	BELLE AIRE ACRES	Domestic	9999	9	0	0	0	68	1/1/1963	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=354633
82	361767	790766		W E SELLMAN	PHIPPS PUMPS & DRILLING	311	63	ADA	03N	03E	31		NW	NW					Domestic	9999	142	0	0	0	252	10/5/1964	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=361767
264	362722	791742		DOYLE FARNSWORTH	SOS WELL DRILLING & PUMP CO INC	212	63	ADA	03N	02E	25		NE	SE					Domestic	20	22	0	0	0	52	12/17/1976	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=362722
267	362728	791748		LYNN WAITE	PHIPPS PUMPS & DRILLING	311	63	ADA	03N	02E	25		NW	SE					Domestic	9999	18	0	0	0	61	3/24/1976	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=362728
292	362730	791750		ATLANTA TRAILER COURT	PHIPPS PUMPS & DRILLING	98	63	ADA	03N	02E	26		NW	SW					Municipal	9999	75	0	0	0	198	5/16/1976	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=362730
260	377579	806745		GERALD WHITED	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	25		NW	SE					Domestic	0	157	0	0	0	235	6/28/1974	Digitized	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=377579
368	378396	807588		BALL BUILDER	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	25		NW	NW					Domestic	9999	10	0	0	0	36	12/31/9999	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=378396
316	379015	808220		LEONARD B HAWS	BILL DOTY DRILLING CO INC	42	63	ADA	03N	02E	26		SE	NW					Domestic	60	114	0	0	0	201	6/21/1968	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=379015
285	379476	808683		MONROE MLEE	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	26		NE	SE					Domestic	9999	20	0	0	0	55	9/15/1970	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=379476
352	379483	808690		LE C CONSTRUCTION	PHIPPS PUMPS & DRILLING	98	63	ADA	03N	02E	25		NE	NW					Domestic	9999	40	0	0	0	62	5/3/1973	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=379483
265	379553	808760		RICK S DRAKE	BILL DOTY DRILLING CO INC	42	63	ADA	03N	02E	25		NE	SE					Domestic	30	18	0	0	0	84	8/9/1983	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=379553
184	390085	819417		BUNTING TRACTOR CO INC	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	25		SW	SW					Commercial	200	170	0	0	0	255	12/31/9999	GPS - Downl	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=390085
9	390229	819561		JOE MC HARGUE	SOS WELL DRILLING & PUMP CO INC	212	63	ADA	03N	02E	36		NE	SE		9	4	SUNSET WEST	Domestic	25	100	0	0	0	125	12/20/1973	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=390229
17	390258	819590			ANONYMOUS DRILLER	9999	63	ADA	03N	02E	35			NE					Commercial	300	147	0	0	0	520	7/5/1968	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=390258
229	391801	821139			PHIPPS PUMPS & DRILLING	98	63	ADA	03N	03E	25		SW	SW					Domestic	9999	10	0	0	0	49	6/16/1976	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=391801
347	391865	821293		MARCUS MYERS	PHIPPS PUMPS & DRILLING	311	63	ADA	03N	02E	25		NE	NW					Domestic	0	50	0	0	0	66	1/18/1976	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=391865
366	393844	823193		LOWELL M SMITH	RANDALL DRILLING	111	63	ADA	03N	02E	25		NW	NW					Domestic	9999	100	0	0	0	35	12/31/9999	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=393844
248	393846	823195		BUNTING TRACTOR CO INC	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	26		SW	SW					Commercial	200	170	0	0	0	255	12/31/9999	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=393846
130	397772	827155		UNITED WATER IDAHO INC	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	35		NE	NW					Municipal	1500	270	0	0	0	772	5/15/1991	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=397772
214	398315	827699			R V CAMPBELL CORE DRILLING	250	63	ADA	03N	02E	25		SE	SE					Domestic	0	0	0	0	0	60	12/31/9999	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=398315
61	399158	828548		BROADWAY HOLDING CO	B & M WELL DRILLING CO	76	63	ADA	03N	02E	36		NE	NW					Domestic	0	192	0	0	0	404	10/19/1968	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=399158
266	403098	832508		FRANK HICKEY	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	25		NE	SE					Domestic	15	22	0	0	0	50	4/8/1954	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=403098
301	413087	842890		JASON DAY	PHIPPS PUMPS & DRILLING	311	63	ADA	03N	02E	26		SW	NE					Domestic	20	90	0	0	0	135	12/21/1980	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=413087
268	417943	847996		B GARLES	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	25		NW	SE	1/2 MILE S OLD HOLCOMB SCHOOL				Domestic	0	28	6	0	0	42	4/19/1960	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=417943
369	420428	850594		CARTER STREET LLC	PHIPPS PUMPS & DRILLING	311	63	ADA	03N	02E	25		NW	NW	1040 E CARTER ST	19		BROAD MOOR SUB	Domestic	0	18	6	0	0	37	12/5/2007	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=420428
294	422345	852574		BALLANTYNE BOISE PROPERTIES	PETE COPE DRILLING CO INC	213	63	ADA	03N	02E	25		NW	SE				CENTENNIAL	Municipal	1400	98	0	0	0	416	10/1/1976	GPS - Downl	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=422345
228	425522	855914		PRESTRESS CONCRETE	SOS WELL DRILLING & PUMP CO INC	212	63	ADA	03N	02E	25		SW	SW					Domestic	60	80	0	0	0	155	3/18/1980	QQ	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=425522
183	428123	858678		IDAHO POWER	ANONYMOUS DRILLER	9999	63	ADA	03N	02E	36		NW	NE	2001 AMITY ROAD				Domestic	2500	86	24	0	0	800	2/20/1966	GPS - Downl	http://www.idwr.idaho.gov/apps/appsWell/RelatedDocs.asp?WellID=428123

Table E-2

A-Zone Groundwater Elevation Data
Wabtec-MotivePower Facility
U.S. EPA ID No.: IDD980976831
Boise, Idaho

Monitoring Well RW-1

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2883.59	NM [2]	74.31	2809.28
1/17/2003	2883.59	NM	73.04	2810.55
4/1/2003	2883.59	NM	72.59	2811.00
7/11/2003	2883.59	NM	72.61	2810.98
9/30/2003	2883.59	92.18	73.37	2810.22
1/19/2004	2883.59	NM	74.88	2808.71
4/1/2004	2883.59	NM	74.86	2808.73
7/15/2004	2883.59	NM	75.18	2808.41
10/4/2004	2883.59	92.17	75.66	2807.93
1/10/2005	2883.59	NM	75.74	2807.85
4/2/2005	2883.59	NM	76.03	2807.56
7/19/2005	2883.59	NM	75.64	2807.95
10/3/2005	2883.59	92.2	75.74	2807.85
1/23/2006	2883.59	NM	75.94	2807.65
4/3/2006	2883.59	NM	74.96	2808.63
7/13/2006	2883.59	NM	74.50	2809.09
10/2/2006	2883.59	92.22	74.70	2808.89
1/11/2007	2883.59	92.22	74.58	2809.01
4/2/2007	2883.59	NM	74.96	2808.63
8/7/2007	2883.59	92.19	75.40	2808.19
10/9/2007	2883.59	92.2	75.72	2807.87
1/16/2008	2883.59	92.2	76.00	2807.59
4/14/2008	2883.59	92.2	75.36	2808.23
7/11/2008	2883.59	92.2	75.90	2807.69
10/6/2008	2883.59	92.2	76.47	2807.12
1/21/2009	2883.59	92.2	75.80	2807.79
4/6/2009	2883.59	92.2	75.85	2807.74
7/14/2009	2883.59	92.2	75.32	2808.27
10/6/2009	2883.59	92.2	75.77	2807.82
1/25/2010	2883.59	92.2	75.66	2807.93
4/13/2010	2883.59	92.2	74.82	2808.77
10/11/2010	2883.59	92.2	74.18	2809.41
4/4/2011	2883.59	92.2	73.13	2810.46
10/3/2011	2883.59	92.20	72.58	2811.01

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well RW-3

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2884.36	93.30	76.63	2807.73
1/17/2003	2884.36	NM	76.41	2807.95
4/1/2003	2884.36	NM	75.58	2808.78
7/11/2003	2884.36	NM	75.56	2808.80
9/30/2003	2884.36	93.28 [3]	75.78	2808.58
1/19/2004	2884.36	NM	76.52	2807.84
4/1/2004	2884.36	NM	76.22	2808.14
7/15/2004	2884.36	NM	76.18	2808.18
10/4/2004	2884.36	93.26	76.50	2807.86
1/10/2005	2884.36	NM	76.77	2807.59
4/2/2005	2884.36	NM	76.90	2807.46
7/19/2005	2884.36	NM	76.83	2807.53
10/3/2005	2884.36	93.30	76.54	2807.82
1/23/2006	2884.36	NM	77.42	2806.94
4/3/2006	2884.36	NM	75.84	2808.52
7/13/2006	2884.36	NM	72.18	2812.18
10/2/2006	2884.36	93.29	72.61	2811.75
1/11/2007	2884.36	93.29	72.66	2811.70
4/2/2007	2884.36	NM	74.39	2809.97
8/7/2007	2884.36	93.27	76.75	2807.61
10/9/2007	2884.36	93.28	76.99	2807.37
1/16/2008	2884.36	93.27	77.49	2806.87
4/14/2008	2884.36	93.28	76.30	2808.06
7/11/2008	2884.36	93.27	77.18	2807.18
10/6/2008	2884.36	93.28	77.44	2806.92
1/22/2009	2884.36	93.27	77.05	2807.31
4/6/2009	2884.36	93.27	77.38	2806.98
7/10/2009	2884.36	93.27	76.20	2808.16
10/6/2009	2884.36	93.28	76.17	2808.19
1/22/2010	2884.36	93.28	75.33	2809.03
4/13/2010	2884.36	93.28	75.36	2809.00
10/11/2010	2884.36	93.28	74.60	2809.76
4/4/2011	2884.36	93.28	74.08	2810.28
10/4/2011	2884.36	93.28	73.30	2811.06

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well RW-4

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2882.01	--- [4]	79.77	2802.24
1/13/2003	2882.01	---	77.68	2804.33
4/1/2003	2882.01	---	75.41	2806.60
7/29/2003	2882.01	---	75.49	2806.52
9/30/2003	2882.01	---	75.62	2806.39
1/20/2004	2882.01	---	76.27	2805.74
4/1/2004	2882.01	---	75.93	2806.08
7/14/2004	2882.01	---	75.73	2806.28
10/4/2004	2882.01	---	76.16	2805.85
1/10/2005	2882.01	---	76.16	2805.85
4/2/2005	2882.01	---	76.45	2805.56
7/19/2005	2882.01	---	76.01	2806.00
10/3/2005	2882.01	---	76.21	2805.80
1/23/2006	2882.01	---	76.53	2805.48
4/3/2006	2882.01	---	75.54	2806.47
7/14/2006	2882.01	---	75.25	2806.76
10/2/2006	2882.01	---	75.56	2806.45
1/12/2007	2882.01	92.00	75.71	2806.30
4/2/2007	2882.01	NM	75.86	2806.15
8/7/2007	2882.01	92.00	76.00	2806.01
10/9/2007	2882.01	92.00	76.26	2805.75
1/16/2008	2882.01	92.00	76.75	2805.26
4/14/2008	2882.01	92.00	75.82	2806.19
7/11/2008	2882.01	92.00	76.50	2805.51
10/6/2008	2882.01	92.00	76.82	2805.19
1/23/2009	2882.01	92.00	76.40	2805.61
4/6/2009	2882.01	92.00	76.61	2805.40
7/13/2009	2882.01	92.00	76.23	2805.78
10/6/2009	2882.01	92.00	76.10	2805.91
1/26/2010	2882.01	92.00	75.58	2806.43
4/13/2010	2882.01	92.00	75.58	2806.43
10/11/2010	2882.01	92.00	75.70	2806.31
4/4/2011	2882.01	92.00	74.93	2807.08
10/4/2011	2882.01	92.00	74.35	2807.66

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well RW-5

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2878.29	87.99	82.27	2796.02
4/1/2003	2878.29	NM	74.69	2803.60
9/30/2003	2878.29	86.65	74.77	2803.52
4/1/2004	2878.29	NM	74.37	2803.92
10/4/2004	2878.29	87.76	80.64	2797.65
4/2/2005	2878.29	NM	81.48	2796.81
7/11/2005	2878.29	NM	75.24	2803.05
10/3/2005	2878.29	87.96	79.77	2798.52
4/3/2006	2878.29	NM	74.25	2804.04
10/2/2006	2878.29	87.77	75.00	2803.29
4/2/2007	2878.29	NM	75.64	2802.65
10/9/2007	2878.29	88.04	82.70	2795.59
4/14/2008	2878.29	88.04	74.78	2803.51
10/6/2008	2878.29	88.05	82.48	2795.81
4/6/2009	2878.29	88.05	75.21	2803.08
7/14/2009	2878.29	88.05	73.91	2804.38
10/6/2009	2878.29	88.05	75.30	2802.99
4/13/2010	2878.29	88.05	73.44	2804.85
10/11/2010	2878.29	88.05	73.82	2804.47
4/4/2011	2878.29	88.05	73.02	2805.27
10/3/2011	2878.29	88.05	72.81	2805.48

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20. 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well RW-6

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2880.12	---[4]	72.99	2807.13
1/9/2003	2880.12	---	72.91	2807.21
4/1/2003	2880.12	---	72.37	2807.75
7/29/2003	2880.12	---	71.28	2808.84
9/30/2003	2880.12	---	71.65	2808.47
1/20/2004	2880.12	---	72.60	2807.52
4/1/2004	2880.12	---	72.49	2807.63
7/14/2004	2880.12	---	72.55	2807.57
10/4/2004	2880.12	---	72.93	2807.19
1/10/2005	2880.12	---	73.10	2807.02
4/2/2005	2880.12	---	73.10	2807.02
7/19/2005	2880.12	---	72.52	2807.60
10/3/2005	2880.12	---	72.74	2807.38
1/12/2006	2880.12	---	73.51	2806.61
4/3/2006	2880.12	---	72.00	2808.12
7/12/2006	2880.12	---	71.24	2808.88
10/2/2006	2880.12	---	71.65	2808.47
1/10/2007	2880.12	81.00	71.89	2808.23
4/2/2007	2880.12	NM	72.44	2807.68
7/12/2007	2880.12	81.00	72.76	2807.36
10/9/2007	2880.12	81.00	73.20	2806.92
1/16/2008	2880.12	81.00	73.65	2806.47
4/14/2008	2880.12	81.00	72.80	2807.32
7/9/2008	2880.12	81.00	71.80	2808.32
10/6/2008	2880.12	81.00	73.95	2806.17
1/19/2009	2880.12	81.00	73.60	2806.52
4/6/2009	2880.12	81.00	74.02	2806.10
7/14/2009	2880.12	81.00	72.60	2807.52
10/6/2009	2880.12	81.00	72.60	2807.52
1/21/2010	2880.12	81.00	72.40	2807.72
4/13/2010	2880.12	81.00	71.89	2808.23
10/11/2010	2880.12	81.00	71.97	2808.15
4/4/2011	2880.12	81.00	70.60	2809.52
10/3/2011	2880.12	81.00	70.26	2809.86

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well RW-7 (MW-1A1)

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2877.48	84.95	76.71	2800.77
1/13/2003	2877.48	NM	75.81	2801.67
4/1/2003	2877.48	NM	74.22	2803.26
7/8/2003	2877.48	NM	74.21	2803.27
9/30/2003	2877.48	84.94	74.91	2802.57
1/14/2004	2877.48	NM	75.02	2802.46
4/1/2004	2877.48	NM	74.62	2802.86
7/12/2004	2877.48	NM	75.12	2802.36
10/4/2004	2877.48	84.95	76.21	2801.27
1/5/2005	2877.48	NM	75.85	2801.63
4/2/2005	2877.48	NM	76.46	2801.02
7/8/2005	2877.48	NM	75.21	2802.27
10/3/2005	2877.48	84.89	76.40	2801.08
1/16/2006	2877.48	NM	74.89	2802.59
4/3/2006	2877.48	NM	73.64	2803.84
7/12/2006	2877.48	NM	73.69	2803.79
10/2/2006	2877.48	84.83	75.21	2802.27
1/10/2007	2877.48	84.83	74.19	2803.29
4/2/2007	2877.48	NM	75.20	2802.28
7/12/2007	2877.48	84.79	75.73	2801.75
10/9/2007	2877.48	84.60	76.44	2801.04
1/16/2008	2877.48	84.60	75.38	2802.10
4/14/2008	2877.48	84.60	74.83	2802.65
7/10/2008	2877.48	84.80	77.72	2799.76
10/6/2008	2877.48	84.60	77.00	2800.48
1/21/2009	2877.48	84.60	74.35	2803.13
4/6/2009	2877.48	84.60	75.18	2802.30
7/14/2009	2877.48	84.60	75.70	2801.78
10/6/2009	2877.48	84.60	76.05	2801.43
1/22/2010	2877.48	84.60	74.85	2802.63
4/13/2010	2877.48	84.60	73.40	2804.08
10/11/2010	2877.48	84.60	74.45	2803.03
4/4/2011	2877.48	84.60	74.03	2803.45
10/4/2011	2877.48	84.60	73.79	2803.69

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-5

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2874.29	76.45	71.89	2802.40
1/7/2003	2874.29	NM	72.20	2802.09
4/1/2003	2874.29	NM	71.61	2802.68
7/3/2003	2874.29	NM	71.46	2802.83
9/30/2003	2874.29	76.38	71.65	2802.64
1/13/2004	2874.29	NM	72.19	2802.10
4/1/2004	2874.29	NM	71.83	2802.46
7/9/2004	2874.29	NM	71.78	2802.51
10/4/2004	2874.29	76.36	71.97	2802.32
1/5/2005	2874.29	NM	71.99	2802.30
4/2/2005	2874.29	NM	72.10	2802.19
7/11/2005	2874.29	NM	71.80	2802.49
10/8/2005	2874.29	76.40	71.56	2802.73
1/11/2006	2874.29	NM	71.83	2802.46
4/3/2006	2874.29	NM	70.84	2803.45
7/11/2006	2874.29	NM	69.94	2804.35
10/2/2006	2874.29	76.41	70.61	2803.68
1/9/2007	2874.29	76.41	71.01	2803.28
4/2/2007	2874.29	NM	71.24	2803.05
7/11/2007	2874.29	76.41	71.39	2802.90
10/9/2007	2874.29	76.41	71.45	2802.84
1/16/2008	2874.29	76.41	71.90	2802.39
4/14/2008	2874.29	76.41	71.51	2802.78
7/9/2008	2874.29	76.40	71.80	2802.49
10/6/2008	2874.29	76.40	71.95	2802.34
1/19/2009	2874.29	76.41	72.24	2802.05
4/6/2009	2874.29	76.40	71.82	2802.47
7/14/2009	2874.29	76.40	71.28	2803.01
10/6/2009	2874.29	76.40	70.91	2803.38
1/21/2010	2874.29	76.40	71.62	2802.67
4/13/2010	2874.29	76.40	72.93	2801.36
10/11/2010	2874.29	76.40	73.08	2801.21
4/4/2011	2874.29	76.40	68.42	2805.87
10/3/2011	2874.29	76.40	70.81	2803.48

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-6

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2879.75	77.75	70.73	2809.02
4/1/2003	2879.75	NM	70.24	2809.51
9/30/2003	2879.75	77.74	70.95	2808.80
4/1/2004	2879.75	NM	72.17	2807.58
10/4/2004	2879.75	77.75	72.43	2807.32
4/2/2005	2879.75	NM	72.51	2807.24
7/8/2005	2879.75	NM	72.44	2807.31
10/3/2005	2879.75	77.66	72.48	2807.27
4/3/2006	2879.75	NM	72.18	2807.57
10/2/2006	2879.75	77.75	71.49	2808.26
4/2/2007	2879.75	NM	72.03	2807.72
10/9/2007	2879.75	77.85	72.53	2807.22
4/14/2008	2879.75	77.85	72.58	2807.17
10/6/2008	2879.75	77.85	73.47	2806.28
4/6/2009	2879.75	77.86	73.00	2806.75
10/6/2009	2879.75	77.85	72.60	2807.15
4/13/2010	2879.75	77.85	71.87	2807.88
10/11/2010	2879.75	77.85	71.12	2808.63
4/4/2011	2879.75	77.85	70.55	2809.20
10/3/2011	2879.75	77.85	69.62	2810.13

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-7

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2884.13	90.98	75.85	2808.28
1/14/2003	2884.13	NM	74.80	2809.33
4/1/2003	2884.13	NM	74.35	2809.78
7/9/2003	2884.13	NM	74.84	2809.29
9/30/2003	2884.13	90.88	75.05	2809.08
1/16/2004	2884.13	NM	76.10	2808.03
4/1/2004	2884.13	NM	76.49	2807.64
7/12/2004	2884.13	NM	76.76	2807.37
10/4/2004	2884.13	90.99	77.13	2807.00
1/6/2005	2884.13	NM	77.24	2806.89
4/2/2005	2884.13	NM	77.50	2806.63
7/12/2005	2884.13	NM	77.62	2806.51
10/3/2005	2884.13	90.93	77.38	2806.75
1/16/2006	2884.13	NM	77.97	2806.16
4/3/2006	2884.13	NM	77.07	2807.06
7/12/2006	2884.13	NM	76.34	2807.79
10/2/2006	2884.13	90.99	76.33	2807.80
1/11/2007	2884.13	90.99	76.09	2808.04
4/2/2007	2884.13	NM	76.65	2807.48
8/7/2007	2884.13	91.00	77.00	2807.13
10/9/2007	2884.13	90.96	77.37	2806.76
1/16/2008	2884.13	90.96	78.01	2806.12
4/14/2008	2884.13	90.96	77.22	2806.91
7/9/2008	2884.13	91.00	77.72	2806.41
10/6/2008	2884.13	90.95	78.16	2805.97
1/23/2009	2884.13	90.96	77.90	2806.23
4/6/2009	2884.13	90.96	78.08	2806.05
7/14/2009	2884.13	90.96	77.89	2806.24
10/6/2009	2884.13	90.95	77.89	2806.24
1/21/2010	2884.13	90.95	76.84	2807.29
4/13/2010	2884.13	90.95	77.00	2807.13
10/11/2010	2884.13	90.95	76.64	2807.49
4/4/2011	2884.13	90.95	75.73	2808.40
10/3/2011	2884.13	90.95	74.60	2809.53

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-11

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2876.58	72.53	66.82	2809.76
4/1/2003	2876.58	NM	66.99	2809.59
9/30/2003	2876.58	72.53	67.36	2809.22
4/1/2004	2876.58	NM	67.52	2809.06
10/4/2004	2876.58	72.52	67.37	2809.21
4/2/2005	2876.58	NM	67.28	2809.30
7/12/2005	2876.58	NM	67.23	2809.35
10/3/2005	2876.58	72.49	67.13	2809.45
4/3/2006	2876.58	NM	65.91	2810.67
10/2/2006	2876.58	72.54	64.51	2812.07
4/2/2007	2876.58	NM	64.82	2811.76
10/9/2007	2876.58	72.60	65.14	2811.44
4/14/2008	2876.58	72.60	64.90	2811.68
10/6/2008	2876.58	72.60	65.41	2811.17
4/6/2009	2876.58	72.60	65.18	2811.40
10/6/2009	2876.58	76.60	66.44	2810.14
10/11/2010	2876.58	76.60	66.28	2810.30
10/3/2011	2876.58	76.60	66.29	2810.29

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20. 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-16A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2883.01	93.04	74.91	2808.10
1/16/2003	2883.01	NM	74.49	2808.52
4/1/2003	2883.01	NM	73.57	2809.44
7/10/2003	2883.01	NM	73.91	2809.10
9/30/2003	2883.01	93.05	74.42	2808.59
1/19/2004	2883.01	NM	75.52	2807.49
4/1/2004	2883.01	NM	75.64	2807.37
7/12/2004	2883.01	NM	75.81	2807.20
10/4/2004	2883.01	93.06	76.19	2806.82
1/6/2005	2883.01	NM	76.22	2806.79
4/2/2005	2883.01	NM	76.48	2806.53
7/8/2005	2883.01	NM	76.34	2806.67
10/3/2005	2883.01	93.04	76.19	2806.82
1/12/2006	2883.01	NM	76.62	2806.39
4/3/2006	2883.01	NM	75.78	2807.23
7/12/2006	2883.01	NM	75.15	2807.86
10/2/2006	2883.01	93.05	75.31	2807.70
1/11/2007	2883.01	93.05	75.01	2808.00
4/2/2007	2883.01	NM	75.61	2807.40
7/11/2007	2883.01	93.03	75.70	2807.31
10/9/2007	2883.01	93.06	76.27	2806.74
1/16/2008	2883.01	93.06	76.80	2806.21
4/14/2008	2883.01	93.06	75.95	2807.06
7/9/2008	2883.01	93.02	76.65	2806.36
10/6/2008	2883.01	93.05	77.07	2805.94
1/21/2009	2883.01	93.06	76.62	2806.39
4/6/2009	2883.01	93.05	76.73	2806.28
7/14/2009	2883.01	93.05	76.45	2806.56
10/6/2009	2883.01	93.05	76.58	2806.43
1/21/2010	2883.01	93.05	75.58	2807.43
4/13/2010	2883.01	93.05	75.59	2807.42
10/11/2010	2883.01	93.05	75.23	2807.78
4/4/2011	2883.01	93.05	74.37	2808.64
10/3/2011	2883.01	93.05	73.51	2809.50

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-20A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2882.00	94.58	81.30	2800.70
1/16/2003	2882.00	NM	81.48	2800.52
4/1/2003	2882.00	NM	80.62	2801.38
7/9/2003	2882.00	NM	80.87	2801.13
9/30/2003	2882.00	94.60	80.68	2801.32
1/15/2004	2882.00	NM	80.89	2801.11
4/1/2004	2882.00	NM	81.01	2800.99
7/13/2004	2882.00	NM	80.80	2801.20
10/4/2004	2882.00	94.59	80.97	2801.03
1/5/2005	2882.00	NM	81.24	2800.76
4/2/2005	2882.00	NM	81.09	2800.91
7/12/2005	2882.00	NM	80.82	2801.18
10/3/2005	2882.00	94.58	79.71	2802.29
1/12/2006	2882.00	NM	79.11	2802.89
4/3/2006	2882.00	NM	78.44	2803.56
7/12/2006	2882.00	NM	78.05	2803.95
10/2/2006	2882.00	94.60	78.21	2803.79
1/12/2007	2882.00	94.60	78.55	2803.45
4/2/2007	2882.00	NM	78.95	2803.05
8/7/2007	2882.00	94.64	79.10	2802.90
10/9/2007	2882.00	94.60	79.19	2802.81
4/14/2008	2882.00	94.60	78.83	2803.17
7/10/2008	2882.00	94.64	76.90	2805.10
10/6/2008	2882.00	94.60	77.36	2804.64
1/22/2009	2882.00	94.60	79.20	2802.80
4/6/2009	2882.00	94.60	79.30	2802.70
7/14/2009	2882.00	94.60	78.54	2803.46
10/6/2009	2882.00	94.60	78.52	2803.48
1/22/2010	2882.00	94.60	NM	NM
4/13/2010	2882.00	94.60	78.00	2804.00
10/11/2010	2882.00	94.60	78.00	2804.00
4/4/2011	2882.00	94.60	77.79	2804.21
10/4/2011	2882.00	94.60	77.44	2804.56

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20. 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well OW-SS2A4

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2889.48	84.82	77.77	2811.71
4/1/2003	2889.48	NM	77.28	2812.20
9/30/2003	2889.48	84.79	78.21	2811.27
4/1/2004	2889.48	NM	78.99	2810.49
10/4/2004	2889.48	84.34	79.40	2810.08
4/4/2005	2889.48	NM	79.42	2810.06
7/11/2005	2889.48	NM	79.83	2809.65
10/3/2005	2889.48	84.81	79.75	2809.73
4/3/2006	2889.48	NM	79.97	2809.51
10/2/2006	2889.48	84.83	79.52	2809.96
4/2/2007	2889.48	NM	79.56	2809.92
10/9/2007	2889.48	84.86	79.87	2809.61
4/14/2008	2889.48	84.86	80.53	2808.95
10/6/2008	2889.48	84.86	81.05	2808.43
4/6/2009	2889.48	84.86	81.60	2807.88
10/6/2009	2889.48	84.86	81.43	2808.05
4/13/2010	2889.48	84.86	81.00	2808.48

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well OW-SS3A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2878.74	82.95	77.32	2801.42
4/1/2003	2878.74	NM	76.74	2802.00
9/30/2003	2878.74	82.95	77.22	2801.52
4/1/2004	2878.74	NM	76.66	2802.08
10/4/2004	2878.74	82.96	77.38	2801.36
4/4/2005	2878.74	NM	77.56	2801.18
7/11/2005	2878.74	NM	76.77	2801.97
10/3/2005	2878.74	82.96	77.31	2801.43
4/3/2006	2878.74	NM	76.37	2802.37
10/2/2006	2878.74	82.95	76.60	2802.14
4/2/2007	2878.74	NM	76.44	2802.30
10/9/2007	2878.74	82.96	77.11	2801.63
4/14/2008	2878.74	82.96	76.46	2802.28
10/6/2008	2878.74	82.97	77.60	2801.14
4/6/2009	2878.74	82.97	77.06	2801.68
10/6/2009	2878.74	82.98	77.28	2801.46
4/13/2010	2878.74	82.98	76.50	2802.24
10/11/2010	2878.74	82.98	77.00	2801.74
4/4/2011	2878.74	82.98	75.99	2802.75
10/4/2011	2878.74	82.98	76.21	2802.53

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well OW-SS4A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2876.35	72.69	68.81	2807.54
4/1/2003	2876.35	NM	67.47	2808.88
9/30/2003	2876.35	72.68	68.42	2807.93
4/1/2004	2876.35	NM	67.89	2808.46
10/4/2004	2876.35	72.68	68.27	2808.08
4/4/2005	2876.35	NM	68.53	2807.82
7/8/2005	2876.35	NM	67.00	2809.35
10/3/2005	2876.35	72.69	67.74	2808.61
4/3/2006	2876.35	NM	66.37	2809.98
10/2/2006	2876.35	72.69	66.30	2810.05
4/2/2007	2876.35	NM	67.10	2809.25
10/9/2007	2876.35	72.68	66.82	2809.53
4/14/2008	2876.35	72.68	65.98	2810.37
10/6/2008	2876.35	72.68	65.88	2810.47
4/6/2009	2876.35	72.68	65.33	2811.02
10/6/2009	2876.35	72.68	67.96	2808.39
4/13/2010	2876.35	72.68	67.14	2809.21
10/11/2010	2876.35	NM	NM	NM
4/4/2011	2876.35	72.68	66.60	2809.75

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-21A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2878.00	86.05	78.03	2799.97
4/1/2003	2878.00	NM	76.55	2801.45
9/30/2003	2878.00	86.05	76.44	2801.56
4/1/2004	2878.00	NM	76.36	2801.64
10/4/2004	2878.00	86.05	77.42	2800.58
4/2/2005	2878.00	NM	77.63	2800.37
7/11/2005	2878.00	NM	77.03	2800.97
10/3/2005	2878.00	86.05	77.48	2800.52
4/3/2006	2878.00	NM	76.21	2801.79
10/2/2006	2878.00	86.00	76.00	2802.00
4/2/2007	2878.00	NM	76.70	2801.30
10/9/2007	2878.00	86.00	77.66	2800.34
4/14/2008	2878.00	86.00	76.38	2801.62
10/6/2008	2878.00	86.00	77.89	2800.11
4/6/2009	2878.00	86.00	76.98	2801.02
7/9/2009	2878.00	86.00	76.31	2801.69
10/6/2009	2878.00	86.00	76.88	2801.12
1/20/2010	2878.00	86.00	76.42	2801.58
4/13/2010	2878.00	86.00	75.66	2802.34
10/11/2010	2878.00	86.00	75.51	2802.49
4/4/2011	2878.00	86.00	74.39	2803.61
10/4/2011	2878.00	86.00	74.50	2803.50

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-22A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2874.44	78.85	71.36	2803.08
4/1/2003	2874.44	NM	71.11	2803.33
9/30/2003	2874.44	78.85	70.76	2803.68
4/1/2004	2874.44	NM	71.44	2803.00
10/4/2004	2874.44	78.89	71.69	2802.75
4/2/2005	2874.44	NM	72.12	2802.32
7/7/2005	2874.44	NM	71.46	2802.98
10/3/2005	2874.44	78.91	71.40	2803.04
4/3/2006	2874.44	NM	70.60	2803.84
10/2/2006	2874.44	78.85	70.02	2804.42
4/2/2007	2874.44	NM	71.27	2803.17
10/9/2007	2874.44	78.82	72.04	2802.40
4/14/2008	2874.44	78.81	72.12	2802.32
10/6/2008	2874.44	78.82	72.62	2801.82
4/6/2009	2874.44	78.82	71.91	2802.53
10/6/2009	2874.44	78.80	71.85	2802.59
4/13/2010	2874.44	78.80	70.60	2803.84
10/11/2010	2874.44	78.80	69.83	2804.61
4/4/2011	2874.44	78.80	69.20	2805.24
10/3/2011	2874.44	78.80	68.88	2805.56

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-25A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2875.30	84.27	78.46	2796.84
1/14/2003	2875.30	NM	78.31	2796.99
4/1/2003	2875.30	NM	77.93	2797.37
9/30/2003	2875.30	84.25	78.07	2797.23
1/13/2004	2875.30	NM	77.83	2797.47
4/1/2004	2875.30	NM	77.60	2797.70
7/9/2004	2875.30	NM	77.54	2797.76
10/4/2004	2875.30	84.28	77.82	2797.48
1/5/2005	2875.30	NM	78.02	2797.28
4/2/2005	2875.30	NM	77.82	2797.48
7/7/2005	2875.30	NM	78.05	2797.25
10/3/2005	2875.30	84.25	78.05	2797.25
1/16/2006	2875.30	NM	78.34	2796.96
4/3/2006	2875.30	NM	77.61	2797.69
7/13/2006	2875.30	NM	77.09	2798.21
10/2/2006	2875.30	84.26	76.59	2798.71
1/9/2007	2875.30	84.26	76.89	2798.41
4/2/2007	2875.30	NM	77.32	2797.98
8/7/2007	2875.30	84.30	77.55	2797.75
10/9/2007	2875.30	84.27	77.52	2797.78
1/16/2008	2875.30	84.28	77.80	2797.50
4/14/2008	2875.30	84.27	77.30	2798.00
7/10/2008	2875.30	84.30	77.85	2797.45
10/6/2008	2875.30	84.28	78.19	2797.11
1/15/2009	2875.30	84.28	77.87	2797.43
4/6/2009	2875.30	84.28	77.96	2797.34
7/9/2009	2875.30	84.28	77.72	2797.58
10/6/2009	2875.30	84.28	78.29	2797.01
1/20/2010	2875.30	84.28	77.00	2798.30
4/13/2010	2875.30	84.28	77.02	2798.28
10/11/2010	2875.30	84.28	76.60	2798.70
4/4/2011	2875.30	84.28	76.04	2799.26
10/3/2011	2875.30	84.28	75.20	2800.10

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well OW-SS5A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2882.05	96.61	89.13	2792.92
1/13/2003	2882.05	NM	89.24	2792.81
4/1/2003	2882.05	NM	88.62	2793.43
7/3/2003	2882.05	NM	88.95	2793.10
9/30/2003	2882.05	96.44	88.75	2793.30
1/13/2004	2882.05	NM	88.99	2793.06
4/1/2004	2882.05	NM	88.83	2793.22
7/8/2004	2882.05	NM	89.01	2793.04
10/4/2004	2882.05	96.55	89.16	2792.89
1/4/2005	2882.05	NM	88.70	2793.35
4/2/2005	2882.05	NM	89.17	2792.88
7/7/2005	2882.05	NM	88.85	2793.20
10/3/2005	2882.05	95.80	88.71	2793.34
1/16/2006	2882.05	NM	89.08	2792.97
4/3/2006	2882.05	NM	88.98	2793.07
7/13/2006	2882.05	NM	88.45	2793.60
10/2/2006	2882.05	95.80	88.40	2793.65
1/9/2007	2882.05	95.80	88.40	2793.65
4/2/2007	2882.05	NM	88.42	2793.63
7/12/2007	2882.05	95.60	88.45	2793.60
10/9/2007	2882.05	95.55	88.62	2793.43
1/16/2008	2882.05	95.55	89.48	2792.57
4/14/2008	2882.05	95.55	88.66	2793.39
7/10/2008	2882.05	95.60	88.90	2793.15
10/6/2008	2882.05	95.55	89.30	2792.75
1/15/2009	2882.05	95.55	89.67	2792.38
4/6/2009	2882.05	95.55	89.24	2792.81
7/9/2009	2882.05	95.55	82.05	2800.00
10/6/2009	2882.05	95.55	85.65	2796.40
1/20/2010	2882.05	95.55	86.76	2795.29
4/13/2010	2882.05	95.55	86.60	2795.45
4/4/2011	2882.05	95.55	84.79	2797.26
10/3/2011	2882.05	95.55	84.10	2797.95

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-24A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2821.03	45.49	43.19	2777.84
4/1/2003	2821.03	NM	43.45	2777.58
9/30/2003	2821.03	45.49	42.63	2778.40
4/1/2004	2821.03	NM	42.20	2778.83
10/4/2004	2821.03	45.49	42.91	2778.12
4/2/2005	2821.03	NM	43.89	2777.14
10/3/2005	2821.03	45.49	43.47	2777.56
4/3/2006	2821.03	NM	42.34	2778.69
10/2/2006	2821.03	45.50	42.11	2778.92
4/2/2007	2821.03	NM	44.06	2776.97
10/9/2007	2821.03	45.50	42.83	2778.20
10/6/2008	2821.03	45.50	42.59	2778.44
4/6/2009	2821.03	45.50	43.81	2777.22
10/6/2009	2821.03	45.50	42.08	2778.95
4/13/2010	2821.03	45.50	42.44	2778.59
10/11/2010	2821.03	45.50	42.43	2778.60
4/4/2011	2821.03	45.50	42.57	2778.46
10/3/2011	2821.03	45.50	41.51	2779.52

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-28A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2817.89	52.94	37.42	2780.47
1/8/2003	2817.89	NM	38.95	2778.94
4/1/2003	2817.89	NM	39.01	2778.88
7/3/2003	2817.89	NM	38.20	2779.69
9/30/2003	2817.89	53.07	37.13	2780.76
1/8/2004	2817.89	NM	38.58	2779.31
4/1/2004	2817.89	NM	38.62	2779.27
7/8/2004	2817.89	NM	37.54	2780.35
10/4/2004	2817.89	53.03	37.15	2780.74
1/3/2005	2817.89	NM	38.49	2779.40
4/2/2005	2817.89	NM	39.18	2778.71
7/7/2005	2817.89	NM	37.89	2780.00
10/3/2005	2817.89	52.92	37.43	2780.46
1/11/2006	2817.89	NM	38.74	2779.15
4/3/2006	2817.89	NM	38.60	2779.29
7/11/2006	2817.89	NM	36.89	2781.00
10/2/2006	2817.89	53.04	37.15	2780.74
1/8/2007	2817.89	53.04	38.46	2779.43
4/2/2007	2817.89	NM	39.10	2778.79
7/11/2007	2817.89	52.85	37.85	2780.04
10/9/2007	2817.89	52.30	37.85	2780.04
1/16/2008	2817.89	52.30	38.92	2778.97
4/14/2008	2817.89	52.30	39.14	2778.75
7/8/2008	2817.89	52.85	34.57	2783.32
10/6/2008	2817.89	52.30	37.53	2780.36
1/14/2009	2817.89	52.30	36.75	2781.14
4/6/2009	2817.89	52.30	38.64	2779.25
7/9/2009	2817.89	52.30	37.50	2780.39
10/6/2009	2817.89	52.30	37.10	2780.79
1/19/2010	2817.89	52.30	38.43	2779.46
4/13/2010	2817.89	52.30	38.81	2779.08
4/4/2011	2817.89	52.30	37.88	2780.01
10/3/2011	2817.89	52.30	36.55	2781.34

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-29A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2821.15	43.48	41.19	2779.96
4/1/2003	2821.15	NM	41.93	2779.22
9/30/2003	2821.15	43.48	40.09	2781.06
4/1/2004	2821.15	NM	39.96	2781.19
10/4/2004	2821.15	43.48	39.73	2781.42
4/2/2005	2821.15	NM	40.59	2780.56
10/3/2005	2821.15	43.47	39.46	2781.69
4/3/2006	2821.15	NM	39.68	2781.47
10/2/2006	2821.15	43.49	39.91	2781.24
4/2/2007	2821.15	NM	41.90	2779.25
10/9/2007	2821.15	43.48	39.58	2781.57
10/6/2008	2821.15	43.48	41.10	2780.05
4/6/2009	2821.15	43.49	42.04	2779.11
10/6/2009	2821.15	43.49	41.40	2779.75
4/13/2010	2821.15	43.49	42.05	2779.10
10/11/2010	2821.15	43.49	40.03	2781.12
4/4/2011	2821.15	43.49	40.42	2780.73
10/3/2011	2821.15	43.49	39.40	2781.75

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-30AA

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2818.85	49.57	43.48	2775.37
1/8/2003	2818.85	NM	43.41	2775.44
4/1/2003	2818.85	NM	43.37	2775.48
7/3/2003	2818.85	NM	43.29	2775.56
9/30/2003	2818.85	49.46	42.90	2775.95
1/9/2004	2818.85	NM	43.21	2775.64
4/1/2004	2818.85	NM	43.29	2775.56
7/8/2004	2818.85	NM	43.20	2775.65
10/4/2004	2818.85	49.50	43.10	2775.75
1/5/2005	2818.85	NM	43.38	2775.47
4/2/2005	2818.85	NM	43.38	2775.47
7/8/2005	2818.85	NM	43.38	2775.47
10/3/2005	2818.85	49.49	43.21	2775.64
1/16/2006	2818.85	NM	43.63	2775.22
4/3/2006	2818.85	NM	43.26	2775.59
7/11/2006	2818.85	NM	42.96	2775.89
10/2/2006	2818.85	49.52	43.15	2775.70
1/9/2007	2818.85	49.52	43.41	2775.44
4/2/2007	2818.85	NM	43.44	2775.41
7/12/2007	2818.85	49.50	43.47	2775.38
10/9/2007	2818.85	49.50	43.40	2775.45
1/16/2008	2818.85	49.50	43.60	2775.25
4/14/2008	2818.85	49.50	43.68	2775.17
7/11/2008	2818.85	49.50	40.45	2778.40
10/6/2008	2818.85	49.50	33.09	2785.76
1/14/2009	2818.85	49.50	43.60	2775.25
4/6/2009	2818.85	49.50	43.46	2775.39
7/9/2009	2818.85	49.50	43.17	2775.68
10/6/2009	2818.85	49.50	43.14	2775.71
1/20/2010	2818.85	49.50	43.20	2775.65
4/13/2010	2818.85	49.50	43.25	2775.60
4/4/2011	2818.85	49.50	42.88	2775.97
10/4/2011	2818.85	49.50	41.57	2777.28

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-31A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2819.72	45.29	43.51	2776.21
4/1/2003	2819.72	NM	44.49	2775.23
9/30/2003	2819.72	45.28	41.87	2777.85
4/1/2004	2819.72	NM	44.14	2775.58
10/4/2004	2819.72	45.30	41.43	2778.29
4/2/2005	2819.72	NM	44.28	2775.44
7/8/2005	2819.72	NM	45.05	2774.67
10/3/2005	2819.72	45.28	45.08	2774.64
4/3/2006	2819.72	NM	44.42	2775.30
10/2/2006	2819.72	45.29	41.08	2778.64
4/2/2007	2819.72	NM	43.55	2776.17
10/9/2007	2819.72	45.20	44.38	2775.34
10/8/2008	2819.72	45.20	43.82	2775.90
4/6/2009	2819.72	45.20	43.94	2775.78
10/6/2009	2819.72	45.20	42.12	2777.60
4/13/2010	2819.72	45.20	43.21	2776.51
4/4/2011	2819.72	45.20	42.97	2776.75
10/3/2011	2819.72	45.20	39.67	2780.05

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-32A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2815.52	44.70	35.70	2779.82
4/1/2003	2815.52	NM	37.35	2778.17
9/30/2003	2815.52	44.79	35.38	2780.14
4/1/2004	2815.52	NM	37.06	2778.46
10/4/2004	2815.52	44.83	35.42	2780.10
4/2/2005	2815.52	NM	37.55	2777.97
7/6/2005	2815.52	NM	35.83	2779.69
10/3/2005	2815.52	44.81	35.59	2779.93
1/11/2006	2815.52	NM	37.03	2778.49
4/3/2006	2815.52	NM	36.96	2778.56
10/2/2006	2815.52	44.79	35.41	2780.11
4/2/2007	2815.52	NM	37.45	2778.07
10/9/2007	2815.52	44.51	36.09	2779.43
1/16/2008	2815.52	44.50	37.30	2778.22
4/14/2008	2815.52	44.51	37.48	2778.04
10/6/2008	2815.52	44.51	35.63	2779.89
4/6/2009	2815.52	44.51	36.78	2778.74
7/9/2009	2815.52	44.51	35.40	2780.12
10/6/2009	2815.52	44.52	35.17	2780.35
1/19/2010	2815.52	44.52	36.77	2778.75
4/13/2010	2815.52	44.52	37.02	2778.50
4/4/2011	2815.52	44.52	36.10	2779.42
10/3/2011	2815.52	44.52	34.58	2780.94

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-34A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2818.28	46.62	42.47	2775.81
4/1/2003	2818.28	NM	45.43	2772.85
7/2/2003	2818.28	NM	44.48	2773.80
9/30/2003	2818.28	46.61	41.72	2776.56
1/8/2004	2818.28	NM	45.60	2772.68
4/1/2004	2818.28	NM	45.59	2772.69
7/8/2004	2818.28	NM	42.23	2776.05
10/4/2004	2818.28	46.61	42.33	2775.95
1/3/2005	2818.28	NM	45.59	2772.69
4/2/2005	2818.28	NM	45.71	2772.57
7/7/2005	2818.28	NM	41.63	2776.65
10/3/2005	2818.28	46.61	42.38	2775.90
1/11/2006	2818.28	NM	45.57	2772.71
4/3/2006	2818.28	NM	45.50	2772.78
7/11/2006	2818.28	NM	40.74	2777.54
10/2/2006	2818.28	46.60	42.50	2775.78
1/8/2007	2818.28	46.60	45.65	2772.63
4/2/2007	2818.28	NM	45.94	2772.34
7/11/2007	2818.28	46.60	42.65	2775.63
11/9/2007	2818.28	46.60	43.77	2774.51
1/16/2008	2818.28	46.59	45.68	2772.60
4/14/2008	2818.28	46.60	44.78	2773.50
7/8/2008	2818.28	46.60	40.50	2777.78
10/6/2008	2818.28	46.60	42.18	2776.10
1/14/2009	2818.28	46.59	45.64	2772.64
4/6/2009	2818.28	46.60	44.75	2773.53
7/9/2009	2818.28	46.60	41.18	2777.10
10/6/2009	2818.28	46.60	41.00	2777.28
1/19/2010	2818.28	46.60	45.63	2772.65
4/13/2010	2818.28	46.60	45.55	2772.73
4/4/2011	2818.28	46.60	43.64	2774.64
10/3/2011	2818.28	46.60	39.97	2778.31

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-35A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2810.40	41.08	33.63	2776.77
1/8/2003	2810.40	NM	36.69	2773.71
4/1/2003	2810.40	NM	36.01	2774.39
7/2/2003	2810.40	NM	33.21	2777.19
9/30/2003	2810.40	41.15	32.99	2777.41
1/8/2004	2810.40	NM	36.36	2774.04
4/1/2004	2810.40	NM	36.57	2773.83
7/7/2004	2810.40	NM	31.86	2778.54
10/4/2004	2810.40	41.24	33.40	2777.00
1/3/2005	2810.40	NM	36.53	2773.87
4/2/2005	2810.40	NM	36.82	2773.58
7/6/2005	2810.40	NM	31.75	2778.65
10/3/2005	2810.40	41.27	33.25	2777.15
1/11/2006	2810.40	NM	36.57	2773.83
4/3/2006	2810.40	NM	35.70	2774.70
7/11/2006	2810.40	NM	31.18	2779.22
10/2/2006	2810.40	41.30	33.53	2776.87
1/8/2007	2810.40	41.30	36.45	2773.95
4/2/2007	2810.40	NM	36.83	2773.57
7/11/2007	2810.40	41.25	32.66	2777.74
10/9/2007	2810.40	41.20	34.55	2775.85
4/14/2008	2810.40	41.20	35.58	2774.82
7/9/2008	2810.40	41.25	30.60	2779.80
10/6/2008	2810.40	41.20	33.33	2777.07
1/14/2009	2810.40	41.30	36.50	2773.90
4/6/2009	2810.40	41.20	33.34	2777.06
7/9/2009	2810.40	41.20	40.02	2770.38
10/6/2009	2810.40	41.20	32.68	2777.72
1/18/2010	2810.40	41.20	36.41	2773.99
4/13/2010	2810.40	41.20	38.91	2771.49
4/4/2011	2810.40	41.20	35.72	2774.68
10/3/2011	2810.40	41.20	31.95	2778.45

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-37A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2751.03	33.84	5.01	2746.02
1/9/2003	2751.03	NM	10.32	2740.71
4/1/2003	2751.03	NM	12.50	2738.53
7/1/2003	2751.03	NM	7.15	2743.88
9/30/2003	2751.03	33.85	5.47	2745.56
1/7/2004	2751.03	NM	10.39	2740.64
4/1/2004	2751.03	NM	11.91	2739.12
7/6/2004	2751.03	NM	6.26	2744.77
10/4/2004	2751.03	33.79	5.52	2745.51
1/4/2005	2751.03	NM	10.12	2740.91
4/2/2005	2751.03	NM	13.26	2737.77
7/5/2005	2751.03	NM	7.96	2743.07
10/3/2005	2751.03	33.78	5.48	2745.55
1/9/2006	2751.03	NM	9.95	2741.08
4/3/2006	2751.03	NM	12.18	2738.85
7/10/2006	2751.03	NM	6.77	2744.26
10/2/2006	2751.03	33.83	5.41	2745.62
1/5/2007	2751.03	33.83	9.98	2741.05
4/2/2007	2751.03	NM	12.98	2738.05
7/10/2007	2751.03	33.78	5.95	2745.08
10/9/2007	2751.03	33.65	6.31	2744.72
1/16/2008	2751.03	33.65	11.50	2739.53
4/14/2008	2751.03	33.65	13.45	2737.58
7/8/2008	2751.03	33.78	7.50	2743.53
10/6/2008	2751.03	33.65	5.48	2745.55
1/12/2009	2751.03	33.65	10.05	2740.98
4/6/2009	2751.03	33.65	12.80	2738.23
7/9/2009	2751.03	33.65	6.97	2744.06
10/6/2009	2751.03	33.64	5.14	2745.89
1/18/2010	2751.03	33.64	9.76	2741.27
4/13/2010	2751.03	33.64	12.05	2738.98
10/11/2010	2751.03	33.64	5.70	2745.33
4/4/2011	2751.03	33.64	11.01	2740.02
10/3/2011	2751.03	33.65	4.43	2746.60

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-38A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2755.03	33.25	5.88	2749.15
1/7/2003	2755.03	NM	11.29	2743.74
4/1/2003	2755.03	NM	13.60	2741.43
7/1/2003	2755.03	NM	8.92	2746.11
9/30/2003	2755.03	33.20	6.11	2748.92
1/8/2004	2755.03	NM	11.58	2743.45
4/1/2004	2755.03	NM	13.13	2741.90
7/7/2004	2755.03	NM	7.92	2747.11
10/4/2004	2755.03	33.25	6.35	2748.68
1/3/2005	2755.03	NM	11.15	2743.88
4/2/2005	2755.03	NM	14.33	2740.70
7/6/2005	2755.03	NM	9.49	2745.54
7/20/2005	2755.03	NM	8.42	2746.61
10/3/2005	2755.03	33.20	6.42	2748.61
11/21/2005	2755.03	NM	9.26	2745.77
1/9/2006	2755.03	NM	11.02	2744.01
4/3/2006	2755.03	NM	13.19	2741.84
7/10/2006	2755.03	NM	7.63	2747.40
10/2/2006	2755.03	33.21	5.94	2749.09
1/5/2007	2755.03	33.21	10.74	2744.29
4/2/2007	2755.03	NM	13.92	2741.11
7/10/2007	2755.03	33.20	7.30	2747.73
10/9/2007	2755.03	33.00	6.92	2748.11
1/16/2008	2755.03	33.00	12.30	2742.73
4/14/2008	2755.03	33.00	14.52	2740.51
7/8/2008	2755.03	33.20	8.30	2746.73
10/6/2008	2755.03	33.00	8.78	2746.25
1/13/2009	2755.03	33.00	10.87	2744.16
4/6/2009	2755.03	33.00	13.34	2741.69
7/9/2009	2755.03	33.00	7.67	2747.36
10/6/2009	2755.03	33.00	5.18	2749.85
1/19/2010	2755.03	33.00	10.60	2744.43
4/13/2010	2755.03	33.00	12.96	2742.07
4/4/2011	2755.03	33.00	12.01	2743.02
10/3/2011	2755.03	33.00	4.43	2750.60

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-39A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2758.3	41.8	8.7	2749.6
1/7/2003	2758.3	NM	15.2	2743.1
4/1/2003	2758.3	NM	17.8	2740.5
7/1/2003	2758.3	NM	12.1	2746.2
9/30/2003	2758.3	41.8	9.3	2749.0
1/7/2004	2758.3	NM	15.5	2742.8
4/1/2004	2758.3	NM	17.3	2741.0
7/6/2004	2758.3	NM	11.5	2746.8
10/4/2004	2758.3	41.8	9.8	2748.5
1/4/2005	2758.3	NM	15.1	2743.2
4/2/2005	2758.3	NM	18.5	2739.8
7/6/2005	2758.3	NM	13.2	2745.2
10/3/2005	2758.3	41.7	9.6	2748.7
1/9/2006	2758.3	NM	15.1	2743.2
4/3/2006	2758.3	NM	17.2	2741.1
7/10/2006	2758.3	NM	11.0	2747.3
10/2/2006	2758.3	41.7	9.1	2749.3
1/5/2007	2758.3	41.7	14.7	2743.6
4/2/2007	2758.3	NM	18.1	2740.2
7/11/2007	2758.3	41.8	10.6	2747.8
10/9/2007	2758.3	41.7	10.3	2748.0
1/16/2008	2758.3	41.7	16.3	2742.0
4/14/2008	2758.3	41.7	18.7	2739.6
7/8/2008	2758.3	41.8	11.8	2746.5
10/6/2008	2758.3	41.7	9.1	2749.2
1/13/2009	2758.3	41.7	15.0	2743.3
4/6/2009	2758.3	41.7	17.9	2740.4
7/9/2009	2758.3	41.7	11.3	2747.0
10/6/2009	2758.3	41.7	8.8	2749.5
1/19/2010	2758.3	41.7	14.7	2743.6
4/13/2010	2758.3	41.7	17.2	2741.1
10/11/2010	2758.3	41.7	9.9	2748.4
4/4/2011	2758.3	41.7	16.4	2741.9
10/3/2011	2758.3	41.7	8.3	2750.0

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-40A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2754.19	40.70	6.42	2747.77
4/1/2003	2754.19	NM	14.85	2739.34
9/30/2003	2754.19	40.70	6.79	2747.40
4/1/2004	2754.19	NM	14.33	2739.86
10/4/2004	2754.19	40.87	7.81	2746.38
4/2/2005	2754.19	NM	15.54	2738.65
7/6/2005	2754.19	NM	9.56	2744.63
10/3/2005	2754.19	40.76	6.99	2747.20
1/9/2006	2754.19	NM	12.14	2742.05
4/3/2006	2754.19	NM	14.26	2739.93
7/10/2006	2754.19	NM	8.11	2746.08
10/2/2006	2754.19	40.71	6.79	2747.40
1/5/2007	2754.19	40.71	12.02	2742.17
4/2/2007	2754.19	NM	15.21	2738.98
10/9/2007	2754.19	40.72	7.99	2746.20
4/14/2008	2754.19	40.72	14.55	2739.64
10/6/2008	2754.19	40.72	6.82	2747.37
4/6/2009	2754.19	40.72	14.95	2739.24
10/6/2009	2754.19	40.72	6.53	2747.66
4/13/2010	2754.19	40.72	14.23	2739.96
10/11/2010	2754.19	40.72	7.38	2746.81
4/4/2011	2754.19	40.72	13.40	2740.79
10/3/2011	2754.19	40.72	6.15	2748.04

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-41A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2752.44	26.59	3.94	2748.50
4/1/2003	2752.44	NM	10.16	2742.28
9/30/2003	2752.44	26.55 [3]	4.33	2748.11
4/1/2004	2752.44	NM	9.80	2742.64
10/4/2004	2752.44	26.56	4.31	2748.13
4/2/2005	2752.44	NM	11.07	2741.37
7/5/2005	2752.44	NM	7.01	2745.43
10/3/2005	2752.44	26.58	4.33	2748.11
1/9/2006	2752.44	NM	7.79	2744.65
4/3/2006	2752.44	NM	9.83	2742.61
7/10/2006	2752.44	NM	5.33	2747.11
10/2/2006	2752.44	26.57	3.82	2748.62
1/9/2007	2752.44	26.57	7.81	2744.63
4/2/2007	2752.44	NM	10.49	2741.95
10/9/2007	2752.44	26.57	4.50	2747.94
4/14/2008	2752.44	26.57	11.00	2741.44
10/6/2008	2752.44	26.57	3.70	2748.74
1/13/2009	2752.44	26.57	7.63	2744.81
4/6/2009	2752.44	26.57	9.78	2742.66
10/6/2009	2752.44	26.58	2.89	2749.55
4/13/2010	2752.44	26.58	9.44	2743.00
10/11/2010	2752.44	26.58	3.93	2748.51
4/4/2011	2752.44	26.58	5.49	2746.95
10/3/2011	2752.44	26.58	1.62	2750.82

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-42A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2748.49	34.36 [5]	6.16	2742.33
4/1/2003	2748.49	NM	13.03	2735.46
9/30/2003	2748.49	34.39	6.53	2741.96
4/1/2004	2748.49	NM	12.21	2736.28
10/4/2004	2748.49	34.39	6.51	2741.98
4/2/2005	2748.49	NM	13.67	2734.82
7/5/2005	2748.49	NM	8.09	2740.40
10/3/2005	2748.49	34.31	6.24	2742.25
4/3/2006	2748.49	NM	12.82	2735.67
10/2/2006	2748.49	34.34	6.36	2742.13
4/2/2007	2748.49	NM	13.76	2734.73
10/9/2007	2748.49	34.27	7.35	2741.14
4/14/2008	2748.49	34.27	13.76	2734.73
10/6/2008	2748.49	34.27	6.55	2741.94
4/6/2009	2748.49	34.27	13.30	2735.19
10/6/2009	2748.49	34.27	6.18	2742.31
4/13/2010	2748.49	34.27	12.31	2736.18
10/11/2010	2748.49	34.27	6.41	2742.08
4/5/2011	2748.49	34.27	11.22	2737.27
10/3/2011	2748.49	34.27	5.38	2743.11

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-2 cont.

Monitoring Well MW-44A

Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Groundwater Elevation (feet)
10/1/2002	2744.75	27.26	7.05	2737.70
4/1/2003	2744.75	NM	13.1	2731.65
9/30/2003	2744.75	27.18	7.06	2737.69
4/1/2004	2744.75	NM	12.08	2732.67
10/4/2004	2744.75	25.27	6.91	2737.84
1/4/2005	2744.75	27.27 [6]	10.56	2734.19
4/2/2005	2744.75	NM	13.5	2731.25
7/6/2005	2744.75	NM	8.89	2735.86
10/3/2005	2744.75	27.21	6.86	2737.89
4/3/2006	2744.75	NM	13.15	2731.60
10/2/2006	2744.75	27.3	6.66	2738.09
4/2/2007	2744.75	NM	14.31	2730.44
10/9/2007	2744.75	27.17	8.22	2736.53
4/14/2008	2744.75	27.17	14.5	2730.25
10/11/2010	2744.75	27.17	6.48	2738.27
4/5/2011	2744.75	27.17	10.38	2734.37
10/3/2011	2744.75	27.17	4.83	2739.92

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period during the monitoring events.

[2] NM - Not Measured.

[3] Total well depth remeasured on November 20, 2002.

[4] Dedicated submersible pump.

[5] Total well depth as measured on December 10, 2002.

[6] Total well depth was measured in January because October measurement was almost two feet less than previous measurements.

Table E-3

B-Zone Groundwater Elevation Data
Wabtec-MotivePower Facility
U.S. EPA ID No.: IDD980976831
Boise, Idaho

MW-1B				
Sample Date	**Top of Casing Elevation (mean sea level)**	**Depth to Bottom (feet)**	**Depth to Water (feet) [1]**	**Elevation (feet)**
4/1/2002	2876.02	---[2]	148.25	2727.77
10/1/2002	2876.02	---	148.88	2727.14
9/30/2003	2876.02	---	148.89	2727.13
4/1/2004	2876.02	---	148.86	2727.16
10/4/2004	2876.02	---	148.88	2727.14
6/23/2005	2876.02	---	149.11	2726.91
10/3/2005	2876.02	167.2	149.06	2726.96
4/3/2006	2876.02	---	149.18	2726.84
10/2/2006	2876.02	---	149.30	2726.72
4/2/2007	2876.02	---	149.44	2726.58
10/9/2007	2876.02	167.2	149.20	2726.82
4/14/2008	2876.02	167.2	148.90	2727.12
10/6/2008	2876.02	167.2	149.70	2726.32
4/6/2009	2876.02	167.21	149.61	2726.41
10/6/2009	2876.02	167.2	149.50	2726.52
4/13/2010	2876.02	167.2	148.68	2727.34
10/11/2010	2876.02	167.2	149.20	2726.82
4/4/2011	2876.02	167.2	148.91	2727.11
10/3/2011	2876.02	167.20	148.38	2727.64

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period in October.

[2] Dedicated submersible pump.

[3] NM - Not Measured.

[4] The water levels measured on October 6, 2008 and April 6, 2009 were believed to be in error. The water levels were remeasured on December 2, 2008 and June 5, 2009.

Table E-3 cont.

MW-2				
Sample Date	**Top of Casing Elevation (mean sea level)**	**Depth to Bottom (feet)**	**Depth to Water (feet) [1]**	**Elevation (feet)**
4/1/2002	2874.86	NM [3]	145.32	2729.54
10/1/2002	2874.86	161.60	146.04	2728.82
9/30/2003	2874.86	161.59	146.11	2728.75
4/1/2004	2874.86	NM	145.81	2729.05
10/4/2004	2874.86	161.58	146.06	2728.80
4/2/2005	2874.86	NM	145.79	2729.07
6/24/2005	2874.86	NM	146.00	2728.86
10/3/2005	2874.86	161.58	146.03	2728.83
4/3/2006	2874.86	NM	146.21	2728.65
10/2/2006	2874.86	161.56	146.21	2728.65
4/2/2007	2874.86	NM	146.43	2728.43
10/9/2007	2874.86	161.57	146.42	2728.44
4/14/2008	2874.86	161.57	146.11	2728.75
10/6/2008	2874.86	161.57	146.90	2727.96
4/6/2009	2874.86	161.58	147.02	2727.84
10/6/2009	2874.86	161.60	147.05	2727.81
4/13/2010	2874.86	161.60	146.14	2728.72
10/11/2010	2874.86	161.60	147.81	2727.05
4/4/2011	2874.86	161.60	146.17	2728.69
10/3/2011	2874.86	161.60	145.41	2729.45

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period in October.

[2] Dedicated submersible pump.

[3] NM - Not Measured.

[4] The water levels measured on October 6, 2008 and April 6, 2009 were believed to be in error. The water levels were remeasured on December 2, 2008 and June 5, 2009.

Table E-3 cont.

MW-3				
Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Elevation (feet)
4/1/2002	2890.94	NM	126.27	2764.67
10/1/2002	2890.94	147.82	126.60	2764.34
9/30/2003	2890.94	147.88	126.95	2763.99
4/1/2004	2890.94	NM	127.02	2763.92
10/4/2004	2890.94	147.89	127.00	2763.94
4/2/2005	2890.94	NM	126.87	2764.07
10/3/2005	2890.94	147.92	126.75	2764.19
4/3/2006	2890.94	NM	126.81	2764.13
10/2/2006	2890.94	147.89	126.31	2764.63
4/2/2007	2890.94	NM	126.14	2764.80
10/9/2007	2890.94	147.91	125.95	2764.99
4/14/2008	2890.94	147.91	125.90	2765.04
10/6/2008	2890.94	147.91	126.63	2764.31
4/6/2009	2890.94	147.90	126.83	2764.11
10/6/2009	2890.94	147.90	126.40	2764.54
4/13/2010	2890.94	147.90	121.61	2769.33
10/11/2010	2890.94	147.90	125.74	2765.20
4/4/2011	2890.94	147.90	125.48	2765.46
10/3/2011	2890.94	147.90	124.91	2766.03

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period in October.

[2] Dedicated submersible pump.

[3] NM - Not Measured.

[4] The water levels measured on October 6, 2008 and April 6, 2009 were believed to be in error. The water levels were remeasured on December 2, 2008 and June 5, 2009.

Table E-3 cont.

MW-8				
Sample Date	**Top of Casing Elevation (mean sea level)**	**Depth to Bottom (feet)**	**Depth to Water (feet) [1]**	**Elevation (feet)**
4/1/2002	2887.39	---[2]	153.56	2733.83
10/1/2002	2887.39	---	154.14	2733.25
9/30/2003	2887.39	---	154.25	2733.14
4/1/2004	2887.39	---	154.27	2733.12
10/4/2004	2887.39	---	154.38	2733.01
4/2/2005	2887.39	---	154.22	2733.17
6/23/2005	2887.39	---	154.36	2733.03
10/3/2005	2887.39	163.52	154.31	2733.08
4/3/2006	2887.39	---	154.35	2733.04
10/2/2006	2887.39	---	154.51	2732.88
4/2/2007	2887.39	---	154.48	2732.91
10/9/2007	2887.39	163.50	154.22	2733.17
4/14/2008	2887.39	163.50	153.79	2733.60
10/6/2008	2887.39	163.50	154.62	2732.77
4/6/2009	2887.39	163.50	154.50	2732.89
10/6/2009	2887.39	163.51	154.49	2732.90
4/13/2010	2887.39	163.51	154.72	2732.67
10/11/2010	2887.39	163.51	154.23	2733.16
4/4/2011	2887.39	163.50	153.82	2733.57
10/3/2011	2887.39	163.51	152.93	2734.46

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period in October.

[2] Dedicated submersible pump.

[3] NM - Not Measured.

[4] The water levels measured on October 6, 2008 and April 6, 2009 were believed to be in error. The water levels were remeasured on December 2, 2008 and June 5, 2009.

Table E-3 cont.

MW-10				
Sample Date	**Top of Casing Elevation (mean sea level)**	**Depth to Bottom (feet)**	**Depth to Water (feet) [1]**	**Elevation (feet)**
4/1/2002	2889.77	NM	155.94	2733.83
10/1/2002	2889.77	158.31	156.29	2733.48
9/30/2003	2889.77	158.30	156.41	2733.36
4/1/2004	2889.77	NM	156.40	2733.37
10/4/2004	2889.77	158.31	156.59	2733.18
4/2/2005	2889.77	NM	156.46	2733.31
10/3/2005	2889.77	158.32	156.50	2733.27
4/3/2006	2889.77	NM	156.54	2733.23
10/2/2006	2889.77	158.33	156.70	2733.07
4/2/2007	2889.77	NM	156.53	2733.24
10/9/2007	2889.77	158.32	156.41	2733.36
4/14/2008	2889.77	158.32	156.04	2733.73
10/6/2008	2889.77	158.32	156.61	2733.16
4/6/2009	2889.77	158.33	156.55	2733.22
10/6/2009	2889.77	158.34	156.50	2733.27
4/13/2010	2889.77	158.34	156.01	2733.76
10/11/2010	2889.77	158.34	156.30	2733.47
4/4/2011	2889.77	158.34	156.04	2733.73
10/3/2011	2889.77	158.34	155.22	2734.55

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period in October.

[2] Dedicated submersible pump.

[3] NM - Not Measured.

[4] The water levels measured on October 6, 2008 and April 6, 2009 were believed to be in error. The water levels were remeasured on December 2, 2008 and June 5, 2009.

Table E-3 cont.

MW-12				
Sample Date	**Top of Casing Elevation (mean sea level)**	**Depth to Bottom (feet)**	**Depth to Water (feet) [1]**	**Elevation (feet)**
4/1/2002	2876.45	NM	152.60	2723.85
10/1/2002	2876.45	164.29	153.10	2723.35
9/30/2003	2876.45	164.27	153.20	2723.25
4/1/2004	2876.45	NM	152.97	2723.48
10/4/2004	2876.45	164.29	153.27	2723.18
4/2/2005	2876.45	NM	153.13	2723.32
6/24/2005	2876.45	NM	153.18	2723.27
10/3/2005	2876.45	164.27	153.11	2723.34
4/3/2006	2876.45	NM	153.43	2723.02
10/2/2006	2876.45	164.30	153.43	2723.02
4/2/2007	2876.45	NM	153.53	2722.92
10/9/2007	2876.45	164.30	153.62	2722.83
4/14/2008	2876.45	164.30	153.23	2723.22
10/6/2008	2876.45	164.30	153.78	2722.67
4/6/2009	2876.45	164.30	154.00	2722.45
10/6/2009	2876.45	164.30	154.00	2722.45
4/13/2010	2876.45	164.30	153.37	2723.08
10/11/2010	2876.45	164.30	154.05	2722.40
4/4/2011	2876.45	164.30	153.56	2722.89
10/3/2011	2876.45	164.30	152.96	2723.49

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period in October.

[2] Dedicated submersible pump.

[3] NM - Not Measured.

[4] The water levels measured on October 6, 2008 and April 6, 2009 were believed to be in error. The water levels were remeasured on December 2, 2008 and June 5, 2009.

Table E-3 cont.

MW-16B				
Sample Date	Top of Casing Elevation (mean sea level)	Depth to Bottom (feet)	Depth to Water (feet) [1]	Elevation (feet)
4/1/2002	2883.04	NM	151.66	2731.38
10/1/2002	2883.04	158.81	152.23	2730.81
9/30/2003	2883.04	158.58	152.30	2730.74
4/1/2004	2883.04	NM	152.26	2730.78
10/4/2004	2883.04	158.60	152.37	2730.67
4/2/2005	2883.04	NM	152.20	2730.84
10/3/2005	2883.04	158.60	152.39	2730.65
4/3/2006	2883.04	NM	152.50	2730.54
10/2/2006	2883.04	158.58	152.73	2730.31
4/2/2007	2883.04	NM	152.69	2730.35
10/9/2007	2883.04	158.63	152.61	2730.43
4/14/2008	2883.04	158.63	152.12	2730.92
10/6/2008	2883.04	158.63	152.82	2730.22
4/6/2009	2883.04	158.63	152.69	2730.35
10/6/2009	2883.04	158.63	152.77	2730.27
4/13/2010	2883.04	158.63	152.07	2730.97
10/11/2010	2883.04	158.63	152.42	2730.62
4/4/2011	2883.04	158.63	152.00	2731.04
10/3/2011	2883.04	158.63	151.33	2731.71

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period in October.

[2] Dedicated submersible pump.

[3] NM - Not Measured.

[4] The water levels measured on October 6, 2008 and April 6, 2009 were believed to be in error. The water levels were remeasured on December 2, 2008 and June 5, 2009.

Table E-3 cont.

MW-17B				
Sample Date	**Top of Casing Elevation (mean sea level)**	**Depth to Bottom (feet)**	**Depth to Water (feet) [1]**	**Elevation (feet)**
10/1/2002	2887.40	165.84	154.82	2732.58
4/1/2003	2887.40	NM	154.25	2733.15
9/30/2003	2887.40	165.78	154.93	2732.47
4/1/2004	2887.40	NM	154.95	2732.45
10/4/2004	2887.40	165.69	155.15	2732.25
4/2/2005	2887.40	NM	154.99	2732.41
10/3/2005	2887.40	165.74	154.98	2732.42
4/3/2006	2887.40	NM	155.03	2732.37
10/2/2006	2887.40	165.60	155.19	2732.21
4/2/2007	2887.40	NM	155.09	2732.31
10/9/2007	2887.40	165.55	154.83	2732.57
4/14/2008	2887.40	165.55	154.34	2733.06
10/6/2008	2887.40	165.55	155.13	2732.27
4/6/2009	2887.40	165.55	155.10	2732.30
10/6/2009	2887.40	165.55	155.05	2732.35
4/13/2010	2887.40	165.55	154.33	2733.07
10/11/2010	2887.40	165.55	154.70	2732.70
4/4/2011	2887.40	165.55	154.53	2732.87
10/3/2011	2887.40	165.55	153.17	2734.23

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period in October.

[2] Dedicated submersible pump.

[3] NM - Not Measured.

[4] The water levels measured on October 6, 2008 and April 6, 2009 were believed to be in error. The water levels were remeasured on December 2, 2008 and June 5, 2009.

Table E-3 cont.

MW-18B [4]				
Sample Date	**Top of Casing Elevation (mean sea level)**	**Depth to Bottom (feet)**	**Depth to Water (feet) [1]**	**Elevation (feet)**
4/1/2003	2878.79	---[2]	148.66	2730.13
9/30/2003	2878.79	---	149.25	2729.54
10/1/2003	2878.79	---	149.31	2729.48
4/1/2004	2878.79	---	149.21	2729.58
10/4/2004	2878.79	---	149.23	2729.56
4/2/2005	2878.79	---	149.14	2729.65
10/3/2005	2878.79	163.57	149.40	2729.39
4/3/2006	2878.79	---	149.61	2729.18
10/2/2006	2878.79	---	149.85	2728.94
4/2/2007	2878.79	---	149.44	2729.35
10/9/2007	2878.79	163.50	149.80	2728.99
4/14/2008	2878.79	163.57	150.09	2728.70
10/6/2008	2878.79	163.50	162.80	2715.99
12/2/2008	2878.79	---	149.70	2729.09
4/6/2009	2878.79	163.50	162.80	2715.99
6/5/2009	2878.79	---	161.50	2717.29
10/6/2009	2878.79	163.50	160.20	2718.59
4/13/2010	2878.79	163.50	149.03	2729.76
10/11/2010	2878.79	163.50	149.54	2729.25
4/4/2011	2878.79	163.50	149.32	2729.47
10/3/2011	2878.79	163.50	148.98	2729.81

Footnotes:

[1] The depth to groundwater is measured within a 24- to 48-hour period in October.

[2] Dedicated submersible pump.

[3] NM - Not Measured.

[4] The water levels measured on October 6, 2008 and April 6, 2009 were believed to be in error. The water levels were remeasured on December 2, 2008 and June 5, 2009.

Table E-4

Dissolved Constituents Detected in Areas 1,2,3, and 4 Since 2009
Wabtec-MotivePower Facility
U.S. EPA ID No.: IDD980976831
Boise, Idaho

Hazardous Constituents	GPSs (µg/L)[1]	Sunrise Terrace		Whitney Terrace	Boise Terrace
		Area 1[2]	Area 2	Area 3	Area 4
1,1,1-Trichloroethane	200	X	--	--	--
1,1,2-Trichloroethane	5	--	--	--	--
1,2-Dichloroethane	5	X	X	--	--
1,1-Dichloroethane	810	X	--	--	--
Chloroethane	46	--	--	X	--
1,2-Dichloropropane	5	X	--	--	--
cis-1,2-Dichloroethene	70	--	--	--	--
trans-1,2-Dichloroethene	100	--	--	--	--
Chloroform	2	--	--	X	--
Tetrachloroethene	5	X	X	X	--
1,1,2,2-Tetrachloroethane	5	--	--	--	--
Trichloroethene	5	X	X	X	--
1,1-Dichloroethene	7	X	X	X	X
Vinyl Chloride	2	X	X	X	--

Footnotes:

[1] Present numerical values of Groundwater Quality Standards (MCLs) established in IDAPA 58.01.11.

[2] Represent concentrations from last 8 rounds. X indicates constituent detected above GPS.

Table E-5

Current Groundwater Monitoring Program Wells
Wabtec-MotivePower Facility
U.S. EPA ID No.: IDD980976831
Boise, Idaho

[illegible]			
Part B Permit Recovery Wells	RW-1 (MW-9) RW-4	RW-3 RW-6	
Part B Permit Monitoring Wells	RW-5 MW-7 MW-21A	RW-7 (MW-1A1) MW-16A MW-22A	MW-6 MW-20A MW-25A
On-Site Monitoring Wells	MW-5 MW-11	OW-SS4A	OW-SS3A
Off-Site Monitoring Wells	OW-SS5A MW-29A MW-34A MW-38A MW-41A	MW-24A MW-30AA MW-35A MW-39A MW-42A	MW-28A MW-31A MW-32A MW-37A MW-40A MW-44A
[illegible]			
Part B Permit Monitoring Wells	MW-1B	MW-16B	MW-18B
On-Site Monitoring Wells	MW-2	MW-12	
[illegible]			
Part B Permit Monitoring Wells	MW-3 MW-10	MW-8 MW-17B	

Table E-6

A Zone, Groundwater Monitoring Network
Wabtec-MotivePower Facility
U.S. EPA ID No.: IDD980976831
Boise, Idaho

	Sample Schedule[1]					
	CAMP		CMP		DMP	
Well Number	Semi-Annual	Annual	Semi-Annual	Annual	Semi-Annual	Annual
On-Site (Area 1)						
RW-1 (MW-9)	A,O					
RW-3	A,O					
RW-4	A,O		A,O		A,O	
RW-6	A,O					
RW-5	A,O					
RW-7(MW-1A1)	A,O		A,O		A,O	
MW-5	A,O		A,O		A,O	
MW-6	A,O					
MW-7	A,O					
MW-11[2]		A				
MW-16A	A,O					
MW-20A	A,O		A,O		A,O	
OW-SS3A	A,O		A,O		A,O	
OW-SS4A		A				
Off-Site (Area 2)						
MW-21A	A,O			O		
MW-22A	A,O					
MW-25A	A,O		A,O			
OW-SS5A	A,O			O		
Off-Site (Area 3)						
MW-24A	A,O					
MW-28A	A,O			O		
MW-29A	A,O			O		

*See footnotes at end of table.

Table E-6 (cont.)

	Sample Schedule[1]					
	CAMP		CMP		DMP	
Well Number	Semi-Annual	Annual	Semi-Annual	Annual	Semi-Annual	Annual
Off-Site (Area 3) (cont.)						
MW-31A	A,O					
MW-32A	A,O					
MW-30AA	A,O		A,O			
MW-34A	A,O			O		
MW-35A	A,O		A,O			
Off-Site (Area 4)						
MW-37A	A,O			O		
MW-38A	A,O		A,O		A,O	
MW-39A	A,O			O		
MW-40A	A,O		A,O			
MW-41A	A,O					
MW-42A	A,O					
MW-44A	A,O					

Footnotes:

CAMP = Corrective action monitoring program.

CMP = Compliance monitoring program.

DMP = Detection monitoring program.

A = April.

O =October.

[1]Groundwater samples will be analyzed for the parameters listed in Table III-2 of Permit using U.S. EPA approved methods.

[2]Monitored for water levels.

Table E-7

A-Zone, Updated Groundwater Protection Standards and Risk-Based Threshold Limits[1]
Wabtec-MotivePower Facility
U.S. EPA ID No.: IDD980976831
Boise, Idaho

Constituents	A-Zone GPS[2]	RBTL Area 1 ug/L	RBTL Area 2 ug/L	RBTL Area 3 ug/L	RBTL Area 4 ug/L
1,1,1-Trichloroethane	200	707,000	684,000	94,800	400
1,1,2,2-Tetrachloroethane	0.66	12,600	12,300	2,460	13
1,1,2-Trichloroethane	5	606	894	81	15
1,1-Dichloroethane	24	21,200	20,800	4,240	310
1,1-Dichloroethene	7	14,300	14,100	1,970	21
1,2-Dichloroethane	5	5,910	5,800	1,240	15
1,2-Dichloropropane	5	3,670	3,600	493	15
Benzene	5	3,960	3,890	812	15
Chloroethane	21,000	744,000	732,000	132,000	1,500
Chloroform	80	1,650	1,620	349	240
cis-1,2-Dichloroethene	70	--	--	--	210
Tetrachloroethene	5	2,160	2,160	430	15
trans-1,2-Dichloroethene	100	16,000	15,700	2,120	300
Trichloroethene	5	492	481	66	15
Vinyl Chloride	2	935	921	198	6
Xylenes	10,000	53,700	52,600	7,280	30,000

Footnote:

[1]The Groundwater Protection Standards (GPS) and RBTLs are expressed in micrograms per liter (ug/l). Updated December 2011.

Table E-8

B-Zone, Proposed Groundwater Monitoring Network
Wabtec-MotivePower Facility
U.S. EPA ID No.: IDD980976831
Boise, Idaho

		Sample Schedule			
		CMP		CAMP	
Well Number	Well Type	Semi-Annual[1]	Annual	Semi-Annual[1]	Annual
Area 1 Wells					
MW-1B	POC	A,O		A,O	
MW-3[2]	MW	A,O		A,O	
MW-8	POC	A,O		A,O	
MW-10	POC	A,O		A,O	
MW-16B	POC	A,O		A,O	
MW-17B	POC	A,O		A,O	
MW-18B	POC	A,O		A,O	
Other Wells					
MW-2	MW	A,O		A,O	
MW-12	MW	A,O		A,O	

Footnotes:

MW = Monitoring well.

POC = Point of compliance well.

A = April.

O = October.

[1]Groundwater samples from BW and POC wells will be analyzed for the parameters listed in Section E-5a using U.S. EPA approved methods.

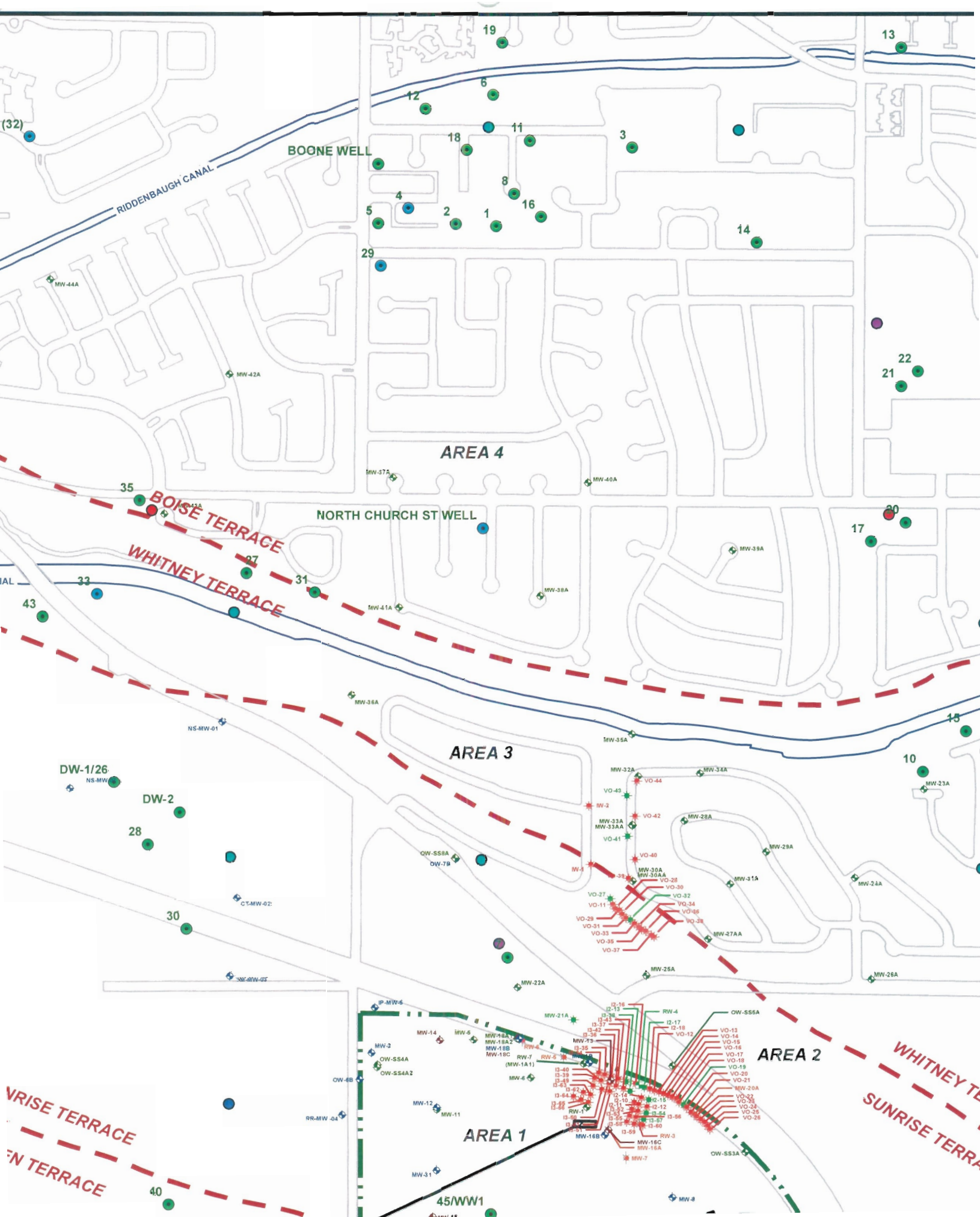
[2]MW-3 appears to be screened in a perched zone. Therefore, data from this well may not represent the B-Zone.

Table E-9

B-Zone, Proposed Groundwater Protection Standards[1]
Wabtec-MotivePower Facility
U.S. EPA ID No.: IDD980976831
Boise, Idaho

Constituents	Area 1 ug/L
1,1,1-Trichloroethane	200
1,1,2,2-Tetrachloroethane	0.66
1,1,2-Trichloroethane	5
1,1-Dichloroethane	24
1,1-Dichloroethene	7
1,2-Dichloroethane	5
1,2-Dichloropropane	5
Benzene	5
Chloroethane	21,000
Chloroform	80
cis-1,2-Dichloroethene	70
Tetrachloroethene	5
trans-1,2-Dichloroethene	100
Trichloroethene	5
Vinyl Chloride	2
Xylenes	10,000

[1]Values equivalent to Table 1 in the Groundwater Standards Revisions, December 2011 (Risk Assessment Addendum).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NORTH CHURCH ST WELL
BOISE TERRACE
WHITNEY TERRACE
SUNRISE TERRACE
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AREA 3
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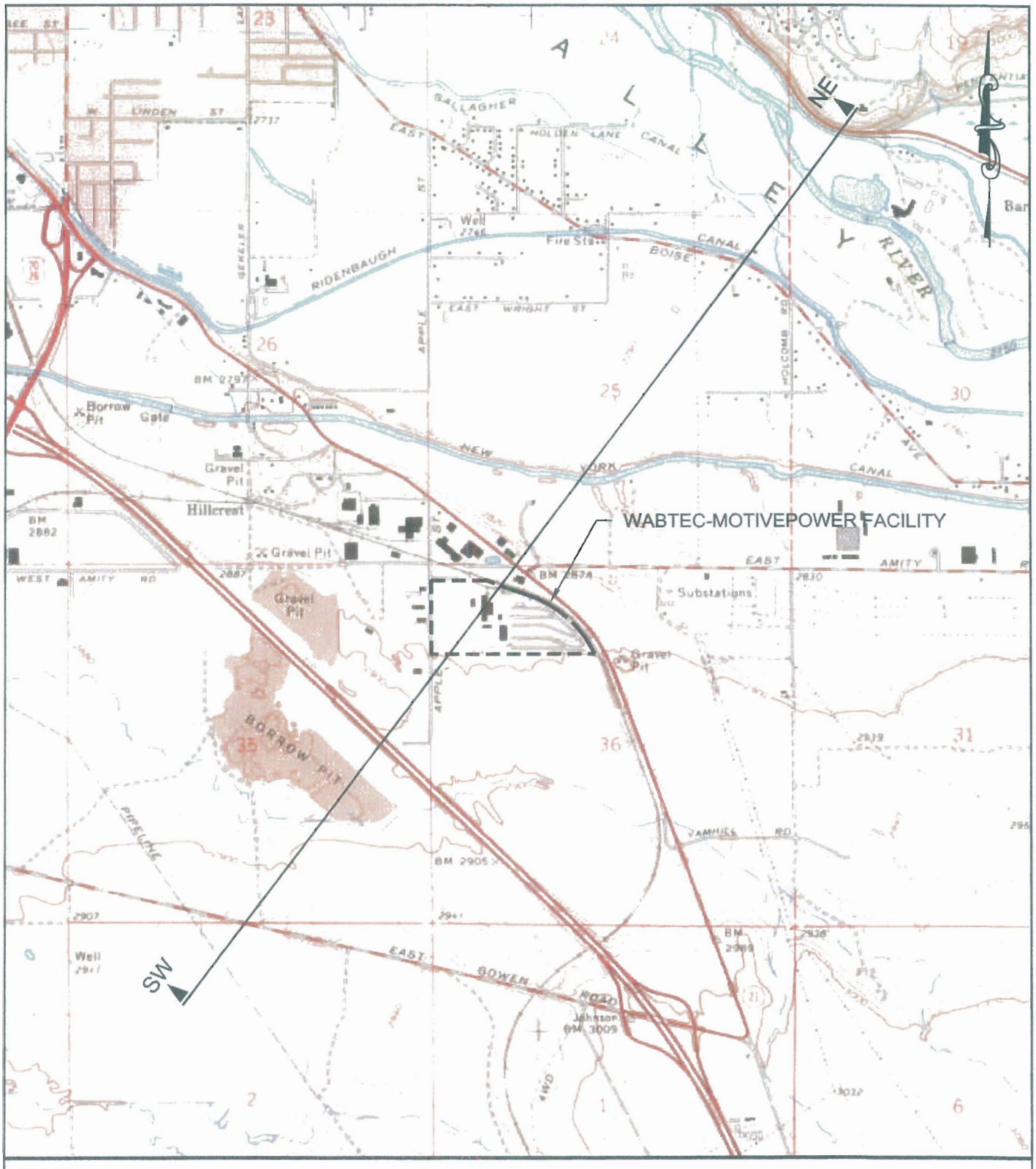


REFERENCE:
USGS 7.5 MINUTE QUADRANGLE MAP
"BOISE SOUTH", IDAHO, COMPILED 1971, FIELD VERIFIED 1972,
PHOTOREVISED 1976, AT A SCALE OF 1:24,000.

2000' 0 2000' 4000'

SCALE: 1" – 2000'

WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. IDD980976831

FIGURE E-2

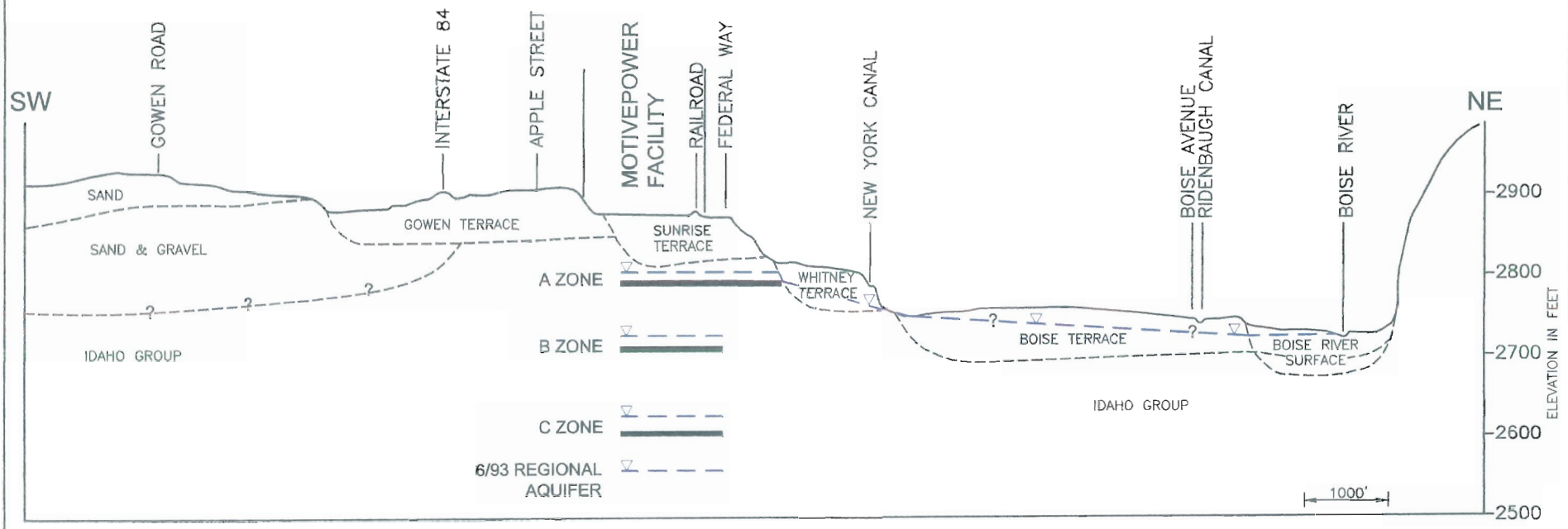
LINE OF
GEOLOGIC CROSS SECTION

DWG	DATE	REVISION	CHK	DATE	APP	DATE
2						
0	ECM	8/15/01	INITIAL ISSUE			

CADD FILE	8311	CURRENT DATE:	8-29-2001
DRAWING NO.	00008D		

American Geosciences, Inc.

REVISION 0



LEGEND:

WATER ELEVATION

CLAY

GENERALIZED SOUTHWEST TO NORTHEAST GEOLOGIC CROSS-SECTION THROUGH THE MOTIVEPOWER FACILITY

NO	DRWN	DATE	REVISION	CHKD	DATE
6					
5					
4					
3					
2					
1					
0	ECM	8/15/01	INITIAL ISSUE		

WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. IDD980976831

CURRENT DATE 8-29-2001 | CADD FILE 8311

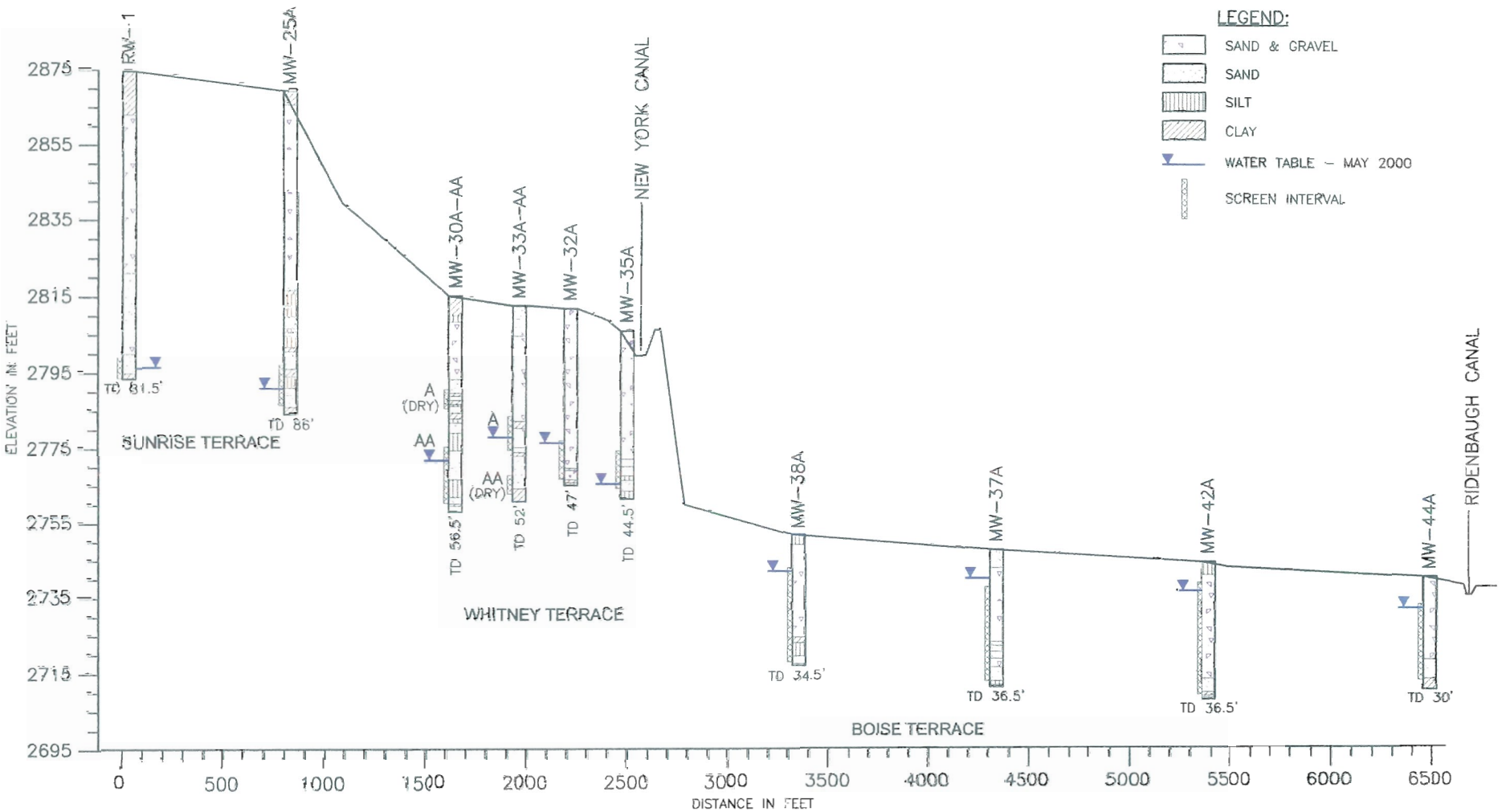
FIGURE E-3

GENERALIZED GEOHYDROLOGIC CROSS SECTION

DRAWING NO. 00008D

American Geosciences, Inc.

REVISION 0



NO	DRWN	DATE	REVISION	CHKD	DATE
1	ECM	8/29/01	PERMIT DRAWINGS		

WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. IDD980976831

CURRENT DATE 8-29-2001 | CADD FILE 8311

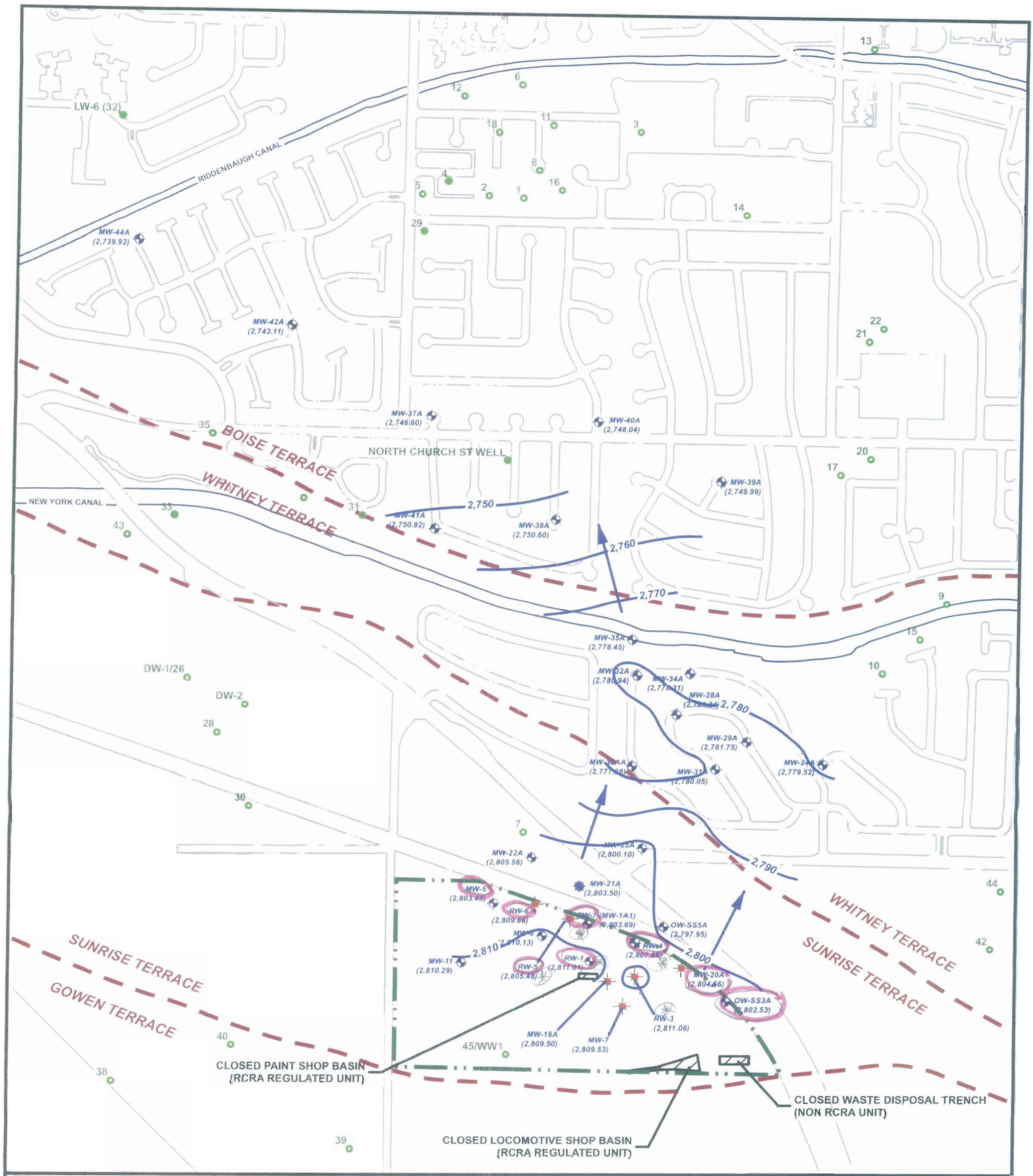
FIGURE E-4

LONGITUDINAL HYDROGEOLOGIC CROSS SECTION - A-ZONE

DRAWING NO. 00008D

American Geosciences, Inc.

REVISION 1



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EDGE OF TERRACE
- FORMER DISPOSAL AREAS
- WATER WELL
- WATER WELL (ABANDONED)
- MONITORING WELL
- INJECTION/MONITORING WELL
- RECOVERY/MONITORING WELL
- INJECTION/RECOVERY/MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR[1]
- FLOW DIRECTION[1]
- (2,809.53) GROUNDWATER ELEVATION IN FEET

N

0 300 600 1,200
Feet

[1]GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTION ARE BASED ON GROUNDWATER ELEVATIONS MEASURED IN LABELED MONITORING WELLS IN OCTOBER 2011.

PORTIONS OF THIS FIGURE ARE PRESENTED IN COLOR. THEREFORE BLACK AND WHITE COPIES MAY NOT DEPICT ALL INFORMATION AS PRESENTED ON THE ORIGINAL DOCUMENT.

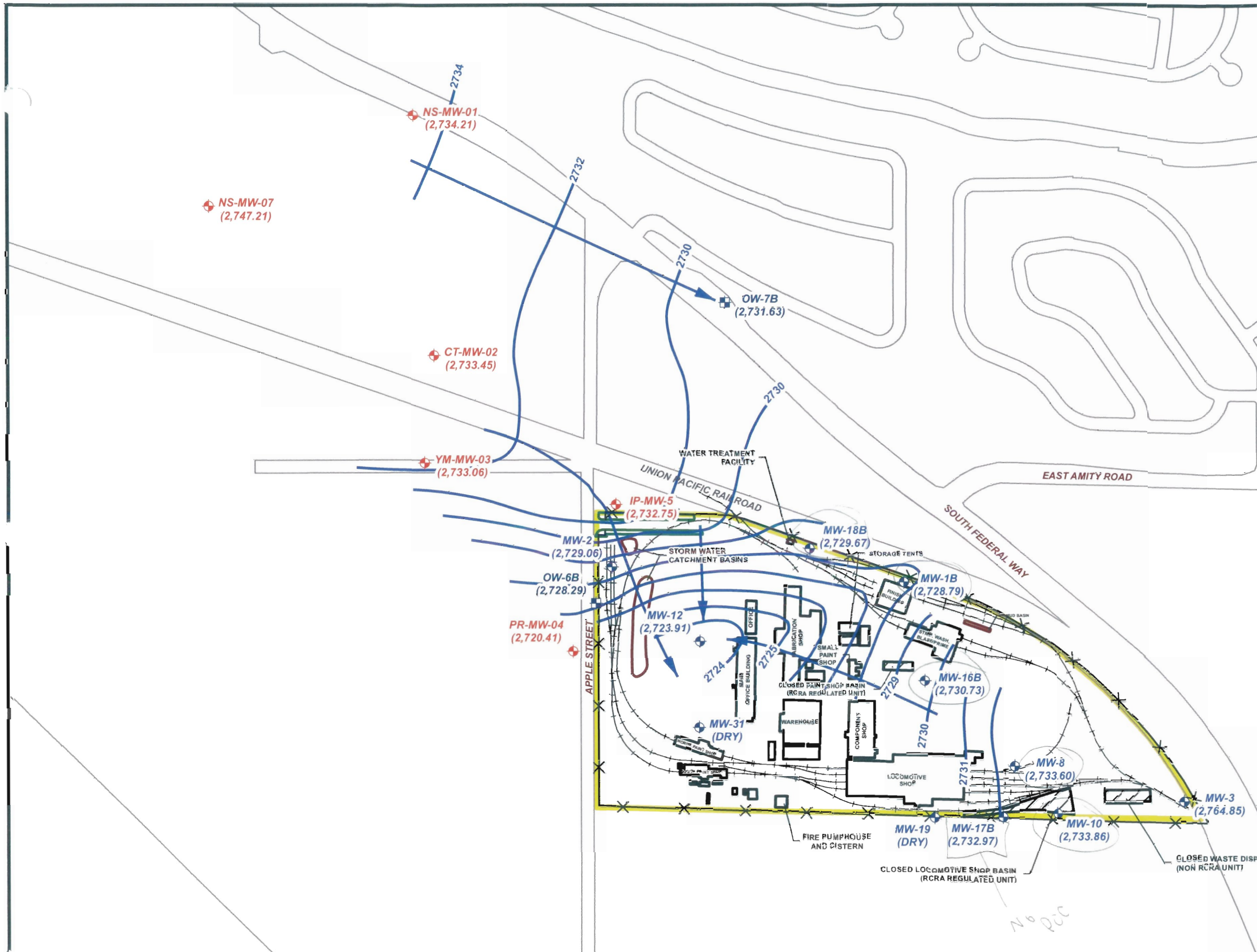
WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. EDD980976831

FIGURE E-5

A-ZONE POTENTIOMETRIC SURFACE MAP
OCTOBER 2011

American Geosciences, Inc.

NO	DRN	REVISION	DATE	CHKD	DATE	APP	DATE		
								CURRENT DATE	12/02/2011
1	BAS	PREPARED ORIGINAL DRAWING	12/02/11	WTN	12/02/11	WTN	12/02/11	ARCMAP MXD	FIGURE E-5 (A ZONE POT MAP-Sec E)
								AGI PROJ NO	0008-015



LEGEND

- APPROXIMATE SITE BOUNDARY
- FENCE
- FORMER DISPOSAL AREAS

Station Type

- B-ZONE MONITORING WELL
- B-ZONE OBSERVATION WELL
- U.S. EPA MONITORING WELL
- GROUNDWATER CONTOUR AND ELEVATION (FEET)
- GROUNDWATER FLOW DIRECTION
- (2,731.71) GROUNDWATER ELEVATION IN FEET

N

390 195 0 390 780

Feet

PORTIONS OF THIS FIGURE ARE PRESENTED IN COLOR. THEREFORE BLACK AND WHITE COPIES MAY NOT DEPICT ALL INFORMATION AS PRESENTED ON THE ORIGINAL DOCUMENT.

NO	DRN	DATE	REVISION	CHKD	DATE	APP	DATE
0	BAS	01/24/152	CREATED FIGURE IN ARCMAP	WTN	01/24/152	WTN	01/24/152

WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. EDD980976831

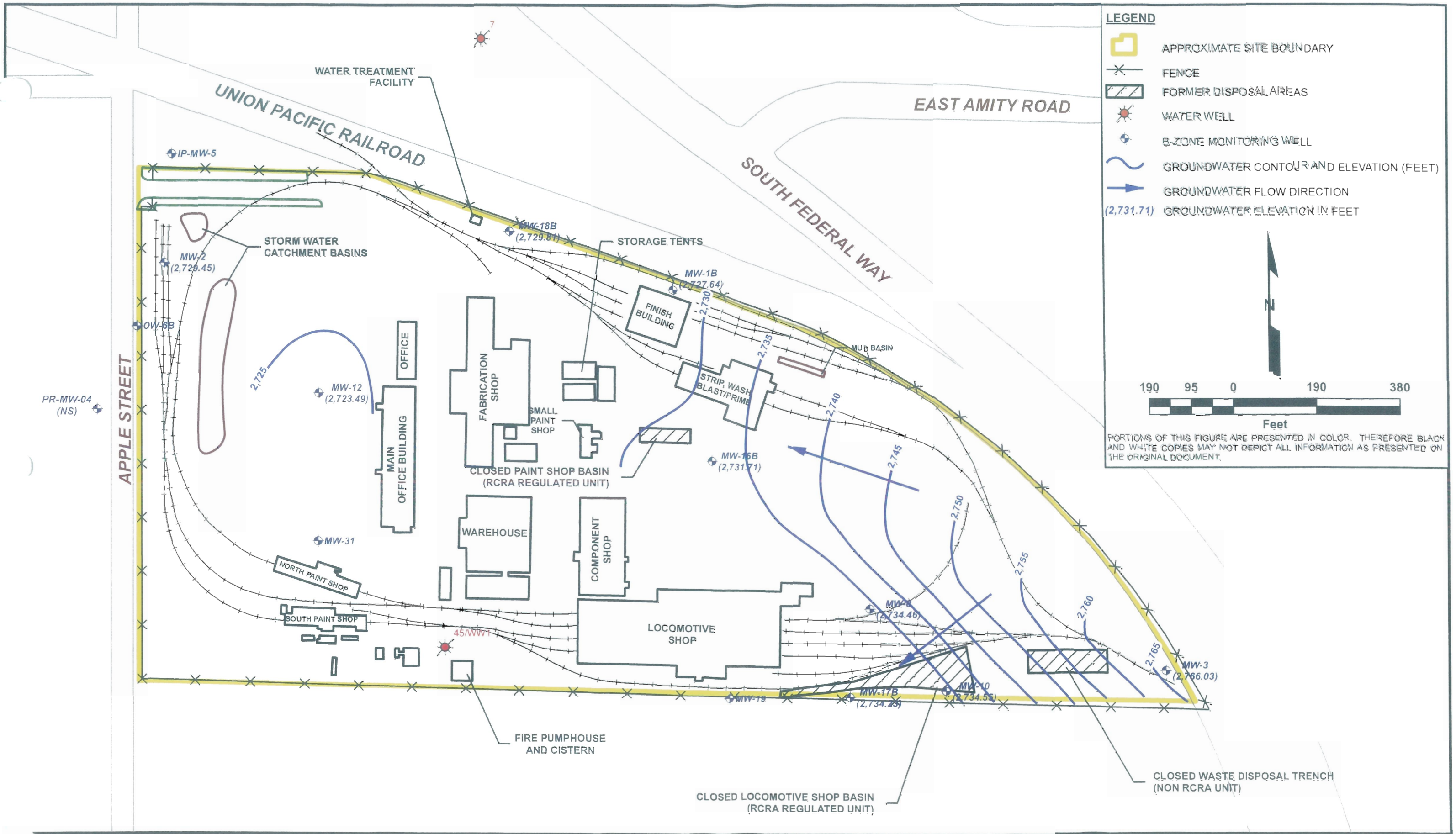
CURRENT DATE 01/24/12 | ARCMAP MXD | FIGURE E-6A (B ZONE POT MAP-Sec E)

ACI American Geosciences, Inc.

FIGURE E-6A

B-ZONE POTENTIOMETRIC SURFACE MAP
AUGUST 2001

ACI PROJ NO. 00008.018 | REVISION 0



NO	DRN	DATE	REVISION	CHKD	DATE	APP	DATE
0	BAS	12/06/11	CREATED FIGURE IN ARCMAP	WTN	12/06/11	WTN	12/06/11

WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. EDD980976831

CURRENT DATE	12/06/11	ARCMAP MXD	FIGURE E-6B (B ZONE POT MAP-Sec E)

American Geosciences, Inc.

FIGURE E-6B

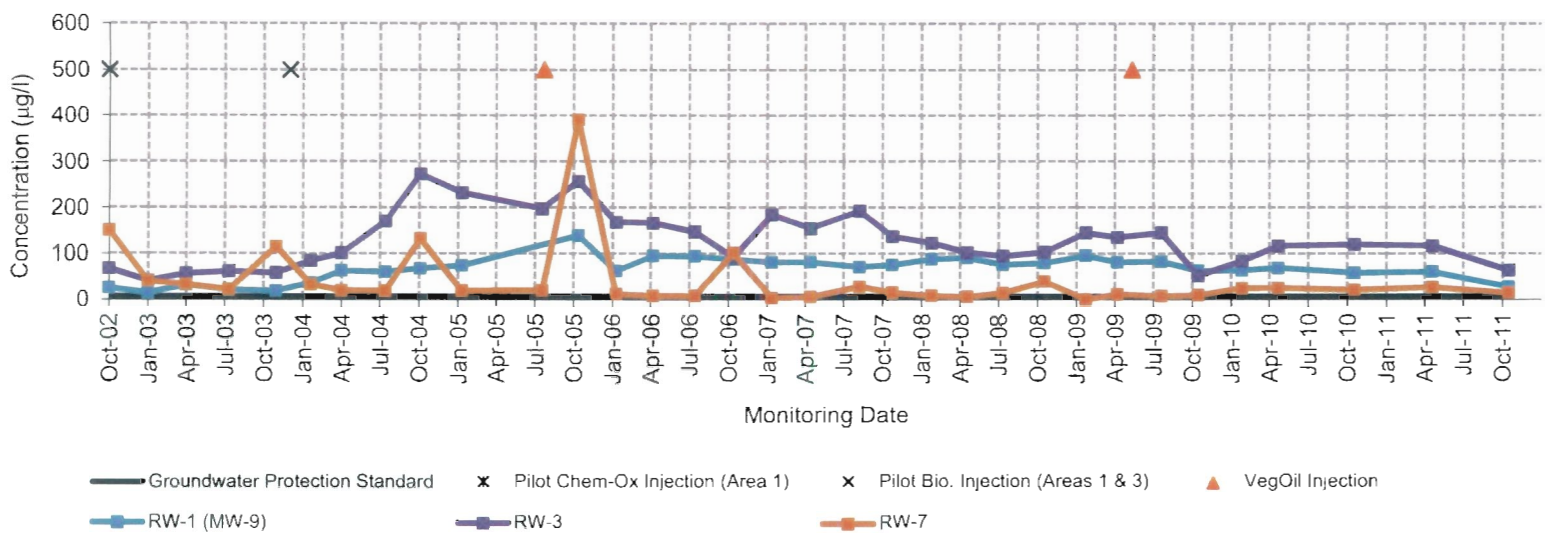
B-ZONE POTENTIOMETRIC SURFACE MAP
OCTOBER 2011

AGI PROJ NO.	00008-015	REVISION	0

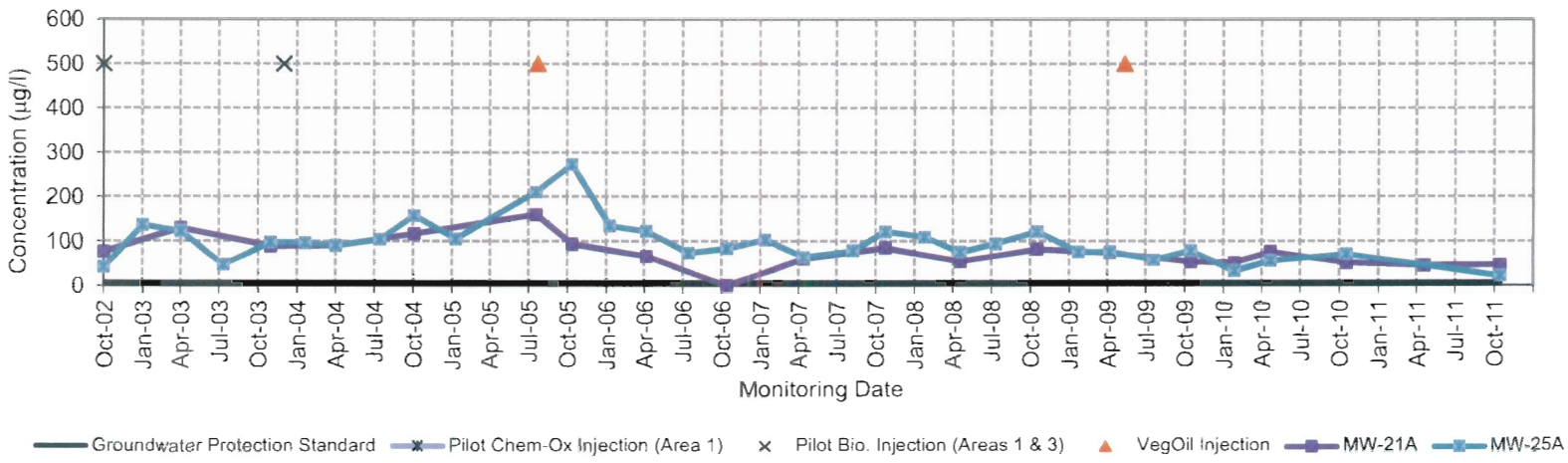
FIGURE E-7

1,1-DCE CONCENTRATION TRENDS
WABTEC-MOTIVEPOWER FACILITY
BOISE, IDAHO
EPA ID NO. IDD980976831

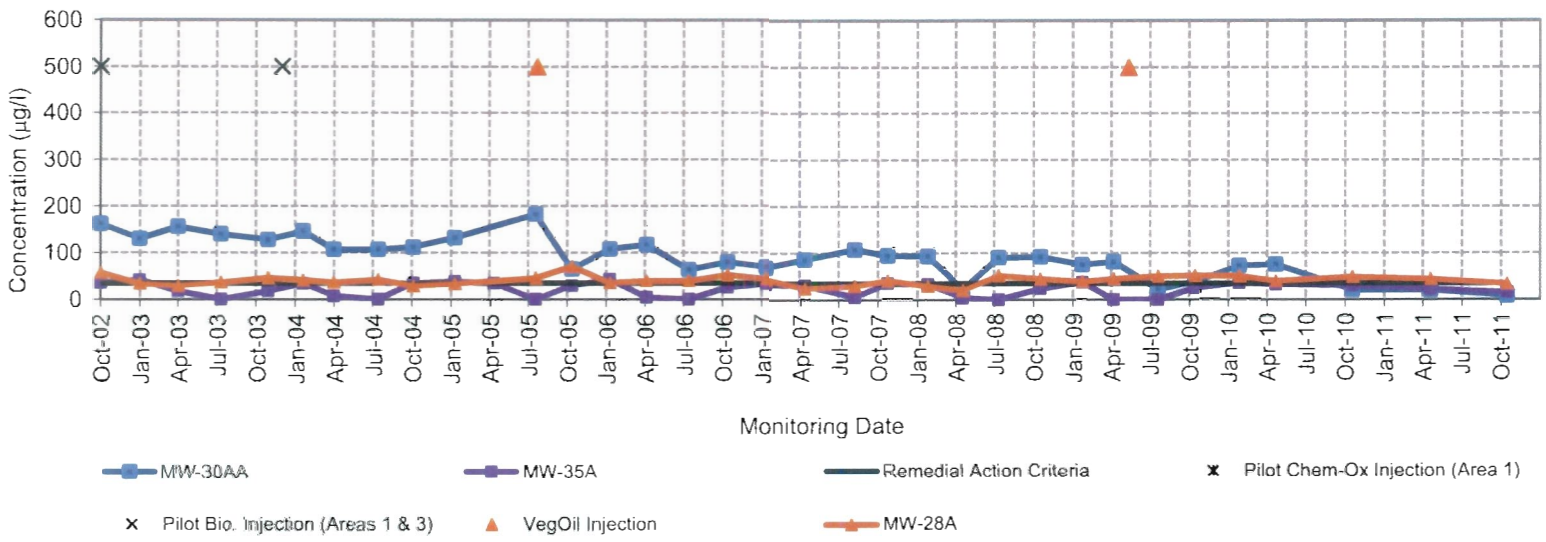
Area 1



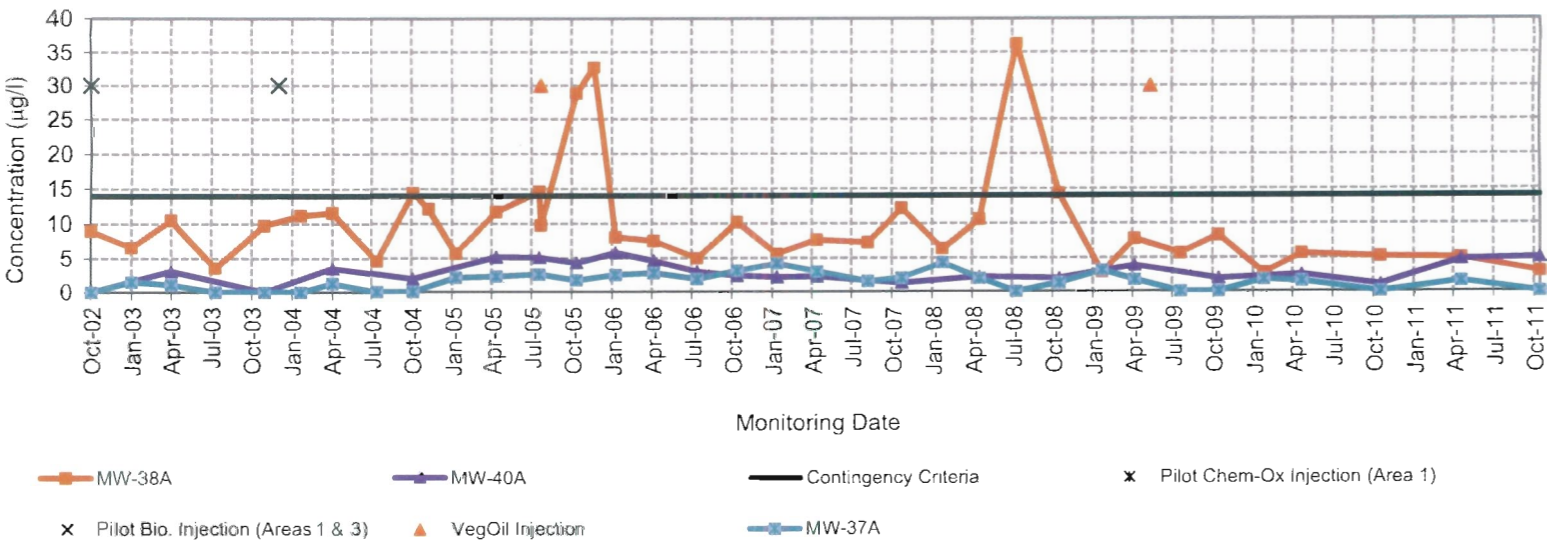
Area 2

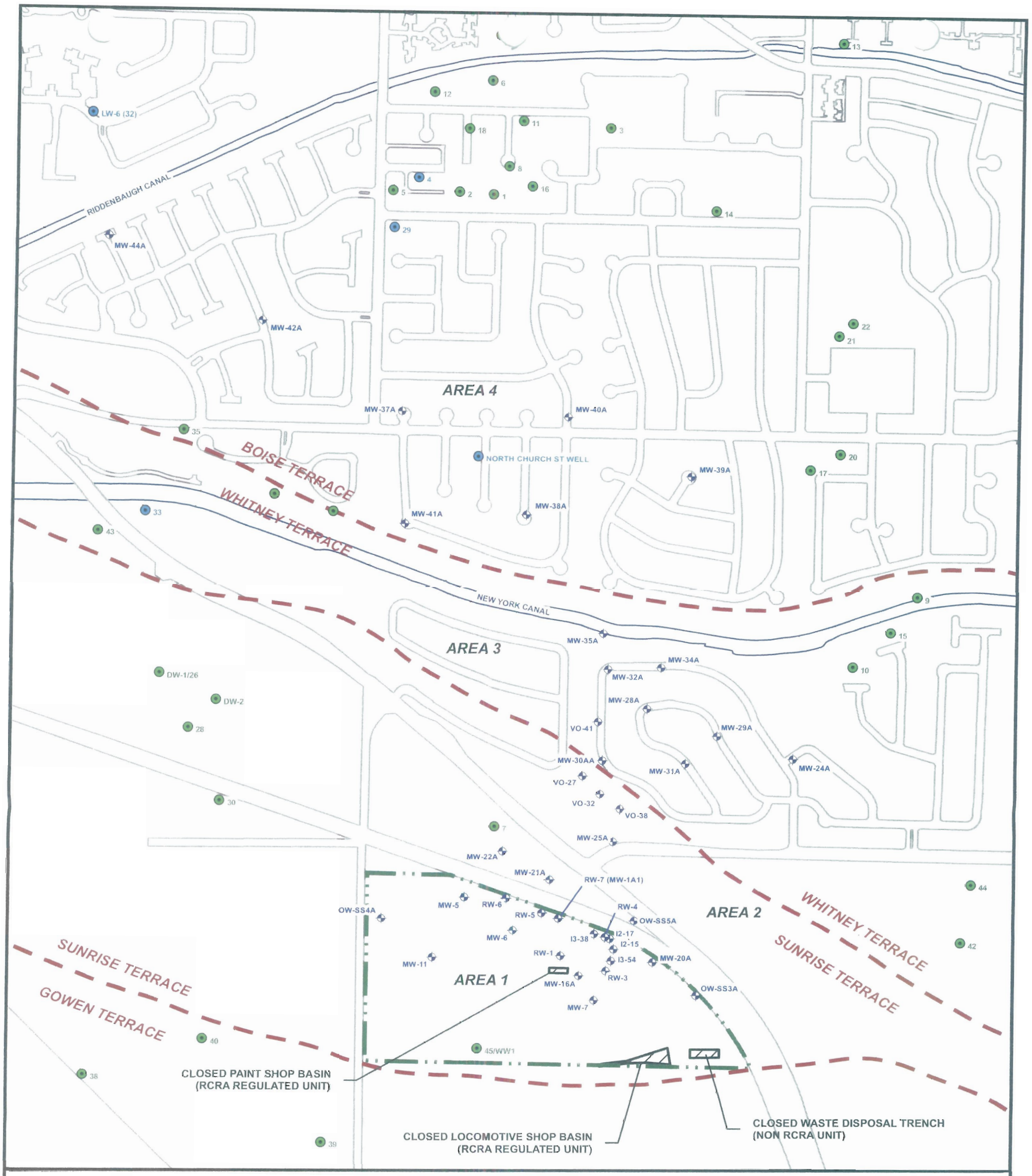


Area 3



Area 4





LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EDGE OF TERRACE
- WATER SUPPLY WELL
- WATER SUPPLY WELL (ABANDONED)
- A-ZONE WELLS TO BE SAMPLED

N

0 300 600 1,200

Feet

PORTIONS OF THIS FIGURE ARE PRESENTED IN COLOR. THEREFORE BLACK AND WHITE COPIES MAY NOT DEPICT ALL INFORMATION AS PRESENTED ON THE ORIGINAL DOCUMENT.

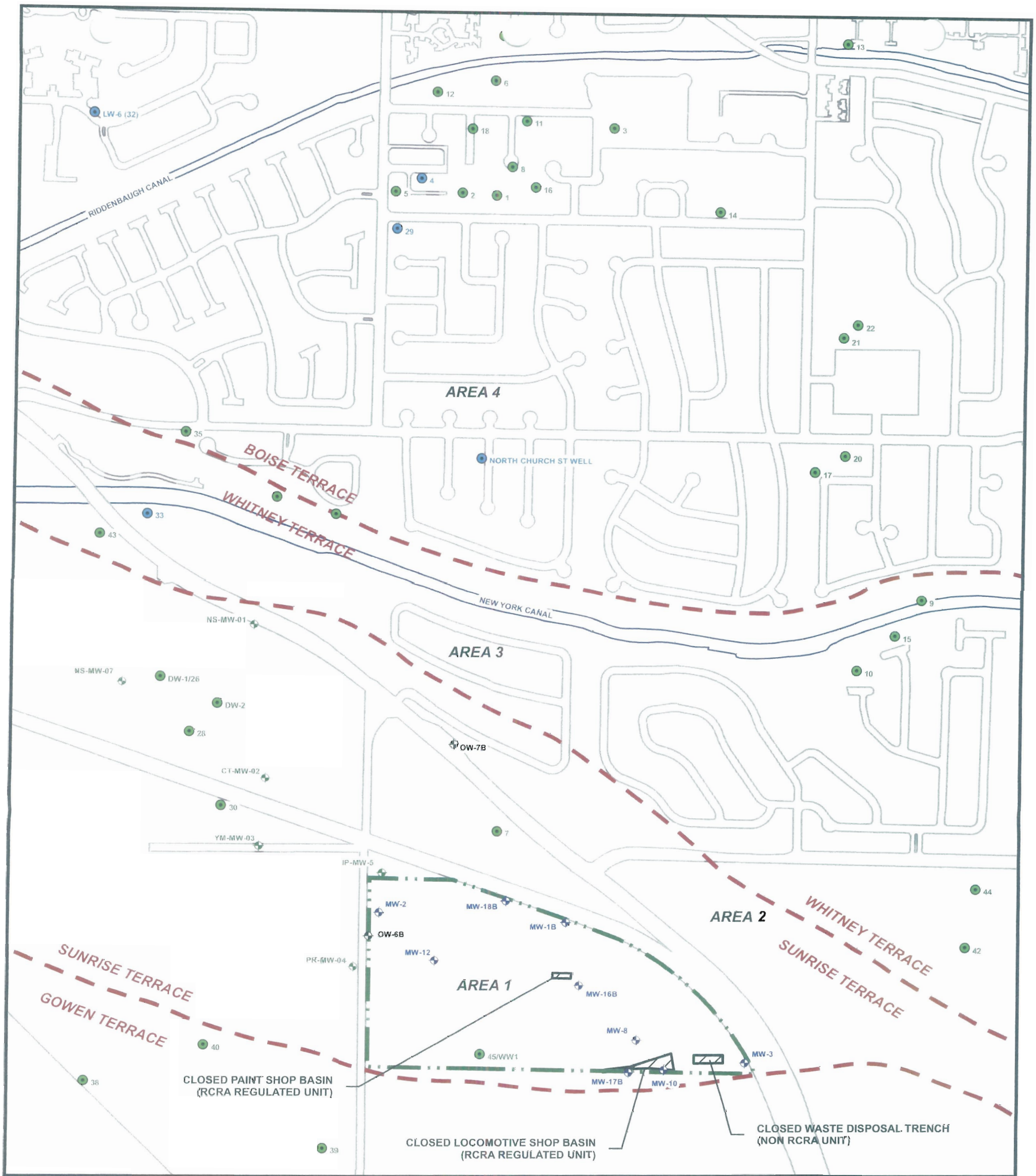
WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. EDD980976831

FIGURE E-8

A-ZONE WELL LOCATION MAP

American Geosciences, Inc.

							CURRENT DATE	01/19/12
0	BAS	ORIGINAL FIGURE	WTN	01/19/12	WTN	01/19/12	ARCMAP MXD	FIGURE E-7 (A-ZONE WELL LOCATION MAP-Sec E)
NO	DRN	REVISION	CHKD	DATE	APP	DATE	AGI PROJ NO	0008-018



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EDGE OF TERRACE
- WATER SUPPLY WELL
- WATER SUPPLY WELL (ABANDONED)
- B-ZONE WELL TO BE SAMPLED
- B-ZONE OBSERVATION WELL
- B-ZONE USEPA MONITORING WELL

N

0 300 600 1,200
Feet

PORTIONS OF THIS FIGURE ARE PRESENTED IN COLOR. THEREFORE BLACK AND WHITE COPIES MAY NOT DEPICT ALL INFORMATION AS PRESENTED ON THE ORIGINAL DOCUMENT.

WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. EDD980976831

FIGURE E-9

B-ZONE WELL LOCATION MAP

American Geosciences, Inc.

							CURRENT DATE	01/19/12
0	BAS	ORIGINAL FIGURE	WTN	01/19/12	WTN	01/19/12	ARCMAP MXD	FIGURE E-8 (B-ZONE WELL LOCATION MAP-Sec E)
NO	DRN	REVISION	CHKD	DATE	APP	DATE	AGI PROJ NO	0008-018

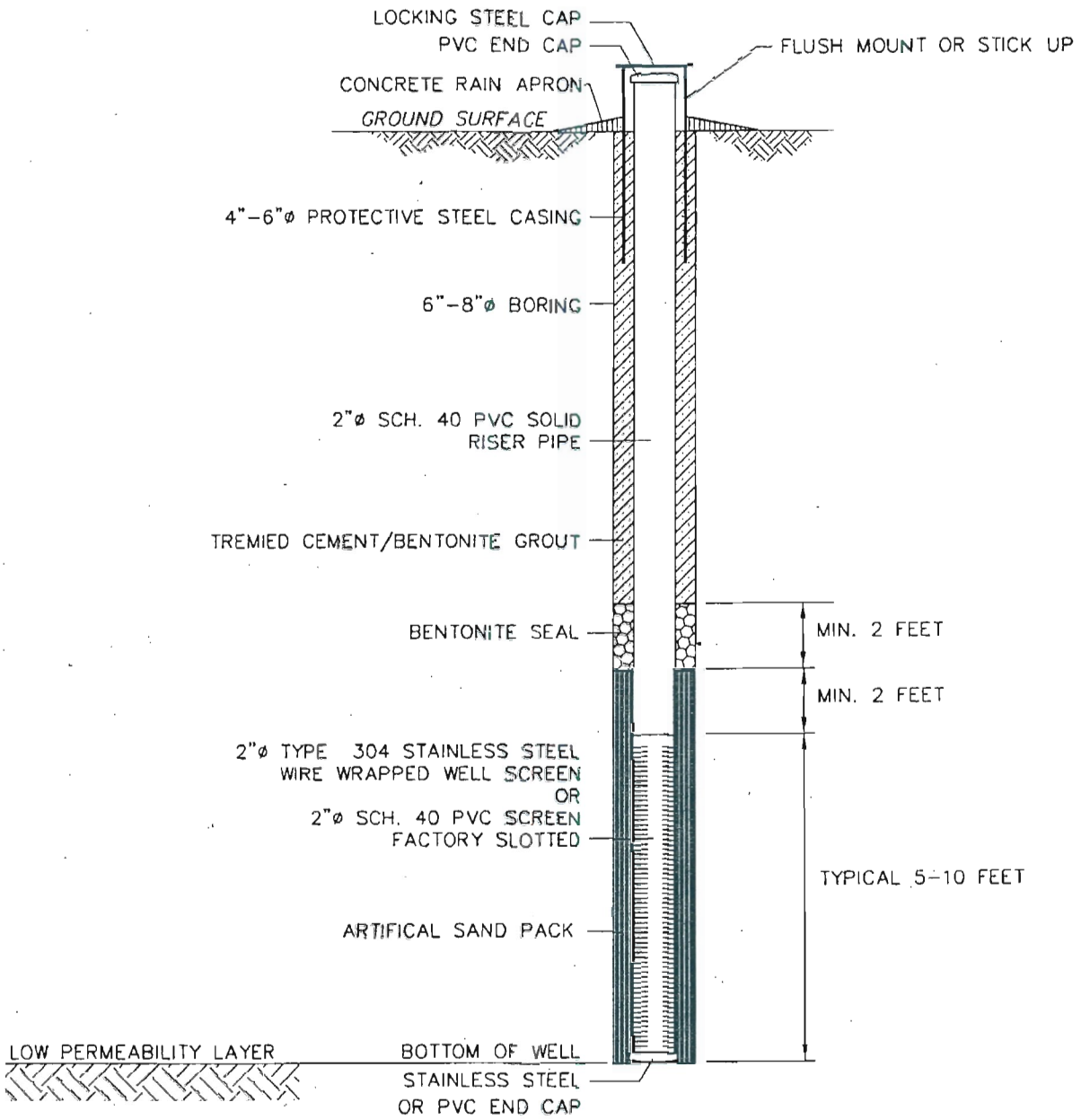


FIGURE E-10
TYPICAL MONITORING WELL CONSTRUCTION DETAIL

PREPARED FOR
WABTEC-MOTIVEPOWER
BOISE, IDAHO
EPA ID. IDD980976831

NOTES:

ACTUAL CONSTRUCTION DETAILS TO BE BASED ON FIELD CONDITIONS.

FLUSH MOUNT INSTALLATION PLANNED FOR TRAFFIC ZONES WITH WATERTIGHT SEAL.

DRAWING NOT TO SCALE

American Geosciences, Inc.

APP. BY	SMF	01/02/01
CHK. BY	SMF	01/02/01
DRN. BY	TEJ	01/01/01
SCALE	N.T.S.	
SIZE A	00008D-A15	

APPENDIX E-7

JUNE 2000 AND OCTOBER 2010 APPENDIX IX ANALYSES

MotivePower
A Wabtec company

ANALYTICAL LABORATORIES, INC.

1804 N. 33rd Street
Boise, Idaho 83703
Phone # (208) 342-5515

LABORATORY ANALYSIS REPORT
SAMPLE NUMBER - 16421

Attn. CHRIS WEEKES

P.O.# 1290

BOISE LOCOMOTIVE CO-MPI
4600 APPLE ST
BOISE, ID 83716

Time of Collection: 08:20
Date of Collection: 06/05/00

Date Received: 06/05/00
Date Reported: 07/18/00

Submitted by:

PWS: 4010223

Source of Sample: PROJECT #2584 RW-4

Lab Comment: ATL = ANALYSIS PERFORMED BY ANATEK LABS.
(Results Received: 07/14/00)

EPA Method 8270: Semi-Volatile Organics
Appendix IX.

Analytes	Concentration (UG/L)
Acenaphthene	< 1.0
Acenaphthylene	< 1.0
Acetophenone	< 1.0
2-AAF	< 1.0
4-Aminobiphenyl	< 1.0
Aniline	< 1.0
Anthracene	< 1.0
Aramite	< 1.0
Benzo(a)anthracene	< 1.0
Benzo(b)fluoranthene	< 1.0
Benzo(k)fluoranthene	< 1.0
Benzo(ghi)perylene	< 1.0
Benzo(a)pyrene	< 1.0
Benzyl alcohol	< 1.0
Bis(2-chloroethoxy)methane	< 1.0
Bis(2-chloroethyl)ether	< 1.0
Bis(2-chloro-1-methylethyl)ether	< 1.0
Bis(2-ethylhexyl)phthalate	< 1.0
4-Bromophenylphenylether	< 1.0
Butylbenzylphthalate	< 1.0
4-Chloroaniline	< 1.0
Chlorobenzilate	< 1.0
p-Chloro-m-cresol	< 1.0
2-Chloronaphthalene	< 1.0
2-Chlorophenol	< 1.0
4-Chlorophenyl phenyl ether	< 1.0
Chrysene	< 1.0
Diallate	< 1.0
Dibenz(a,h)anthracene	< 1.0
Di-n-butyl phthalate	< 1.0
1,2-Dichlorobenzene	< 1.0
1,3-Dichlorobenzene	< 1.0
1,4-Dichlorobenzene	< 1.0
3,3'-Dichlorobenzidine	< 2.0
2,4-Dichlorophenol	< 1.0
2,6-Dichlorophenol	< 1.0

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1,4-Benzenediamine	< 1.0
Phorate	< 1.0
2-Picoline	< 1.0
Pronamide	< 1.0
Pyrene	< 1.0
Pyridine	< 1.0
Safrole	< 1.0
1,2,4,5-Tetrachlorobenzene	< 1.0
2,3,4,8-Tetrachlorophenol	< 1.0
Sulfotepp	< 1.0
2-Methyl-benzenamine	< 1.0
1,2,4-Trichlorobenzene	< 1.0
2,4,5-Trichlorophenol	< 1.0
2,4,6-Trichlorophenol	< 1.0
O,O,O-Triethyl phosphorothioate	< 1.0
1,3,5-Trinitrobenzene	< 1.0

Surrogate Standard	Recoveries	Acceptance
2-Fluorophenol	77.8	21 - 110
Phenol-d5	84.7	10 - 110
Nitrobenzene-d5	87.7	35 - 114
2-Fluorobiphenyl	89.3	43 - 116
2,4,6-Tribromophenol	95.9	10 - 123
Terphenyl-d14	98.5	33 - 141

EPA 8260: Volatile Organics (Appendix IX).

Analytes	Concentration (ug/L)
Acetone	<5.0
Acrolein	<1.0
Acrylonitrile	<1.0
Allyl Chloride	<5.0
Benzene	<1.0
Bromodichloromethane	<1.0
Bromoform	<1.0
Bromomethane	<1.0
Carbon disulfide	<1.0
Carbon tetrachloride	<1.0
Chlorobenzene	<1.0
Chloroethane	<2.0
Chloroform	2.0 ≤
Chloroprene	<1.0
Chloromethane	<1.0
Dibromochloromethane	<1.0
DBCP	<1.0
EDB	<1.0
trans-1,4-Dichloro-2-butene	<1.0
Dichlorodifluoromethane	<1.0
1,1-Dichloroethane	1040
1,2-Dichloroethane	17.4
1,1-Dichloroethene	413
trans-1,2-Dichloroethene	1.0 ≤
Dibromomethane	<1.0
Dichloromethane	<1.0
1,2-Dichloropropane	5.4 ≤
cis-1,3-Dichloropropene	<1.0
trans-1,3-Dichloropropene	<1.0
Ethylbenzene	<1.0
2-Hexanone	<5.0
Iodomethane	<5.0
Methacrylonitrile	<5.0
Methyl ethyl ketone (MEK)	<5.0
Methyl methacrylate	<1.0
Methyl isobutyl ketone (MIBK)	<5.0
Pentachloroethane	<1.0

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SAMPLE NUMBER - 16421 page 5

Test Requested	FRDS #	MCL	Analysis Result	Unit	MDL	Method	Date Completed	Analyst Initials
EPA 8260			*	ug/L		EPA 8260	06/14/00	CBO
TIN			<0.20	mg/L	0.20	EPA 200.7	06/14/00	JH

THANK YOU FOR CHOOSING ANALYTICAL LABORATORIES, INC. FOR YOUR TESTING NEEDS.

PLEASE CONTACT CLEVE OUELLETTE IF YOU HAVE ANY QUESTIONS REGARDING THIS REPORT OR ANY FUTURE ANALYTICAL NEEDS.

Diethyl phthalate	< 1.0
Thionazin	< 2.0
Dimethoate	< 1.0
p-(Dimethylamino)azobenzene	< 1.0
7,12-Dimethylbenzidine	< 1.0
3,3'-Dimethylbenzidine	< 2.0
2,4-Dimethylphenol	< 1.0
Dimethyl phthalate	< 1.0
1,3-Dinitrobenzene	< 1.0
4,6-Dinitro-2-methylphenol	< 1.0
2,4-Dinitrophenol	< 1.0
2,4-Dinitrotoluene	< 1.0
2,6-Dinitrotoluene	< 1.0
Di-n-octyl phthalate	< 1.0
Diphenylamine	< 1.0
Disulfoton	< 1.0
Ethyl methacrylate	< 1.0
Ethyl methanesulfonate	< 1.0
Famphur	< 1.0
Fluoranthene	< 1.0
Fluorene	< 1.0
Hexachlorobutadiene	< 1.0
Hexachlorocyclopentadiene	< 1.0
Hexachloroethane	< 1.0
Hexachlorophene	< 1.0
Hexachloropropene	< 1.0
Indeno(1,2,3-cd)pyrene	< 1.0
Isodrin	< 1.0
Isophorone	< 1.0
Isosafrole	< 1.0
Kepone	< 2.0
Methapyrilene	< 1.0
3-Methylcholanthrene	< 1.0
Methyl methanesulfonate	< 1.0
2-Methylnaphthalene	< 1.0
3-Methylphenol	< 1.0
2-Methylphenol	< 1.0
4-Methylphenol	< 1.0
Methyl parathion	< 1.0
Naphthalene	< 1.0
1,4-Naphthoquinone	< 1.0
1-Naphthylamine	< 1.0
2-Naphthylamine	< 1.0
2-Nitro-Benzenamine	< 1.0
3-Nitro-Benzenamine	< 1.0
4-Nitro-Benzenamine	< 1.0
Nitrobenzene	< 1.0
2-Nitrophenol	< 2.0
4-Nitrophenol	< 2.0
4-Nitroquinoline-1-oxide	< 1.0
N-Nitrosodi-n-butylamine	< 1.0
N-Nitrosodiethylamine	< 1.0
N-Nitrosodiphenylamine	< 1.0
N-Nitrosodipropylamine	< 1.0
N-Nitrosodimethylamine	< 1.0
N-Nitrosomethylethylamine	< 1.0
N-Nitrosomorpholine	< 1.0
N-Nitrosopiperidine	< 1.0
N-Nitrosopyrrolidine	< 1.0
N-Nitro-o-toluidine	< 1.0
Parathion	< 1.0
Pentachlorobenzene	< 1.0
Pentachloronitrobenzene	< 1.0
Pentachlorophenol	< 1.0
Phenacetin	< 1.0
Phenanthrene	< 1.0
Phenol	< 1.0

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Pentachloroethane	<1.0
Propionitrile	<1.0
Styrene	<1.0
1,1,1,2-Tetrachloroethane	<1.0
1,1,2,2-Tetrachloroethane	0.6
Tetrachloroethene	38.5
Toluene	<1.0
1,1,1-Trichloroethane	902
1,1,2-Trichloroethane	1.4
Trichloroethene	54.9
Trichlorofluoromethane	<1.0
1,2,3-Trichloropropane	<1.0
Vinyl acetate	<1.0
Vinyl chloride	<1.0
Total Xylenes	<1.0

EPA 8260 QUALITY CONTROL

INTERNAL STANDARDS	PERCENT RECOVERY	CONTROL LIMITS
TOLUENE-d8	102 %	80-120 %
4-BROMOFLUOROBENZENE	96.8 %	80-120 %
1,2-Dichloroethane-d4	92.1 %	80-120 %

BATCH SPIKE & SPIKE DUPLICATE %RECOVERY (95% CI)

1,1-DICHLOROETHENE	89.8,90.6	80-120 %
1,1-DICHLOROETHANE	110, 115	80-120 %
1,1,1-TRICHLOROETHANE	96.9, 101	80-120 %
1,2,-DICHLOROETHANE	102, 119	80-120 %
TRICHLOROETHENE	97.8, 112	80-120 %
1,1,2-TRICHLOROETHANE	91.4,88.2	80-120 %
TETRACHLOROETHENE	88.1,96.7	80-120 %
1,1,2,2-TETRACHLOROETHANE	85.2,91.5	75-125 %
TRANS-1,2-DICHLOROETHENE	92.3, 100	80-120 %
CIS-1,2-DICHLOROETHENE	99.1, 109	80-120 %
Benzene	110,99.7	80-120 %
Toluene	91.9, 103	80-120 %

BATCH DUPLICATE RECOVERIES 85.2 - 119 80-120 %

BATCH TRAVEL BLANKS WERE NEGATIVE (<0.5) FOR ALL PARAMETERS REPORTED.

Test Requested	FRDS # MDL	Analysis Result	Units	MDL	Method	Date Completed	Analyst Initials
ANTIMONY FURNACE		<0.005	mg/L	0.005	EPA 200.9	06/14/00	DMB
ARSENIC FURNACE		<0.005	mg/L	0.005	EPA 200.9	06/19/00	JT
BARIUM		<0.05	mg/L	0.05	EPA 200.7	06/09/00	JH
BERYLLIUM FURNACE		<0.0005	mg/L	0.0005	EPA 200.9	06/20/00	JT
CADMIUM FURNACE		<0.0005	mg/L	0.0005	EPA 200.9	06/20/00	JT
CHROMIUM FURNACE		0.002	mg/L	0.002	EPA 200.9	06/07/00	DMB
COBALT		<0.02	mg/L	0.02	EPA 200.7	06/14/00	JH
COPPER		<0.01	mg/L	0.01	EPA 200.7	06/09/00	JH
LEAD FURNACE		<0.005	mg/L	0.005	EPA 200.9	06/08/00	DMB
MERCURY		<0.00012	mg/L	0.0002	EPA 245.1	06/09/00	DMB
NICKEL		<0.02	mg/L	0.02	EPA 200.7	06/09/00	JH
SELENIUM FURNACE		0.014	mg/L	0.005	EPA 200.9	06/20/00	JT
SILVER FURNACE		<0.005	mg/L	0.005	EPA 200.9	06/06/00	DMB
THALLIUM FURNACE		<0.002	mg/L	0.002	EPA 200.9	06/07/00	DMB
VANADIUM		<0.05	mg/L	0.05	EPA 200.7	06/21/00	JH
ZINC		0.066	mg/L	0.005	EPA 200.7	06/09/00	JH

(Continued)

ANALYTICAL LABORATORIES, INC.
1804 N. 33rd Street
Boise, Idaho 83703
Phone # (208) 342-5515

LABORATORY ANALYSIS REPORT
SAMPLE NUMBER - 17316

Attn. CHRIS WEEKES

P.O.# 1290

BOISE LOCOMOTIVE CO-MPI
4800 APPLE ST
BOISE, ID 83716

Time of Collection: 11:55
Date of Collection: 06/12/00

Date Received: 06/12/00
Date Reported: 07/16/00

Submitted by: CO/BRM

PWS: 4010223

Source of Sample: PROJECT #2584 RW-7

Lab Comment: ATL = ANALYSIS PERFORMED BY ANATEK LABS.
(Results Received: 07/14/00)

EPA Method 8270: Semi-volatile Organics
Appendix IX.

Analytes	Concentration (ug/L)
Acenaphthene	< 1.0
Acenaphthylene	< 1.0
Acetophenone	< 1.0
2-AAF	< 1.0
4-Aminobiphenyl	< 1.0
Aniline	< 1.0
Anthracene	< 1.0
Aramite	< 1.0
Benzo(a)anthracene	< 1.0
Benzo(b)fluoranthene	< 1.0
Benzo(k)fluoranthene	< 1.0
Benzo(ghi)perylene	< 1.0
Benzo(a)pyrene	< 1.0
Benzyl alcohol	< 1.0
Bis(2-chloroethoxy)methane	< 1.0
Bis(2-chloroethyl)ether	< 1.0
Bis(2-chloro-1-methylethyl)ether	< 1.0
Bis(2-ethylhexyl)phthalate	< 1.0
4-Bromophenylphenylether	< 1.0
Butylbenzylphthalate	< 1.0
4-Chloroaniline	< 1.0
Chlorobenzilate	< 1.0
p-Chloro-m-cresol	< 1.0
2-Chloronaphthalene	< 1.0
2-Chlorophenol	< 1.0
4-Chlorophenyl phenyl ether	< 1.0
Chrysene	< 1.0
Dialllate	< 1.0
Dibenz(a,h)anthracene	< 1.0
Di-n-butyl phthalate	< 1.0
1,2-Dichlorobenzene	< 1.0
1,3-Dichlorobenzene	< 1.0
1,4-Dichlorobenzene	< 1.0
3,3'-Dichlorobenzidine	< 2.0
2,4-Dichlorophenol	< 1.0
2,6-Dichlorophenol	< 1.0

(continued)

1,4-Benzenediamine	< 1.0
Phorate	< 1.0
2-Picoline	< 1.0
Pronamide	< 1.0
Pyrene	< 1.0
Pyridine	< 1.0
Safrole	< 1.0
1,2,4,5-Tetrachlorobenzene	< 1.0
2,3,4,6-Tetrachlorophenol	< 1.0
Sulfotepp	< 1.0
2-Methyl-benzenamine	< 1.0
1,2,4-Trichlorobenzene	< 1.0
2,4,5-Trichlorophenol	< 1.0
2,4,6-Trichlorophenol	< 1.0
O,O,O-Triethyl phosphorothioate	< 1.0
1,3,5-Trinitrobenzene	< 1.0

Surrogate Standard	Recoveries	Acceptance
2-Fluorophenol	56.5	21 - 110
Phenol-d5	84.3	10 - 110
Nitrobenzene-d5	63.7	35 - 114
2-Fluorobiphenyl	68.6	43 - 116
2,4,6-Tribromophenol	83.4	10 - 123
Terphenyl-d14	78.0	33 - 141

EPA 8260: Volatile Organics (Appendix IX).

Analytes	Concentration (ug/L)
Acetone	<5.0
Acrolein	<1.0
Acrylonitrile	<1.0
Allyl Chloride	<5.0
Benzene	<1.0
Bromodichloromethane	<1.0
Bromoform	<1.0
Bromomethane	<1.0
Carbon disulfide	<1.0
Carbon tetrachloride	<1.0
Chlorobenzene	<1.0
Chloroethane	<2.0
Chloroform	<1.0
Chloroprene	<1.0
Chloromethane	<1.0
Dibromochloromethane	<1.0
DBCP	<1.0
EDB	<1.0
trans-1,4-Dichloro-2-butene	<1.0
Dichlorodifluoromethane	<1.0
1,1-Dichloroethane	112
1,2-Dichloroethane	2.0
1,1-Dichloroethene	134
trans-1,2-Dichloroethene	<1.0
Dibromomethane	<1.0
Dichloromethane	<1.0
1,2-Dichloropropane	0.7
cis-1,3-Dichloropropene	<1.0
trans-1,3-Dichloropropene	<1.0
Ethylbenzene	<1.0
2-Hexanone	<5.0
Iodomethane	<5.0
Methacrylonitrile	<5.0
Methyl ethyl ketone (MEK)	<5.0
Methyl methacrylate	<1.0
Methyl isobutyl ketone (MIBK)	<5.0
Pentachloroethane	<1.0

(continued)

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Test Requested	FRDS # MCL	Analysis Result Unit	MDL	Method	Date Completed	Analyst Initials
8270 EPA		* ug/L		EPA 8270	06/20/00	ATL
EPA 8260		* ug/L		EPA 8260	06/14/00	CBO
TIN		<0.20 mg/L	0.20	EPA 200.7	06/14/00	JH

THANK YOU FOR CHOOSING ANALYTICAL LABORATORIES, INC. FOR YOUR TESTING NEEDS.

PLEASE CONTACT CLEVE OUELLETTE IF YOU HAVE ANY QUESTIONS REGARDING THIS REPORT OR ANY FUTURE ANALYTICAL NEEDS.

Diethyl phthalate	< 1.0
Thionazin	< 2.0
Dimethoate	< 1.0
p-(Dimethylamino)azobenzene	< 1.0
7,12-Dimethylbenzidine	< 1.0
3,3'-Dimethylbenzidine	< 2.0
2,4-Dimethylphenol	< 1.0
Dimethyl phthalate	< 1.0
1,3-Dinitrobenzene	< 1.0
4,6-Dinitro-2-methylphenol	< 1.0
2,4-Dinitrophenol	< 1.0
2,4-Dinitrotoluene	< 1.0
2,6-Dinitrotoluene	< 1.0
Di-n-octyl phthalate	< 1.0
Diphenylamine	< 1.0
Disulfoton	< 1.0
Ethyl methacrylate	< 1.0
Ethyl methanesulfonate	< 1.0
Famphur	< 1.0
Fluoranthene	< 1.0
Fluorene	< 1.0
Hexachlorobutadiene	< 1.0
Hexachlorocyclopentadiene	< 1.0
Hexachloroethane	< 1.0
Hexachlorophene	< 1.0
Hexachloropropene	< 1.0
Indeno(1,2,3-cd)pyrene	< 1.0
Isodrin	< 1.0
Isophorone	< 1.0
Isosafrole	< 1.0
Kepone	< 2.0
Methapyrilene	< 1.0
3-Methylcholanthrene	< 1.0
Methyl methanesulfonate	< 1.0
2-Methylnaphthalene	< 1.0
3-Methylphenol	< 1.0
2-Methylphenol	< 1.0
4-Methylphenol	< 1.0
Methyl parathion	< 1.0
Naphthalene	< 1.0
1,4-Naphthoquinone	< 1.0
1-Naphthylamine	< 1.0
2-Naphthylamine	< 1.0
2-Nitro-Benzenamine	< 1.0
3-Nitro-Benzenamine	< 1.0
4-Nitro-Benzenamine	< 1.0
Nitrobenzene	< 1.0
2-Nitrophenol	< 2.0
4-Nitrophenol	< 2.0
4-Nitroquinoline-1-oxide	< 1.0
N-Nitrosodi-n-butylamine	< 1.0
N-Nitrosodiethylamine	< 1.0
N-Nitrosodiphenylamine	< 1.0
N-Nitrosodipropylamine	< 1.0
N-Nitrosodimethylamine	< 1.0
N-Nitrosomethylethylamine	< 1.0
N-Nitrosomorpholine	< 1.0
N-Nitrosopiperidine	< 1.0
N-Nitrosopyrrolidine	< 1.0
N-Nitro-o-toluidine	< 1.0
Parathion	< 1.0
Pentachlorobenzene	< 1.0
Pentachloronitrobenzene	< 1.0
Pentachlorophenol	< 1.0
Phenacetin	< 1.0
Phenanthrene	< 1.0
Phenol	< 1.0

(continued)

Propionitrile	<1.0
Styrene	<1.0
1,1,1,2-Tetrachloroethane	<1.0
1,1,2,2-Tetrachloroethane	<1.0
Tetrachloroethene	10.2
Toluene	<1.0
1,1,1-Trichloroethane	528
1,1,2-Trichloroethane	<1.0
Trichloroethene	45.8
Trichlorofluoromethane	<1.0
1,2,3-Trichloropropane	<1.0
Vinyl acetate	<1.0
Vinyl chloride	<1.0
Total Xylenes	<1.0

EPA 8260 QUALITY CONTROL

INTERNAL STANDARDS	PERCENT RECOVERY	CONTROL LIMITS
TOLUENE-d8	81.3 %	80-120 %
4-BROMOFLUOROBENZENE	83.9 %	80-120 %
1,2-Dichloroethane-d4	91.8 %	80-120 %

BATCH SPIKE & SPIKE DUPLICATE %RECOVERY (95% CI)

1,1-DICHLOROETHENE	89.8,90.6	80-120 %
1,1-DICHLOROETHANE	110, 115	80-120 %
1,1,1-TRICHLOROETHANE	96.9, 101	80-120 %
1,2,-DICHLOROETHANE	102, 119	80-120 %
TRICHLOROETHENE	97.8, 112	80-120 %
1,1,2-TRICHLOROETHANE	91.4,88.2	80-120 %
TETRACHLOROETHENE	88.1,96.7	80-120 %
1,1,2,2-TETRACHLOROETHANE	85.2,91.5	75-125 %
TRANS-1,2-DICHLOROETHENE	92.5, 100	80-120 %
CIS-1,2-DICHLOROETHENE	99.1, 109	80-120 %
Benzene	110,99.7	80-120 %
Toluene	91.9, 103	80-120 %

BATCH DUPLICATE RECOVERIES 85.2 - 119 80-120 %

BATCH TRAVEL BLANKS WERE NEGATIVE (<0.5) FOR ALL PARAMETERS REPORTED.

Test Requested	FRDS # MCL	Analysis Result	Unit	MDL	Method	Date Completed	Analyst Initials
ANTIMONY FURNACE		<0.005	mg/L	0.005	EPA 200.9	06/14/00	DMB
ARSENIC FURNACE		0.006	mg/L	0.005	EPA 200.9	06/19/00	JT
BARIUM		<0.05	mg/L	0.05	EPA 200.7	06/20/00	JH
BERYLLIUM FURNACE		<0.0005	mg/L	0.0005	EPA 200.9	06/20/00	JT
CADMIUM FURNACE		<0.0005	mg/L	0.0005	EPA 200.9	06/20/00	JT
CHROMIUM FURNACE		0.003	mg/L	0.002	EPA 200.9	06/21/00	JT
COBALT		<0.02	mg/L	0.02	EPA 200.7	06/14/00	JH
COPPER		0.01	mg/L	0.01	EPA 200.7	06/20/00	JH
LEAD FURNACE		<0.005	mg/L	0.005	EPA 200.9	06/23/00	DMB
MERCURY		<0.0002	mg/L	0.0002	EPA 245.1	06/16/00	DMB
NICKEL		<0.02	mg/L	0.02	EPA 200.7	06/20/00	JH
SELENIUM FURNACE		0.013	mg/L	0.005	EPA 200.9	06/20/00	JT
SILVER FURNANCE		0.007	mg/L	0.005	EPA 272.1	06/20/00	DMB
THALLIUM FURNACE		<0.002	mg/L	0.002	EPA 200.9	06/21/00	JT
VANADIUM		<0.05	mg/L	0.05	EPA 200.7	06/21/00	JH
ZINC		0.006	mg/L	0.005	EPA 200.7	06/20/00	JH
FILTERING						06/12/00	DMB

(continued)

ANALYTICAL LABORATORIES, INC.
1804 N. 33rd Street
Boise, Idaho 83703
Phone # (208) 342-5515

LABORATORY ANALYSIS REPORT
SAMPLE NUMBER - 18787

Attn. CHRIS WEEKES

P.O.# 1280

BOISE LOCOMOTIVE CO-MPI
4600 APPLE ST
BOISE, ID 83716

Time of Collection: 11:40
Date of Collection: 06/07/00

Date Received: 06/07/00
Date Reported: 07/16/00

Submitted by: CO/BRM

PWS: 4010223

Source of Sample: PROJECT#2584 MW-30AA

Lab Comment: ATL = ANALYSIS PERFORMED BY ANATEK LABS.
(Results Received: 07/14/00)

EPA Method 8270: Semi-volatile Organics
Appendix IX.

Analytes	Concentration (ug/L)
Acenaphthene	< 1.0
Acenaphthylene	< 1.0
Acetophenone	< 1.0
2-AAF	< 1.0
4-Aminobiphenyl	< 1.0
Aniline	< 1.0
Anthracene	< 1.0
Aramite	< 1.0
Benzo(a)anthracene	< 1.0
Benzo(b)fluoranthene	< 1.0
Benzo(k)fluoranthene	< 1.0
Benzo(ghi)perylene	< 1.0
Benzo(a)pyrene	< 1.0
Benzyl alcohol	< 1.0
Bis(2-chloroethoxy)methane	< 1.0
Bis(2-chloroethyl)ether	< 1.0
Bis(2-chloro-1-methylethyl)ether	< 1.0
Bis(2-ethylhexyl)phthalate	< 1.0
4-Bromophenylphenylether	< 1.0
Butylbenzylphthalate	< 1.0
4-Chloroaniline	< 1.0
Chlorobenzilate	< 1.0
p-Chloro-m-cresol	< 1.0
2-Chloronaphthalene	< 1.0
2-Chlorophenol	< 1.0
4-Chlorophenyl phenyl ether	< 1.0
Chrysene	< 1.0
Dialiate	< 1.0
Dibenz(a,h)anthracene	< 1.0
Di-n-butyl phthalate	< 1.0
1,2-Dichlorobenzene	< 1.0
1,3-Dichlorobenzene	< 1.0
1,4-Dichlorobenzene	< 1.0
3,3'-Dichlorobenzidine	< 2.0
2,4-Dichlorophenol	< 1.0
2,6-Dichlorophenol	< 1.0

ontinued)

1,4-Benzenediamine	< 1.0
Phorate	< 1.0
2-Picoline	< 1.0
Pronamide	< 1.0
Pyrene	< 1.0
Pyridine	< 1.0
Safrole	< 1.0
1,2,4,5-Tetrachlorobenzene	< 1.0
2,3,4,8-Tetrachlorophenol	< 1.0
Sulfotepp	< 1.0
2-Methyl-benzenamine	< 1.0
1,2,4-Trichlorobenzene	< 1.0
2,4,5-Trichlorophenol	< 1.0
2,4,6-Trichlorophenol	< 1.0
O,O,O-Triethyl phosphorothioate	< 1.0
1,3,5-Trinitrobenzene	< 1.0

Surrogate Standard	Recoveries	Acceptance
2-Fluorophenol	48.0	21 - 110
Phenol-d5	44.8	10 - 110
Nitrobenzene-d5	63.7	35 - 114
2-Fluorobiphenyl	66.5	43 - 116
2,4,6-Tribromophenol	70.7	10 - 123
Terphenyl-d14	68.2	33 - 141

EPA 8260: Volatile Organics (Appendix IX).

Analytes	Concentration (ug/L)
Acetone	<5.0
Acrolein	<1.0
Acrylonitrile	<1.0
Allyl Chloride	<5.0
Benzene	<1.0
Bromodichloromethane	<1.0
Bromoform	<1.0
Bromomethane	<1.0
Carbon disulfide	<1.0
Carbon tetrachloride	<1.0
Chlorobenzene	<1.0
Chloroethane	<2.0
Chloroform	0.6
Chloroprene	<1.0
Chloromethane	<1.0
Dibromochloromethane	<1.0
DBCP	<1.0
EDB	<1.0
trans-1,4-Dichloro-2-butene	<1.0
Dichlorodifluoromethane	<1.0
1,1-Dichloroethane	203
1,2-Dichloroethane	1.3
1,1-Dichloroethene	380
trans-1,2-Dichloroethene	<1.0
Dibromomethane	<1.0
Dichloromethane	<1.0
1,2-Dichloropropane	0.8
cis-1,3-Dichloropropene	<1.0
trans-1,3-Dichloropropene	<1.0
Ethylbenzene	<1.0
2-Hexanone	<5.0
Iodomethane	<5.0
Methacrylonitrile	<5.0
Methyl ethyl ketone (MEK)	<5.0
Methyl methacrylate	<1.0
Methyl isobutyl ketone (MIBK)	<5.0

(Continued)

ANALYTICAL LABORATORIES, INC.
1804 N. 33rd Street
Boise, Idaho 83703
Phone # (208) 342-5515

LABORATORY ANALYSIS REPORT
SAMPLE NUMBER - 16788

Attn. CHRIS WEEKES

P.O.# 1290

BOISE LOCOMOTIVE CO-MPI
4600 APPLE ST
BOISE, ID 83715

Time of Collection: 11:40
Date of Collection: 06/07/00

Date Received: 06/07/00
Date Reported: 06/21/00

Submitted by: CO/BRM

PWS: 4010223

Source of Sample: PROJECT#2584 MW-30AA DISSOLVED

Test Requested	FRDS #	MCL	Analysis Result	Unit	MDL	Method	Date Completed	Analyst Initials
ANTIMONY FURNACE			<0.005	mg/L	0.005	EPA 200.9	06/14/00	DMB
ARSENIC FURNACE			0.010	mg/L	0.005	EPA 200.9	06/19/00	JT
BARIUM			0.05	mg/L	0.05	EPA 200.7	06/09/00	JH
BERYLLIUM FURNACE			<0.0005	mg/L	0.0005	EPA 200.9	06/20/00	JT
CADMIUM FURNACE			<0.0005	mg/L	0.0005	EPA 200.9	06/20/00	JT
CHROMIUM FURNACE			<0.002	mg/L	0.002	EPA 200.9	06/07/00	DMB
COBALT			<0.02	mg/L	0.02	EPA 200.7	06/14/00	JH
COPPER			<0.01	mg/L	0.01	EPA 200.7	06/09/00	JH
LEAD FURNACE			<0.005	mg/L	0.005	EPA 200.9	06/08/00	DMB
MERCURY			<0.0002	mg/L	0.0002	EPA 245.1	06/09/00	DMB
NICKEL			<0.02	mg/L	0.02	EPA 200.7	06/09/00	JH
SELENIUM FURNACE			<0.005	mg/L	0.005	EPA 200.9	06/20/00	JT
SILVER FURNACE			<0.005	mg/L	0.005	EPA 272.1	06/20/00	DMB
THALLIUM FURNACE			<0.002	mg/L	0.002	EPA 200.9	06/07/00	DMB
VANADIUM			<0.05	mg/L	0.05	EPA 200.7	06/21/00	JH
ZINC			0.085	mg/L	0.005	EPA 200.7	06/09/00	JH
FILTERING							06/07/00	JH
TIN			<0.20	mg/L	0.20	EPA 200.7	06/14/00	JH

THANK YOU FOR CHOOSING ANALYTICAL LABORATORIES, INC. FOR YOUR TESTING NEEDS.

PLEASE CONTACT CLEVE OUELLETTE IF YOU HAVE ANY QUESTIONS REGARDING THIS REPORT OR ANY FUTURE ANALYTICAL NEEDS.

CHAIN OF CUSTODY RECORD

SH. 1 OF

ANALYTICAL LABS, INC.

1804 N. 33rd Street • Boise, ID 83703
(208) 342-5515 • Fax (208) 342-5591
1-800-574-5773

CLIENT INFORMATION:

Attn: CHRIS WEEKS
Company: MOTIVE POWER
Address: 4000 APPLE ST
BOISE, ID 83716
Phone: 947-3026
Fax: 947-4823
Sampled by: CO / BRM

PROJECT INFORMATION:

Project Manager: BOB STOHNER
Project Name:
Project Number: 2584
Purchase Order Number:
Required Due Date:
Invoice to: (If different than above address)

ANALYSIS REQUESTED

Lab ID	Date Sampled	Time Sampled	Sample Description	Sample Matrix	8010-VOC-12 comp.	8260-VOC FULL SUITE	8270 SEMI-VOC FULL SUITE	APPDEX 9 METALS	Remarks:
16780	6-7-00	08:00	MW-31A	WATER	✓				
16781	6-7-00	08:40	MW-27AA	WATER	✓				
16782	6-7-00	09:20	MW-35A	WATER	✓				
16783	6-7-00	09:50	MW-32A	WATER	✓				
16784	6-7-00	10:20	MW-33A	WATER	✓				
16785	6-7-00	10:50	MW-28A	WATER	✓				
16786	6-7-00	10:50	MW-28A-D	WATER	✓				
16787	6-7-00	11:40	MW-30AA	WATER		✓	✓	✓	16788 LAB FILTER METAL
16789	6-7-00		TRIP BLANK			✓			

Special Instructions:

TEMP RCVD = 9°C

RECEIVED JUL 26 2000 RISK MGMT

ALLOCATIONS OF RISK: Analytical Laboratories, Inc. will perform preparation and testing services, obtain findings and prepare reports in accordance with Good Laboratory Practices (GLP). If, for any reason, Analytical Laboratories, Inc. errors in the conduct of a test or procedure their liability shall be limited to the cost of the test or procedure completed in error. Under no circumstance will Analytical Laboratories, Inc. be liable for any other cost associated with obtaining a sample or use of data.

SAMPLE RECEIPT	Note: Samples are discarded 21 days after results are reported. Hazardous samples will be returned to client or disposed of at client expense.			
Total # of Containers:	Relinquished By: (Signature) Company: [signature] IE & C	Date / Time 6-7-00 ~~15:35~~ 13:35	Received By: (Signature) Company:	Date / Time /
Chains of Custody Seals: Y / N / NA				
Intact: Y / N / NA	Relinquished By: (Signature) Company:	Date / Time /	Received at Laboratory By: (Signature) [signature]	Date / Time 6/7/00 ~~15:35~~
Condition:				

American Geosciences, Inc.
3925 Reed Boulevard • Suite 400 • Murrysville, PA 15668-1848
(724) 733-7000 • (724) 733-1003 FAX • www.amergeo.com

January 5, 2011

Via UPS Ground

Mr. Brian R. Monson, Director
c/o Hazardous Waste Program Manager
Waste Management and Remediation Division
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706-1255

Re: Semi-Annual Report of A-Zone Corrective Action
and B-Zone Compliance Monitoring – Updated Laboratory Data
Wabtec Corporation - MotivePower Facility
EPA ID No. IDD980976831
AGI Project Number 00008-015

Dear Mr. Monson:

Enclosed is an updated laboratory analytical report and correspondence pertaining to the December 28, 2010 Semi-Annual Report of A-Zone Corrective Action and B-Zone Compliance Monitoring (Report) for the Wabtec-MotivePower (MP) facility in Boise, Idaho, EPA ID No. IDD980976831, prepared by American Geosciences, Inc., on behalf of Wabtec Corporation.

The updated laboratory analytical report contains the complete EPA Appendix IX parameters list. The results for the dioxins and furans analysis of the sample from MW-16B was not available until after the most recent Semi-Annual Report was published due to the length of time required by the laboratory for analysis of dioxins and furans.

The results indicate that low concentrations of seven different dioxin and furan compounds were detected in the groundwater sample. However, after further review of the results, each of the detected compounds was also detected in the sample blank. The laboratory was contacted, and agreed that the detections were due to "background" contamination in the laboratory because of the following:

- All positives in the sample are also present in the blank.
- The positives are small and close to the detection limit.
- The sample positives are plus or minus a factor of two of the values found in the blank.
- The chromatograms show a dioxin "fingerprint" that is very similar in the blank and sample.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

December 29, 2010 1:44:12PM

Client: MotivePower, Inc (13723)
American Geosciences, Inc
Murrysville, PA 15668
Attn: Wendy Noe

Work Order: NTJ3521
Project Name: Boise, ID AGI Proj. 00008O
Project Nbr: Boise, ID AGI Proj. 00008O
P/O Nbr:
Date Received: 10/28/10

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW-16B	NTJ3521-01	10/27/10 08:15
MW-17B	NTJ3521-02	10/26/10 12:00
MW-10	NTJ3521-03	10/26/10 13:00

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

This material is intended only for the use of the individual(s) or entity to whom it is addressed, and may contain information that is privileged and confidential. If you are not the intended recipient, or the employee or agent responsible for delivering this material to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this material is strictly prohibited. If you have received this material in error, please notify us immediately at 615-726-0177.

Additional Laboratory Comments: **Revised Report:**
This report was revised on 12/29/10 to report Dioxin and Furans which are reported in the attachment. This final report replaces the final report generated on 11/11/10 at 15:56.

The Chain(s) of Custody, 2 pages, are included and are an integral part of this report.

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

All solids results are reported in wet weight unless specifically stated.
Estimated uncertainty is available upon request.
This report has been electronically signed.
Report Approved By:

Roxanne L. Connor

Roxanne Connor

Program Manager - Conventional Accounts

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NTJ3521-01 (MW-16B - Ground Water) - cont. Sampled: 10/27/10 08:15								
Organochlorine Pesticides by EPA Method 8081A - cont.								
Surr: Tetrachloro-meta-xylene (38-150%)	*93 %*					*11/04/10 15:34*	*SW846 8081A*	*10K0540*
Surr: Decachlorobiphenyl (10-141%)	*25 %*					*11/04/10 15:34*	*SW846 8081A*	*10K0540*

Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 000080
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 000080
Attn	Wendy Noe	Received:	10/28/10 08:25

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NTJ3521-01 (MW-16B - Ground Water) - cont. Sampled: 10/27/10 08:15									
Semivolatile Organic Compounds by EPA Method 8270C - cont.									
Dibenz (a,h) anthracene	<0.566		ug/L	0.566	1.89	1	11/06/10 20:26	SW846 8270C	10K0546
Dibenzofuran	<0.660		ug/L	0.660	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Di-n-butyl phthalate	<3.02		ug/L	3.02	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
1,2-Dichlorobenzene	<2.08		ug/L	2.08	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
1,3-Dichlorobenzene	<1.98		ug/L	1.98	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
1,4-Dichlorobenzene	<1.98		ug/L	1.98	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
3,3-Dichlorobenzidine	<6.04		ug/L	6.04	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
2,4-Dichlorophenol	<2.17		ug/L	2.17	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
2,6-Dichlorophenol	<15.1		ug/L	15.1	18.9	1	11/06/10 20:26	SW846 8270C	10K0546
Diethyl phthalate	<2.64		ug/L	2.64	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Dimethoate	<8.30		ug/L	8.30	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Dimethylaminoazobenzene	<7.92		ug/L	7.92	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
7,12-Dimethylbenz (a) anthracene	<7.55		ug/L	7.55	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
3,3-Dimethylbenzidine	<14.2		ug/L	14.2	47.2	1	11/06/10 20:26	SW846 8270C	10K0546
2,4-Dimethylphenol	<2.45		ug/L	2.45	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Dimethyl phthalate	<2.55		ug/L	2.55	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
4,6-Dinitro-2-methylphenol	<3.11		ug/L	3.11	23.6	1	11/06/10 20:26	SW846 8270C	10K0546
1,3-Dinitrobenzene	<7.92		ug/L	7.92	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
2,4-Dinitrophenol	<2.92		ug/L	2.92	23.6	1	11/06/10 20:26	SW846 8270C	10K0546
2,4-Dinitrotoluene	<2.83		ug/L	2.83	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
2,6-Dinitrotoluene	<2.83		ug/L	2.83	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Dinoseb	<8.77		ug/L	8.77	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Di-n-octyl phthalate	<3.49		ug/L	3.49	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Diphenylamine	<3.77		ug/L	3.77	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Disulfoton	<7.17		ug/L	7.17	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Bis(2-ethylhexyl)phthalate	<3.11		ug/L	3.11	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Ethyl Methanesulfonate	<7.64		ug/L	7.64	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Famphur	<8.21		ug/L	8.21	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Fluoranthene	<0.660		ug/L	0.660	1.89	1	11/06/10 20:26	SW846 8270C	10K0546
Fluorene	<0.660		ug/L	0.660	1.89	1	11/06/10 20:26	SW846 8270C	10K0546
Hexachlorobenzene	<2.55		ug/L	2.55	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Hexachlorobutadiene	<2.55		ug/L	2.55	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Hexachlorocyclopentadiene	<1.79		ug/L	1.79	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Hexachloroethane	<2.26		ug/L	2.26	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Hexachlorophene	<3.21		ug/L	3.21	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Hexachloropropene	<7.92		ug/L	7.92	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Indeno (1,2,3-cd) pyrene	<0.472		ug/L	0.472	1.89	1	11/06/10 20:26	SW846 8270C	10K0546
Isodrin	<7.74		ug/L	7.74	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Isophorone	<2.64		ug/L	2.64	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Isosafrole	<11.3		ug/L	11.3	47.2	1	11/06/10 20:26	SW846 8270C	10K0546
Kepone	<5.75		ug/L	5.75	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Methapyrilene	<4.91		ug/L	4.91	47.2	1	11/06/10 20:26	SW846 8270C	10K0546
3-Methylcholanthrene	<7.45		ug/L	7.45	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Methyl Methanesulfonate	<6.23		ug/L	6.23	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
2-Methylnaphthalene	<0.566		ug/L	0.566	1.89	1	11/06/10 20:26	SW846 8270C	10K0546

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MDL	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NTJ3521-01 (MW-16B - Ground Water) - cont. Sampled: 10/27/10 08:15									
Semivolatile Organic Compounds by EPA Method 8270C - cont.									
1,2,4-Trichlorobenzene	<2.45		ug/L	2.45	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
2,4,5-Trichlorophenol	<2.55		ug/L	2.55	23.6	1	11/06/10 20:26	SW846 8270C	10K0546
2,4,6-Trichlorophenol	<2.83		ug/L	2.83	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
1,3,5-Trinitrobenzene	<7.36		ug/L	7.36	9.43	1	11/06/10 20:26	SW846 8270C	10K0546
Surr: Terphenyl-d14 (13-120%)	*31 %*					*1*	*11/06/10 20:26*	*SW846 8270C*	*10K0546*
Surr: 2,4,6-Tribromophenol (29-132%)	*51 %*					*1*	*11/06/10 20:26*	*SW846 8270C*	*10K0546*
Surr: Phenol-d5 (10-120%)	*17 %*					*1*	*11/06/10 20:26*	*SW846 8270C*	*10K0546*
Surr: 2-Fluorobiphenyl (29-120%)	*53 %*					*1*	*11/06/10 20:26*	*SW846 8270C*	*10K0546*
Surr: 2-Fluorophenol (10-120%)	*30 %*					*1*	*11/06/10 20:26*	*SW846 8270C*	*10K0546*
Surr: Nitrobenzene-d5 (27-120%)	*53 %*					*1*	*11/06/10 20:26*	*SW846 8270C*	*10K0546*
EPA-5 1613Bx									
1,2,3,4,6,7,8-HpCDD	**2.6**	Ja, B	pg/L	0.97	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,4,6,7,8-HpCDF	**1.3**	Ja, Q, B	pg/L	0.36	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,4,7,8,9-HpCDF	<0.57		pg/L	0.57	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,4,7,8-HxCDD	<0.57		pg/L	0.57	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,4,7,8-HxCDF	**0.64**	Ja, Q, B	pg/L	0.35	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,6,7,8-HxCDD	<0.41		pg/L	0.41	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,6,7,8-HxCDF	<0.31		pg/L	0.31	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,7,8,9-HxCDD	<0.42		pg/L	0.42	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,7,8,9-HxCDF	**0.52**	Ja, Q, B	pg/L	0.39	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,7,8-PeCDD	<0.94		pg/L	0.94	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
1,2,3,7,8-PeCDF	<0.62		pg/L	0.62	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
2,3,4,6,7,8-HxCDF	**0.48**	Ja, Q, B	pg/L	0.3	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
2,3,4,7,8-PeCDF	<0.73		pg/L	0.73	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
2,3,7,8-TCDD	<0.53		pg/L	0.53	9.9	0.99	12/18/10 21:12	EPA-5 1613B	350424
2,3,7,8-TCDF	<0.54		pg/L	0.54	9.9	0.99	12/18/10 21:12	EPA-5 1613B	350424
OCDD	**11**	Ja, B	pg/L	0.88	99	0.99	12/18/10 21:12	EPA-5 1613B	350424
OCDF	**1.2**	Ja, Q, B	pg/L	0.9	99	0.99	12/18/10 21:12	EPA-5 1613B	350424
Total HpCDD	**5.8**		pg/L	0.97	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
Total HpCDF	**1.3**		pg/L	0.46	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
Total HxCDD	<0.57		pg/L	0.57	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
Total HxCDF	**1.6**		pg/L	0.33	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
Total PeCDD	<0.94		pg/L	0.94	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
Total PeCDF	<0.73		pg/L	0.73	50	0.99	12/18/10 21:12	EPA-5 1613B	350424
Total TCDD	<0.89		pg/L	0.89	9.9	0.99	12/18/10 21:12	EPA-5 1613B	350424
Total TCDF	<0.54		pg/L	0.54	9.9	0.99	12/18/10 21:12	EPA-5 1613B	350424
Surr: 13C-1,2,3,4,6,7,8-HpCDD (23-140%)	*78 %*					*0.99*	*12/18/10 21:12*	*EPA-5 1613B*	*350424*
Surr: 13C-1,2,3,4,6,7,8-HpCDF (28-143%)	*82 %*					*0.99*	*12/18/10 21:12*	*EPA-5 1613B*	*350424*
Surr: 13C-1,2,3,4,7,8,9-HpCDF (26-138%)	*79 %*					*0.99*	*12/18/10 21:12*	*EPA-5 1613B*	*350424*
Surr: 13C-1,2,3,4,7,8-HxCDD (32-141%)	*64 %*					*0.99*	*12/18/10 21:12*	*EPA-5 1613B*	*350424*
Surr: 13C-1,2,3,4,7,8-HxCDF (26-152%)	*77 %*					*0.99*	*12/18/10 21:12*	*EPA-5 1613B*	*350424*
Surr: 13C-1,2,3,6,7,8-HxCDD (28-130%)	*95 %*					*0.99*	*12/18/10 21:12*	*EPA-5 1613B*	*350424*
Surr: 13C-1,2,3,6,7,8-HxCDF (26-123%)	*81 %*					*0.99*	*12/18/10 21:12*	*EPA-5 1613B*	*350424*

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

ANALYTICAL REPORT

Analyte	Result	Flag	Units	MRL	Dilution Factor	Analysis Date/Time	Method	Batch
Sample ID: NTJ3521-02 (MW-17B - Ground Water) Sampled: 10/26/10 12:00								
Dissolved Metals by EPA Method 6010B								
Antimony	<0.0100		mg/L	0.0100	1	11/04/10 13:21	SW846 6010B	10K0257
Arsenic	<0.0100		mg/L	0.0100	1	11/04/10 13:21	SW846 6010B	10K0257
Barium	**0.0401**		mg/L	0.0100	1	11/04/10 13:21	SW846 6010B	10K0257
Beryllium	<0.00400		mg/L	0.00400	1	11/04/10 13:21	SW846 6010B	10K0257
Cadmium	<0.00100		mg/L	0.00100	1	11/04/10 13:21	SW846 6010B	10K0257
Chromium	<0.00500		mg/L	0.00500	1	11/04/10 13:21	SW846 6010B	10K0257
Cobalt	<0.0200		mg/L	0.0200	1	11/04/10 13:21	SW846 6010B	10K0257
Copper	<0.0100		mg/L	0.0100	1	11/04/10 13:21	SW846 6010B	10K0257
Lead	<0.00500		mg/L	0.00500	1	11/04/10 13:21	SW846 6010B	10K0257
Nickel	**0.0163**		mg/L	0.0100	1	11/04/10 13:21	SW846 6010B	10K0257
Selenium	<0.0100		mg/L	0.0100	1	11/04/10 13:21	SW846 6010B	10K0257
Silver	<0.00500		mg/L	0.00500	1	11/04/10 13:21	SW846 6010B	10K0257
Thallium	<0.0100		mg/L	0.0100	1	11/04/10 13:21	SW846 6010B	10K0257
Tin	<0.0500		mg/L	0.0500	1	11/04/10 13:21	SW846 6010B	10K0257
nadium	<0.0200		mg/L	0.0200	1	11/04/10 13:21	SW846 6010B	10K0257
nc	<0.0500		mg/L	0.0500	1	11/04/10 13:21	SW846 6010B	10K0257
Dissolved Mercury by EPA Methods 7470A/7471A								
Mercury	<0.000200		mg/L	0.000200	1	11/02/10 13:18	SW846 7470A	10J5964

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Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
Chlorinated Herbicides by EPA Method 8151A							
SW846 8151A	10K0541	NTJ3521-01	600.00	10.00	11/03/10 13:30	MSR	EPA 8151A
Dissolved Mercury by EPA Methods 7470A/7471A							
SW846 7470A	10J5964	NTJ3521-01	30.00	30.00	10/30/10 18:15	LCB	EPA 7470
SW846 7470A	10J5964	NTJ3521-02	30.00	30.00	10/30/10 18:15	LCB	EPA 7470
SW846 7470A	10J5964	NTJ3521-03	30.00	30.00	10/30/10 18:15	LCB	EPA 7470
Dissolved Metals by EPA Method 6010B							
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-01	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-02	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-03	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-03	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-03	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-03	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-03	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D
SW846 6010B	10K0257	NTJ3521-03	50.00	50.00	11/04/10 07:30	DEB	EPA 3010A / 6010 D

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Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Dissolved Metals by EPA Method 6010B						
10K0257-BLK1						
Antimony	<0.00590		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Arsenic	<0.00370		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Barium	<0.00600		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Beryllium	<0.00100		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Cadmium	<0.000600		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Chromium	<0.00260		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Cobalt	<0.00500		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Copper	<0.00300		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Lead	<0.00290		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Nickel	<0.00230		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Selenium	<0.00390		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Silver	<0.00280		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Thallium	<0.00840		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
[illegible]	<0.00690		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
[illegible]anadium	<0.00500		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Zinc	<0.00780		mg/L	10K0257	10K0257-BLK1	11/04/10 13:14
Dissolved Mercury by EPA Methods 7470A/7471A						
10J5964-BLK1						
Mercury	<0.000100		mg/L	10J5964	10J5964-BLK1	11/02/10 12:22
Organochlorine Pesticides by EPA Method 8081A						
10K0540-BLK1						
Aldrin	<0.0100		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
delta-BHC	<0.0120		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
alpha-BHC	<0.0120		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
beta-BHC	<0.0310		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
gamma-BHC (Lindane)	<0.0150		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
alpha-Chlordane	<0.0130		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
gamma-Chlordane	<0.0140		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
Chlordane	<0.100		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
4,4'-DDD	<0.0160		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
4,4'-DDE	<0.0130		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
4,4'-DDT	<0.0320		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
Dieldrin	<0.0150		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
Endosulfan I	<0.0110		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
Endosulfan II	<0.0170		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
Endosulfan sulfate	<0.0140		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
Endrin	<0.0110		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
[illegible]drin aldehyde	<0.0130		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50
[illegible]drin ketone	<0.0160		ug/L	10K0540	10K0540-BLK1	11/04/10 14:50

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Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C						
10K0546-BLK1						
Benzo (g,h,i) perylene	<0.500		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Benzo (k) fluoranthene	<0.800		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Benzyl alcohol	<2.80		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
4-Bromophenyl phenyl ether	<3.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Butyl benzyl phthalate	<3.70		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Carbazole	<0.400		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
4-Chloro-3-methylphenol	<2.80		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
4-Chloroaniline	<4.80		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Chlorobenzilate	<8.20		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Bis(2-chloroethoxy)methane	<2.60		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Bis(2-chloroethyl)ether	<4.10		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Bis(2-chloroisopropyl)ether	<3.50		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2-Chloronaphthalene	<2.90		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
[illegible]hlorophenol	<2.40		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
[illegible]-Chlorophenyl phenyl ether	<2.80		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Chrysene	<0.500		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Diallate (cis or trans)	<3.90		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Dibenz (a,h) anthracene	<0.600		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Dibenzofuran	<0.700		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Di-n-butyl phthalate	<3.20		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
1,2-Dichlorobenzene	<2.20		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
1,3-Dichlorobenzene	<2.10		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
1,4-Dichlorobenzene	<2.10		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
3,3-Dichlorobenzidine	<6.40		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2,4-Dichlorophenol	<2.30		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2,6-Dichlorophenol	<16.0		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Diethyl phthalate	<2.80		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Dimethoate	<8.80		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Dimethylaminoazobenzene	<8.40		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
7,12-Dimethylbenz (a) anthracene	<8.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
3,3-Dimethylbenzidine	<15.0		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2,4-Dimethylphenol	<2.60		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Dimethyl phthalate	<2.70		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
4,6-Dinitro-2-methylphenol	<3.30		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
1,3-Dinitrobenzene	<8.40		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2,4-Dinitrophenol	<3.10		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2,4-Dinitrotoluene	<3.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2,6-Dinitrotoluene	<3.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Dinoseb	<9.30		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
[illegible]-n-octyl phthalate	<3.70		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
[illegible]phenylamine	<4.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43

Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

PROJECT QUALITY CONTROL DATA
Blank - Cont.

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C						
10K0546-BLK1						
N-Nitrosopiperidine	<8.60		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
N-Nitrosopyrrolidine	<8.40		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
5-Nitro-o-toluidine	<8.90		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
O,O,O-Triethyl phosphorothioate	<8.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Parathion-ethyl	<7.90		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Pentachlorobenzene	<6.90		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Pentachloroethane	<1.40		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Pentachloronitrobenzene	<8.80		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Pentachlorophenol	<2.60		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Phenacetin	<9.60		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Phenanthrene	<0.700		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Phenol	<1.70		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
1,4-Phenylenediamine	<4.10		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
[illegible]rate	<8.10		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
[illegible]-Picoline	<16.0		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Pronamide	<9.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Pyrene	<0.600		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Parathion-methyl	<8.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Pyridine	<2.70		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Safrole	<4.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Sulfotep	<8.60		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
1,2,4,5-Tetrachlorobenzene	<7.80		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2,3,4,6-Tetrachlorophenol	<9.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Thionazin	<8.30		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
o-Toluidine	<7.40		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
1,2,4-Trichlorobenzene	<2.60		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2,4,5-Trichlorophenol	<2.70		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
2,4,6-Trichlorophenol	<3.00		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
1,3,5-Trinitrobenzene	<7.80		ug/L	10K0546	10K0546-BLK1	11/06/10 19:43
Surrogate: Terphenyl-d14	62%			10K0546	10K0546-BLK1	11/06/10 19:43
Surrogate: 2,4,6-Tribromophenol	60%			10K0546	10K0546-BLK1	11/06/10 19:43
Surrogate: Phenol-d5	15%			10K0546	10K0546-BLK1	11/06/10 19:43
Surrogate: 2-Fluorobiphenyl	55%			10K0546	10K0546-BLK1	11/06/10 19:43
Surrogate: 2-Fluorophenol	29%			10K0546	10K0546-BLK1	11/06/10 19:43
Surrogate: Nitrobenzene-d5	51%			10K0546	10K0546-BLK1	11/06/10 19:43
EPA-5 1613Bx						
G0L160000424B						
1,2,3,4,6,7,8-HpCDD	1.5	Ja	pg/L	350424	G0L160000424B	12/18/10 14:59
[illegible],3,4,6,7,8-HpCDF	1.1	Ja, Q	pg/L	350424	G0L160000424B	12/18/10 14:59
[illegible],3,4,7,8,9-HpCDF	<0.43		pg/L	350424	G0L160000424B	12/18/10 14:59

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Dissolved Metals by EPA Method 6010B								
10K0257-BS1								
Antimony	0.100	0.0975		mg/L	97%	80 - 120	10K0257	11/04/10 13:16
Arsenic	0.0500	0.0483		mg/L	97%	80 - 120	10K0257	11/04/10 13:16
Barium	2.00	1.95		mg/L	98%	80 - 120	10K0257	11/04/10 13:16
Beryllium	0.0500	0.0481		mg/L	96%	80 - 120	10K0257	11/04/10 13:16
Cadmium	0.0500	0.0484		mg/L	97%	80 - 120	10K0257	11/04/10 13:16
Chromium	0.200	0.195		mg/L	98%	80 - 120	10K0257	11/04/10 13:16
Cobalt	0.500	0.486		mg/L	97%	80 - 120	10K0257	11/04/10 13:16
Copper	0.250	0.238		mg/L	95%	80 - 120	10K0257	11/04/10 13:16
Lead	0.0500	0.0493		mg/L	99%	80 - 120	10K0257	11/04/10 13:16
Nickel	0.500	0.491		mg/L	98%	80 - 120	10K0257	11/04/10 13:16
Selenium	0.0500	0.0480		mg/L	96%	80 - 120	10K0257	11/04/10 13:16
Silver	0.0500	0.0466		mg/L	93%	80 - 120	10K0257	11/04/10 13:16
Thallium	0.0500	0.0459		mg/L	92%	80 - 120	10K0257	11/04/10 13:16
[illegible]	1.00	0.935		mg/L	94%	80 - 120	10K0257	11/04/10 13:16
[illegible]adium	0.500	0.479		mg/L	96%	80 - 120	10K0257	11/04/10 13:16
Zinc	0.500	0.485		mg/L	97%	80 - 120	10K0257	11/04/10 13:16
Dissolved Mercury by EPA Methods 7470A/7471A								
10J5964-BS1								
Mercury	0.00100	0.000857		mg/L	86%	80 - 120	10J5964	11/02/10 12:25
Organochlorine Pesticides by EPA Method 8081A								
10K0540-BS1								
Aldrin	1.00	1.02		ug/L	102%	35 - 135	10K0540	11/04/10 15:05
delta-BHC	1.00	1.12		ug/L	112%	40 - 138	10K0540	11/04/10 15:05
alpha-BHC	1.00	1.09		ug/L	109%	50 - 136	10K0540	11/04/10 15:05
beta-BHC	1.00	1.17		ug/L	117%	49 - 136	10K0540	11/04/10 15:05
gamma-BHC (Lindane)	1.00	1.09		ug/L	109%	49 - 141	10K0540	11/04/10 15:05
alpha-Chlordane	1.00	1.02		ug/L	102%	43 - 137	10K0540	11/04/10 15:05
gamma-Chlordane	1.00	1.04		ug/L	104%	44 - 134	10K0540	11/04/10 15:05
4,4'-DDD	1.00	1.13		ug/L	113%	41 - 150	10K0540	11/04/10 15:05
4,4'-DDE	1.00	1.08		ug/L	108%	40 - 144	10K0540	11/04/10 15:05
4,4'-DDT	1.00	1.16		ug/L	116%	43 - 138	10K0540	11/04/10 15:05
Dieldrin	1.00	1.06		ug/L	106%	48 - 142	10K0540	11/04/10 15:05
Endosulfan I	1.00	1.05		ug/L	105%	46 - 139	10K0540	11/04/10 15:05
Endosulfan II	1.00	1.06		ug/L	106%	48 - 141	10K0540	11/04/10 15:05
Endosulfan sulfate	1.00	1.07		ug/L	107%	40 - 146	10K0540	11/04/10 15:05
Endrin	1.00	1.07		ug/L	107%	48 - 149	10K0540	11/04/10 15:05
Endrin aldehyde	1.00	1.03		ug/L	103%	30 - 150	10K0540	11/04/10 15:05
[illegible]drin ketone	1.00	1.12		ug/L	112%	48 - 140	10K0540	11/04/10 15:05
[illegible]tachlor	1.00	1.05		ug/L	105%	32 - 137	10K0540	11/04/10 15:05

Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C								
10K0546-BS1								
Carbazole	50.0	39.4	MNR1	ug/L	79%	60 - 120	10K0546	11/06/10 17:34
4-Chloro-3-methylphenol	50.0	35.5	MNR1	ug/L	71%	49 - 120	10K0546	11/06/10 17:34
4-Chloroaniline	50.0	35.5	MNR1	ug/L	71%	39 - 120	10K0546	11/06/10 17:34
Bis(2-chloroethoxy)methane	50.0	32.3	MNR1	ug/L	65%	43 - 120	10K0546	11/06/10 17:34
Bis(2-chloroethyl)ether	50.0	33.8	MNR1	ug/L	68%	43 - 120	10K0546	11/06/10 17:34
Bis(2-chloroisopropyl)ether	50.0	35.4	MNR1	ug/L	71%	45 - 120	10K0546	11/06/10 17:34
2-Chloronaphthalene	50.0	36.0	MNR1	ug/L	72%	43 - 120	10K0546	11/06/10 17:34
2-Chlorophenol	50.0	38.8	MNR1	ug/L	78%	40 - 120	10K0546	11/06/10 17:34
4-Chlorophenyl phenyl ether	50.0	38.4	MNR1	ug/L	77%	56 - 120	10K0546	11/06/10 17:34
Chrysene	50.0	38.8	MNR1	ug/L	78%	54 - 123	10K0546	11/06/10 17:34
Dibenz(a,h) anthracene	50.0	37.6	MNR1	ug/L	75%	50 - 136	10K0546	11/06/10 17:34
Dibenzofuran	50.0	39.3	MNR1	ug/L	79%	55 - 120	10K0546	11/06/10 17:34
Di-n-butyl phthalate	50.0	44.0	MNR1	ug/L	88%	64 - 120	10K0546	11/06/10 17:34
1,2-Dichlorobenzene	50.0	36.4	MNR1	ug/L	73%	29 - 120	10K0546	11/06/10 17:34
1,3-Dichlorobenzene	50.0	36.2	MNR1	ug/L	72%	27 - 120	10K0546	11/06/10 17:34
1,4-Dichlorobenzene	50.0	34.9	MNR1	ug/L	70%	27 - 120	10K0546	11/06/10 17:34
3,3-Dichlorobenzidine	50.0	39.2	MNR1	ug/L	78%	49 - 120	10K0546	11/06/10 17:34
2,4-Dichlorophenol	50.0	37.7	MNR1	ug/L	75%	39 - 120	10K0546	11/06/10 17:34
Diethyl phthalate	50.0	40.2	MNR1	ug/L	80%	53 - 120	10K0546	11/06/10 17:34
2,4-Dimethylphenol	50.0	38.4	MNR1	ug/L	77%	28 - 123	10K0546	11/06/10 17:34
Dimethyl phthalate	50.0	39.6	MNR1	ug/L	79%	59 - 120	10K0546	11/06/10 17:34
4,6-Dinitro-2-methylphenol	50.0	41.0	MNR1	ug/L	82%	35 - 132	10K0546	11/06/10 17:34
2,4-Dinitrophenol	50.0	47.4	MNR1	ug/L	95%	21 - 145	10K0546	11/06/10 17:34
2,4-Dinitrotoluene	50.0	38.4	MNR1	ug/L	77%	61 - 124	10K0546	11/06/10 17:34
2,6-Dinitrotoluene	50.0	40.6	MNR1	ug/L	81%	62 - 123	10K0546	11/06/10 17:34
Di-n-octyl phthalate	50.0	48.9	MNR1	ug/L	98%	51 - 141	10K0546	11/06/10 17:34
Bis(2-ethylhexyl)phthalate	50.0	44.0	MNR1	ug/L	88%	54 - 134	10K0546	11/06/10 17:34
Fluoranthene	50.0	39.3	MNR1	ug/L	79%	62 - 120	10K0546	11/06/10 17:34
Fluorene	50.0	39.2	MNR1	ug/L	78%	58 - 120	10K0546	11/06/10 17:34
Hexachlorobenzene	50.0	40.3	MNR1	ug/L	81%	60 - 120	10K0546	11/06/10 17:34
Hexachlorobutadiene	50.0	40.1	MNR1	ug/L	80%	24 - 120	10K0546	11/06/10 17:34
Hexachlorocyclopentadiene	50.0	33.1	MNR1	ug/L	66%	19 - 120	10K0546	11/06/10 17:34
Hexachloroethane	50.0	36.6	MNR1	ug/L	73%	26 - 120	10K0546	11/06/10 17:34
Indeno (1,2,3-cd) pyrene	50.0	38.8	MNR1	ug/L	78%	50 - 136	10K0546	11/06/10 17:34
Isophorone	50.0	33.7	MNR1	ug/L	67%	46 - 120	10K0546	11/06/10 17:34
2-Methylnaphthalene	50.0	34.5	MNR1	ug/L	69%	34 - 120	10K0546	11/06/10 17:34
2-Methylphenol	50.0	30.0	MNR1	ug/L	60%	38 - 120	10K0546	11/06/10 17:34
3/4-Methylphenol	50.0	26.9	MNR1	ug/L	54%	34 - 120	10K0546	11/06/10 17:34
Naphthalene	50.0	33.8	MNR1	ug/L	68%	32 - 120	10K0546	11/06/10 17:34
2-Nitroaniline	50.0	39.5	MNR1	ug/L	79%	55 - 124	10K0546	11/06/10 17:34
3-Nitroaniline	50.0	38.4	MNR1	ug/L	77%	54 - 120	10K0546	11/06/10 17:34

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Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 000080
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 000080
Attn	Wendy Noe	Received:	10/28/10 08:25

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
Semivolatile Organic Compounds by EPA Method 8270C								
10K0546-BS2								
2,4-Dimethylphenol	50.0	38.6		ug/L	77%	28 - 123	10K0546	11/06/10 20:04
4,6-Dinitro-2-methylphenol	50.0	30.4		ug/L	61%	35 - 132	10K0546	11/06/10 20:04
1,3-Dinitrobenzene	50.0	43.3		ug/L	87%	50 - 150	10K0546	11/06/10 20:04
2,4-Dinitrophenol	50.0	29.8		ug/L	60%	21 - 145	10K0546	11/06/10 20:04
Dinoseb	50.0	37.1		ug/L	74%	37 - 145	10K0546	11/06/10 20:04
Diphenylamine	50.0	35.6		ug/L	71%	10 - 150	10K0546	11/06/10 20:04
Disulfoton	50.0	35.4		ug/L	71%	10 - 150	10K0546	11/06/10 20:04
Ethyl Methanesulfonate	50.0	25.1		ug/L	50%	39 - 120	10K0546	11/06/10 20:04
Famphur	50.0	34.7		ug/L	69%	10 - 150	10K0546	11/06/10 20:04
Hexachlorophene	50.0	13.5		ug/L	27%	10 - 150	10K0546	11/06/10 20:04
Hexachloropropene	50.0	33.3		ug/L	67%	10 - 146	10K0546	11/06/10 20:04
Isodrin	50.0	40.9		ug/L	82%	52 - 122	10K0546	11/06/10 20:04
Isosafrole	50.0	55.2		ug/L	110%	68 - 150	10K0546	11/06/10 20:04
pone	50.0	40.1		ug/L	80%	10 - 150	10K0546	11/06/10 20:04
ethapyrilene	50.0	12.9	J	ug/L	26%	10 - 150	10K0546	11/06/10 20:04
3-Methylcholanthrene	50.0	30.6		ug/L	61%	37 - 120	10K0546	11/06/10 20:04
Methyl Methanesulfonate	50.0	18.5		ug/L	37%	10 - 120	10K0546	11/06/10 20:04
2-Methylphenol	50.0	27.3		ug/L	55%	38 - 120	10K0546	11/06/10 20:04
1,4-Naphthoquinone	50.0	42.1	J	ug/L	84%	37 - 150	10K0546	11/06/10 20:04
1-Naphthylamine	50.0	35.0	J	ug/L	70%	17 - 120	10K0546	11/06/10 20:04
2-Naphthylamine	50.0	35.6	J	ug/L	71%	14 - 120	10K0546	11/06/10 20:04
2-Nitrophenol	50.0	37.3		ug/L	75%	42 - 120	10K0546	11/06/10 20:04
4-Nitrophenol	50.0	10.2	J	ug/L	20%	10 - 120	10K0546	11/06/10 20:04
4-Nitroquinoline-n-oxide	50.0	47.3		ug/L	95%	10 - 150	10K0546	11/06/10 20:04
N-Nitrosodi-n-butylamine	50.0	34.2		ug/L	68%	43 - 145	10K0546	11/06/10 20:04
N-Nitrosodiethylamine	50.0	29.2		ug/L	58%	45 - 125	10K0546	11/06/10 20:04
N-Nitrosomethylethylamine	50.0	26.7		ug/L	53%	15 - 120	10K0546	11/06/10 20:04
N-Nitrosomorpholine	50.0	53.0		ug/L	106%	10 - 150	10K0546	11/06/10 20:04
N-Nitrosopiperidine	50.0	30.2		ug/L	60%	55 - 120	10K0546	11/06/10 20:04
N-Nitrosopyrrolidine	50.0	26.0		ug/L	52%	47 - 120	10K0546	11/06/10 20:04
5-Nitro-o-toluidine	50.0	40.2		ug/L	80%	51 - 150	10K0546	11/06/10 20:04
O,O,O-Triethyl phosphorothioate	50.0	34.0		ug/L	68%	55 - 126	10K0546	11/06/10 20:04
Parathion-ethyl	50.0	44.1		ug/L	88%	56 - 145	10K0546	11/06/10 20:04
Pentachlorobenzene	50.0	37.8		ug/L	76%	52 - 123	10K0546	11/06/10 20:04
Pentachloroethane	50.0	31.8		ug/L	64%	41 - 123	10K0546	11/06/10 20:04
Pentachloronitrobenzene	50.0	44.5		ug/L	89%	46 - 150	10K0546	11/06/10 20:04
Pentachlorophenol	50.0	27.3		ug/L	55%	36 - 143	10K0546	11/06/10 20:04
Phenacetin	50.0	35.4		ug/L	71%	39 - 150	10K0546	11/06/10 20:04
Phenol	50.0	11.5		ug/L	23%	10 - 120	10K0546	11/06/10 20:04
4-Phenylenediamine	50.0	<4.10	L2	ug/L	0%	10 - 150	10K0546	11/06/10 20:04
rate	50.0	51.1		ug/L	102%	10 - 150	10K0546	11/06/10 20:04

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Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

PROJECT QUALITY CONTROL DATA
LCS - Cont.

Analyte	Known Val.	Analyzed Val	Q	Units	% Rec.	Target Range	Batch	Analyzed Date/Time
EPA-5 1613Bx								
G0L160000424C								
Surrogate: 13C-1,2,3,7,8-PeCDF	2000	1790			90%	21 - 192	350424	12/18/10 16:23
Surrogate: 13C-2,3,4,6,7,8-HxCDF	2000	1730			86%	22 - 176	350424	12/18/10 16:23
Surrogate: 13C-2,3,4,7,8-PeCDF	2000	1820			91%	13 - 328	350424	12/18/10 16:23
Surrogate: 13C-2,3,7,8-TCDD	2000	1610			81%	20 - 175	350424	12/18/10 16:23
Surrogate: 13C-2,3,7,8-TCDF	2000	1590			79%	22 - 152	350424	12/18/10 16:23
Surrogate: 13C-OCDD	4000	3380			84%	13 - 199	350424	12/18/10 16:23
2,3,4,6,7,8-HxCDF	1000	1170		pg/L	117%	70 - 156	350424	12/18/10 16:23
2,3,4,7,8-PeCDF	1000	1170		pg/L	117%	68 - 160	350424	12/18/10 16:23
2,3,7,8-TCDD	200	235		pg/L	118%	67 - 158	350424	12/18/10 16:23
2,3,7,8-TCDF	200	240		pg/L	120%	75 - 158	350424	12/18/10 16:23
Surrogate: 37Cl4-2,3,7,8-TCDD	800	760			95%	31 - 191	350424	12/18/10 16:23
OCDD	2000	2290		pg/L	114%	78 - 144	350424	12/18/10 16:23
OCDF	2000	2210		pg/L	111%	63 - 170	350424	12/18/10 16:23

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

PROJECT QUALITY CONTROL DATA
Matrix Spike

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked	Analyzed Date/Time
Dissolved Metals by EPA Method 6010B										
10K0257-MS1										
Antimony	ND	0.0972		mg/L	0.100	97%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Arsenic	0.00600	0.0561		mg/L	0.0500	100%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Barium	0.0365	1.98		mg/L	2.00	97%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Beryllium	ND	0.0485		mg/L	0.0500	97%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Cadmium	ND	0.0481		mg/L	0.0500	96%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Chromium	ND	0.194		mg/L	0.200	97%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Cobalt	ND	0.499		mg/L	0.500	100%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Copper	ND	0.238		mg/L	0.250	95%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Lead	ND	0.0489		mg/L	0.0500	98%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Nickel	ND	0.499		mg/L	0.500	100%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Selenium	ND	0.0482		mg/L	0.0500	96%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Silver	ND	0.0473		mg/L	0.0500	95%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
allium	ND	0.0472		mg/L	0.0500	94%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
in	ND	0.976		mg/L	1.00	98%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Vanadium	ND	0.474		mg/L	0.500	95%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Zinc	ND	0.490		mg/L	0.500	98%	75 - 125	10K0257	NTJ3625-01	11/04/10 13:43
Dissolved Mercury by EPA Methods 7470A/7471A										
10J5964-MS1										
Mercury	ND	0.000714	M8	mg/L	0.00100	71%	75 - 125	10J5964	NTJ3128-09	11/02/10 12:30
Polychlorinated Biphenyls by EPA Method 8082										
10K0614-MS1										
PCB-1016	ND	5.72		ug/L	4.85	118%	36 - 138	10K0614	NTK0186-19	11/06/10 18:58
PCB-1221	ND	<0.181		ug/L			36 - 138	10K0614	NTK0186-19	11/06/10 18:58
PCB-1232	ND	<0.209		ug/L			36 - 138	10K0614	NTK0186-19	11/06/10 18:58
PCB-1242	ND	<0.183		ug/L			36 - 138	10K0614	NTK0186-19	11/06/10 18:58
PCB-1248	ND	<0.137		ug/L			36 - 138	10K0614	NTK0186-19	11/06/10 18:58
PCB-1254	ND	<0.108		ug/L			36 - 138	10K0614	NTK0186-19	11/06/10 18:58
PCB-1260	ND	4.99		ug/L	4.85	103%	36 - 138	10K0614	NTK0186-19	11/06/10 18:58
Surrogate: Tetrachloro-meta-xylene		0.583		ug/L	0.485	120%	17 - 142	10K0614	NTK0186-19	11/06/10 18:58
Surrogate: Decachlorobiphenyl		0.490		ug/L	0.485	101%	10 - 149	10K0614	NTK0186-19	11/06/10 18:58

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client	MotivePower, Inc (13723)	Work Order:	NTJ3521
	American Geosciences, Inc	Project Name:	Boise, ID AGI Proj. 00008O
	Murrysville, PA 15668	Project Number:	Boise, ID AGI Proj. 00008O
Attn	Wendy Noe	Received:	10/28/10 08:25

CERTIFICATION SUMMARY

Subcontracted Laboratories

TestAmerica - Sacramento, CA (14315)

880 Riverside Parkway - West Sacramento, CA 95605

Method Performed: EPA-5 1613B

Samples: NTJ3521-01

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Nashville, TN

COOLER RECEIP

NTJ3521

Cooler Received/Opened On_10/28/10@ 08.25

1. Tracking #_____3261_____(last 4 digits, FedEx)

Courier: ___FED-EX IR Gun ID___97310166

2. Temperature of rep. sample or temp blank when opened: 24 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1- Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO...#_____

10-28-10

BIS = Broken in shipment

Cooler Receipt Form.doc

LF-1

End of Form

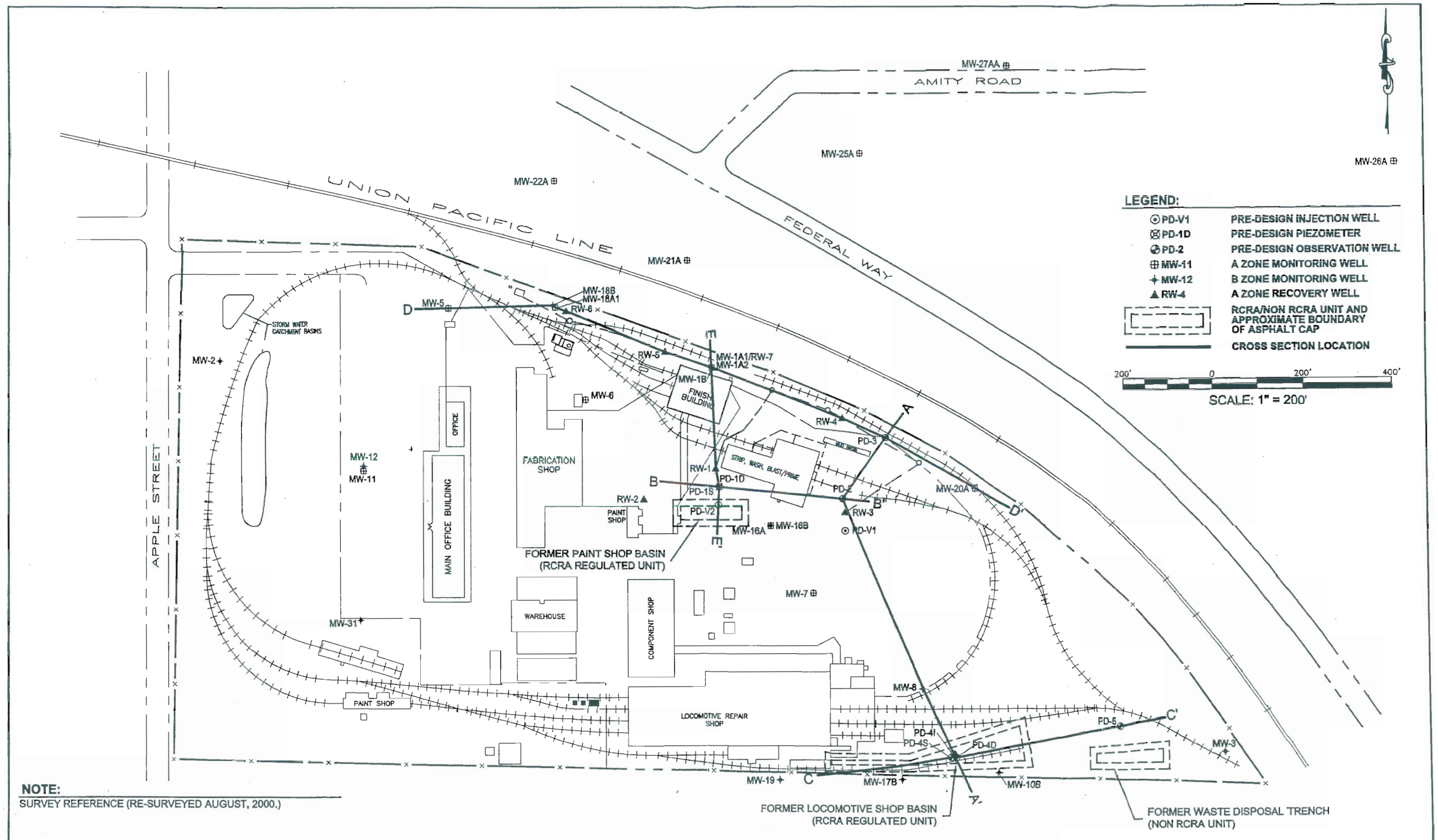
Revised 9/6/07

APPENDIX E-8

ON-SITE CROSS-SECTION LOCATION MAP,

GEOLOGIC CROSS-SECTIONS, AND GROUNDWATER CONTOUR MAP

MotivePower
A Wabtec company



NOTE:
SURVEY REFERENCE (RE-SURVEYED AUGUST, 2000.)

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
6							
5							
4							
3							
2	ECM	9-23-00	INTERNAL REVISIONS				
1	ECM	8-24-00	MINOR REVISIONS				
0	ECM	8-1-00	INITIAL ISSUE				

MOTIVEPOWER
BOISE, IDAHO
PRE-DESIGN INVESTIGATION
00008U

CURRENT DATE 9-25-2000 | CADD FILE 8205

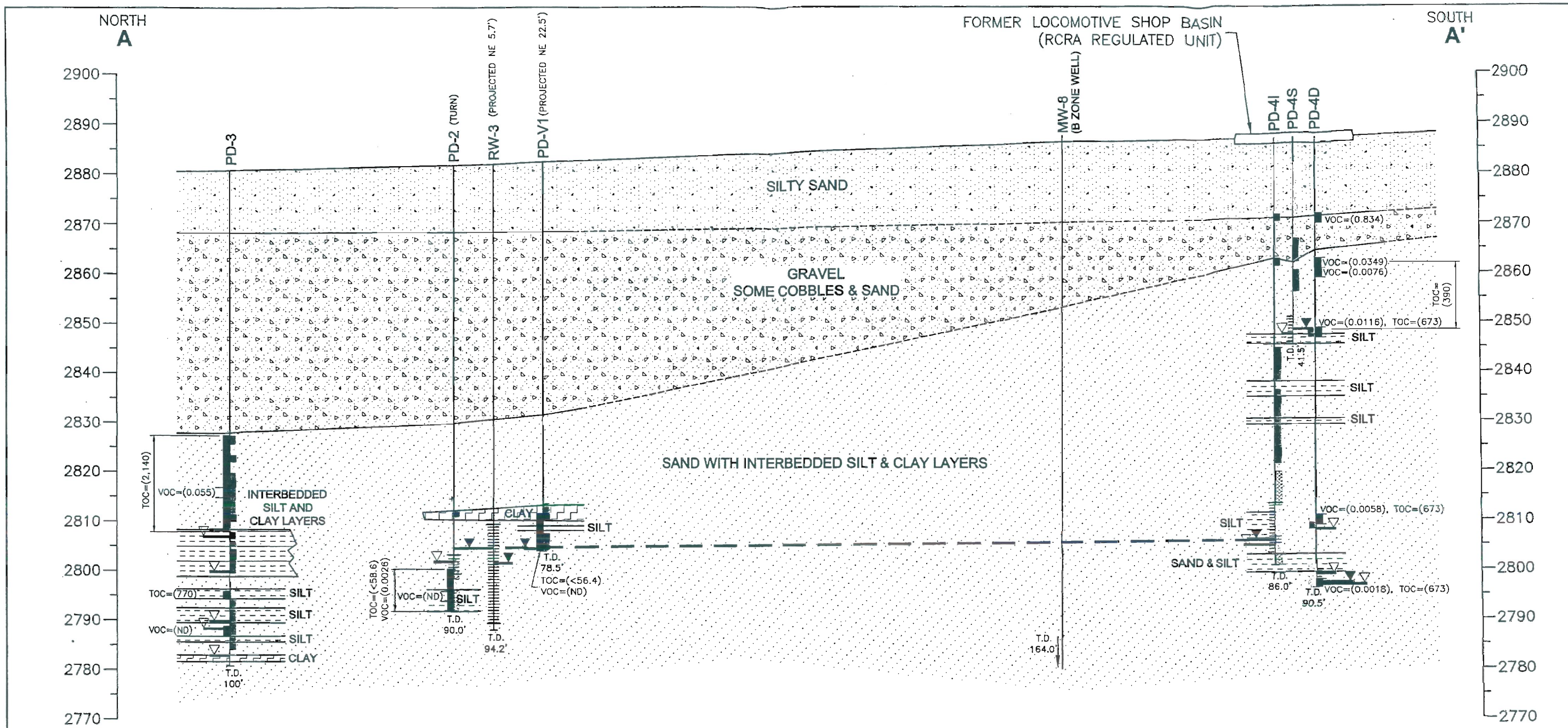
FIGURE 3

CROSS SECTION LOCATION MAP

DRAWING NO. 00008U-003

American Geosciences, Inc.

REVISION 2



NOTES:

1. RW-3 WELL WAS PUMPING AT THE TIME OF GROUNDWATER LEVEL MEASUREMENT.
2. DATA FROM RW-3 FROM PREVIOUS INVESTIGATION.
3. MW-8 IS A B ZONE WELL AND IT'S LITHOLOGY WAS NOT USED IN THE CONSTRUCTION OF THE A-A' CROSS SECTION.
4. VOC SOIL ANALYSIS AFTER JULY 6, 2000 WAS PERFORMED USING EPA METHOD 5035. SOIL SAMPLES FROM PD-V1, PD-2, AND PD-3 WERE COLLECTED PRIOR TO 7/6/00. PD-4 CLUSTER SOIL SAMPLES COLLECTED AFTER 7/6/00.

LEGEND:

PD-V1	PRE-DESIGN INJECTION WELL
PD-1D	PRE-DESIGN PIEZOMETER
PD-2	PRE-DESIGN OBSERVATION WELL
RW-4	A ZONE RECOVERY WELL
— — — —	INFERRED LITHOLOGIC CONTACT
—— ——	WATER TABLE SURFACE
VOC=(11.6)	TOTAL VOLATILE ORGANIC COMPOUNDS IN MILLIGRAMS PER KILOGRAM
TOC=(673)	TOTAL ORGANIC CARBON IN MILLIGRAMS PER KILOGRAM

BORING LOCATION
SCREENED INTERVAL
SAMPLING INTERVAL
T.D. 86.0' — TOTAL DEPTH OF BORING (FT. BELOW GROUND SURFACE)
GROUNDWATER ELEVATION (AS MEASURED 8-01-2000)
GROUNDWATER ENCOUNTERED DURING DRILLING

PHOTOIONIZATION DETECTOR MEASUREMENTS IN PPM (WHERE COLLECTED)

- PID NOT DETECTED = ND
- PID >0-5
- PID 5-10
- PID 10-15
- PID 15-20
- PID 20-25
- PID 25-30
- PID 30-35
- PID 40-45
- PID 45-50
- PID 60-65

SCALE: 1" = 20'
10' 5' 0
0 37.5' 75'
SCALE: 1" = 75'

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
6							
5							
4							
3							
2							
1	ECM	9-22-00	INITIAL ISSUE				
0	ECM	9-19-00	FOR REVIEW				

MOTIVEPOWER
BOISE, IDAHO
PRE-DESIGN INVESTIGATION
00008U

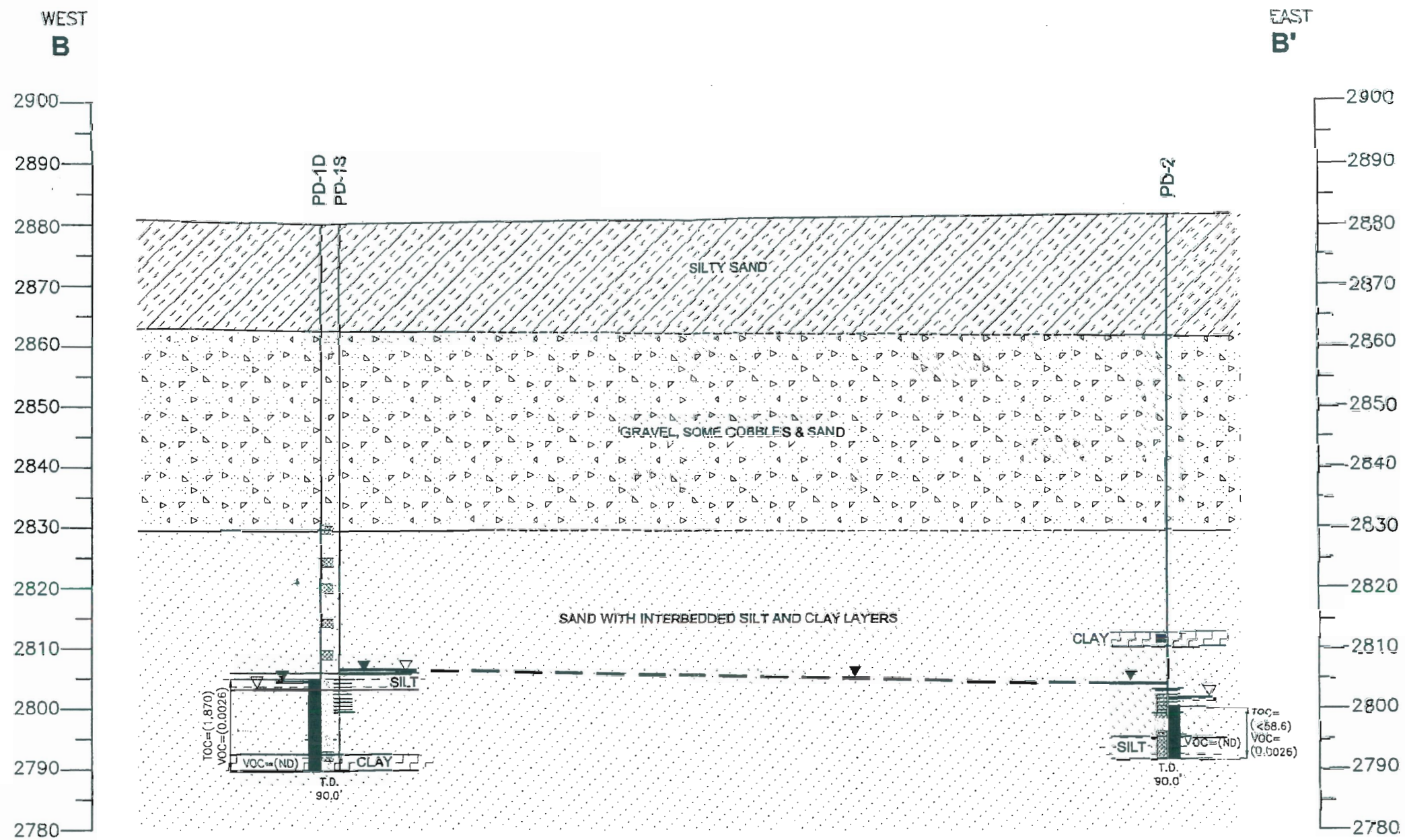
CURRENT DATE 9-25-2000 | CADD FILE 8205 | DRAWING NO.

FIGURE 4

GEOLOGIC CROSS SECTION A - A'

AGI American Geosciences, Inc.

REVISION 1



LEGEND:

PD-V1	PRE-DESIGN INJECTION WELL
PD-1D	PRE-DESIGN PIEZOMETER
PD-2	PRE-DESIGN OBSERVATION WELL
RW-4	A ZONE RECOVERY WELL
— — — —	INFERRED LITHOLOGIC CONTACT
— —	WATER TABLE SURFACE
VOC=(11.6)	TOTAL VOLATILE ORGANIC COMPOUNDS IN MILLIGRAMS PER KILOGRAM
TOC=(673)	TOTAL ORGANIC CARBON IN MILLIGRAMS PER KILOGRAM

BORING LOCATION

SCREENED INTERVAL

SAMPLING INTERVAL

T.D. 86.0' — TOTAL DEPTH OF BORING (FT. BELOW GROUND SURFACE)

GROUNDWATER ELEVATION (AS MEASURED 8-01-2000)

GROUNDWATER ENCOUNTERED DURING DRILLING

PHOTOIONIZATION DETECTOR MEASUREMENTS IN PPM (WHERE COLLECTED)

- PID NOT DETECTED = ND
- PID >0-5
- PID 5-10
- PID 10-15
- PID 15-20
- PID 20-25
- PID 25-30
- PID 30-35
- PID 40-45
- PID 45-50
- PID 60-65

SCALE: 1" = 10'
10' 5' 0
0 20' 40'
SCALE: 1" = 40'

NOTES:

1. VOC SOIL ANALYSIS AFTER JULY 6, 2000 WAS PERFORMED USING EPA METHOD 5035. PD-1S/1D AND PD-2 SOIL SAMPLES WERE COLLECTED PRIOR TO 7/6/00

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
6							
5							
4							
3							
2							
1	ECM	9-23-00	INITIAL ISSUE				
0	ECM	9-19-00	FOR REVIEW				

MOTIVEPOWER
BOISE, IDAHO
PRE-DESIGN INVESTIGATION
00008U

CURRENT DATE 9-25-2000 | CADD FILE 8205

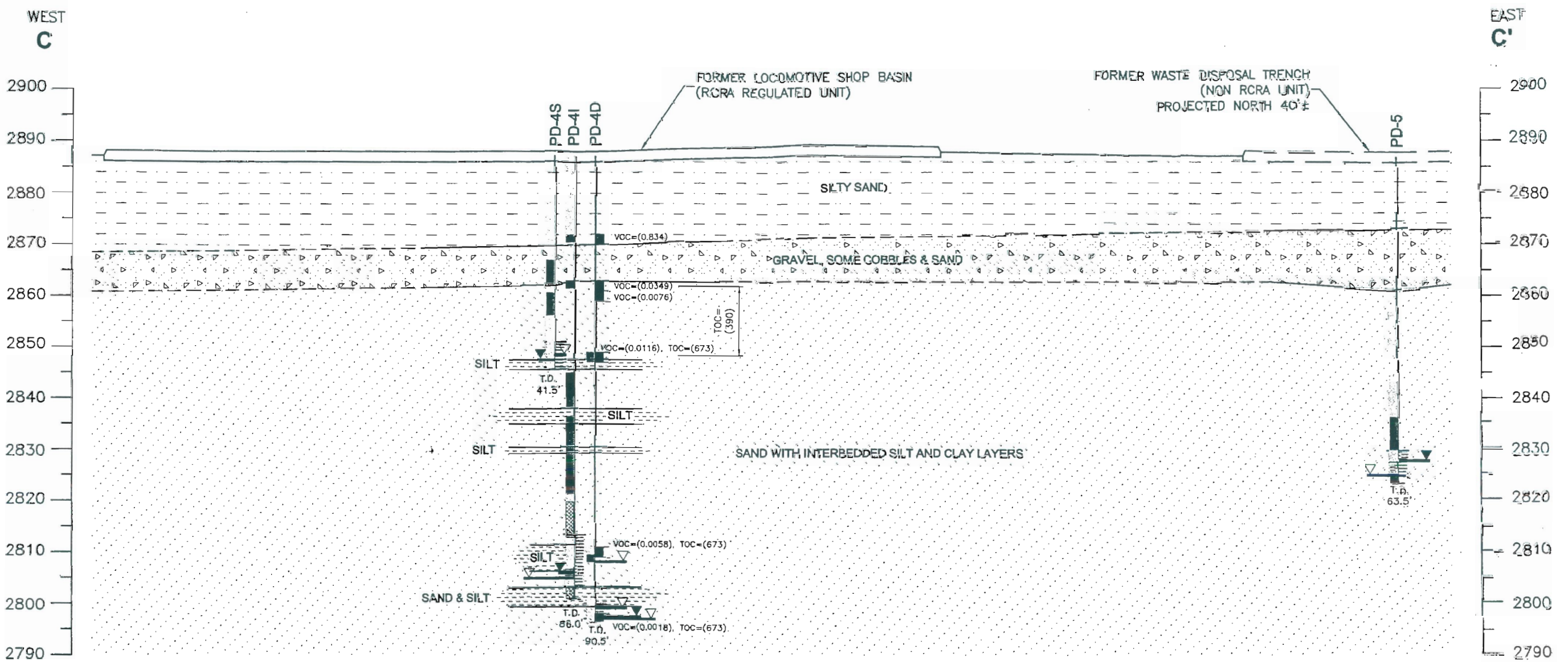
FIGURE 5

GEOLOGIC CROSS SECTION B - B'

DRAWING NO.

American Geosciences, Inc.

REVISION 1



LEGEND:

PD-V1	PRE-DESIGN INJECTION WELL
PD-1D	PRE-DESIGN PIEZOMETER
PD-2	PRE-DESIGN OBSERVATION WELL
RW-4	A ZONE RECOVERY WELL
— —	INFERRED LITHOLOGIC CONTACT
VOC=(11.6)	TOTAL VOLATILE ORGANIC COMPOUNDS IN MILLIGRAMS PER KILOGRAM
TOC=(673)	TOTAL ORGANIC CARBON IN MILLIGRAMS PER KILOGRAM

BORING LOCATION

SCREENED INTERVAL

SAMPLING INTERVAL

T.D. 86.0' — TOTAL DEPTH OF BORING (FT. BELOW GROUND SURFACE)

GROUNDWATER ELEVATION (AS MEASURED 8-01-2000)

GROUNDWATER ENCOUNTERED DURING DRILLING

PHOTOIONIZATION DETECTOR MEASUREMENTS IN PPM (WHERE COLLECTED)

- PID NOT DETECTED = ND
- PID >0-5
- PID 5-10
- PID 10-15
- PID 15-20
- PID 20-25
- PID 25-30
- PID 30-35
- PID 40-45
- PID 45-50
- PID 60-65

SCALE: 1" = 20'

SCALE: 1" = 50'

NOTES:

1. VOC SOIL ANALYSIS AFTER JULY 6, 2000 WAS PERFORMED USING EPA METHOD 5035. PD-4 CLUSTER SOIL SAMPLES COLLECTED AFTER 7/6/00.

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
6							
5							
4							
3							
2							
1	ECM	9-23-00	INITIAL ISSUE				
0	ECM		FOR REVIEW				

MOTIVEPOWER
BOISE, IDAHO
PRE-DESIGN INVESTIGATION
00008U

CURRENT DATE 9-25-2000 | CADD FILE 8205

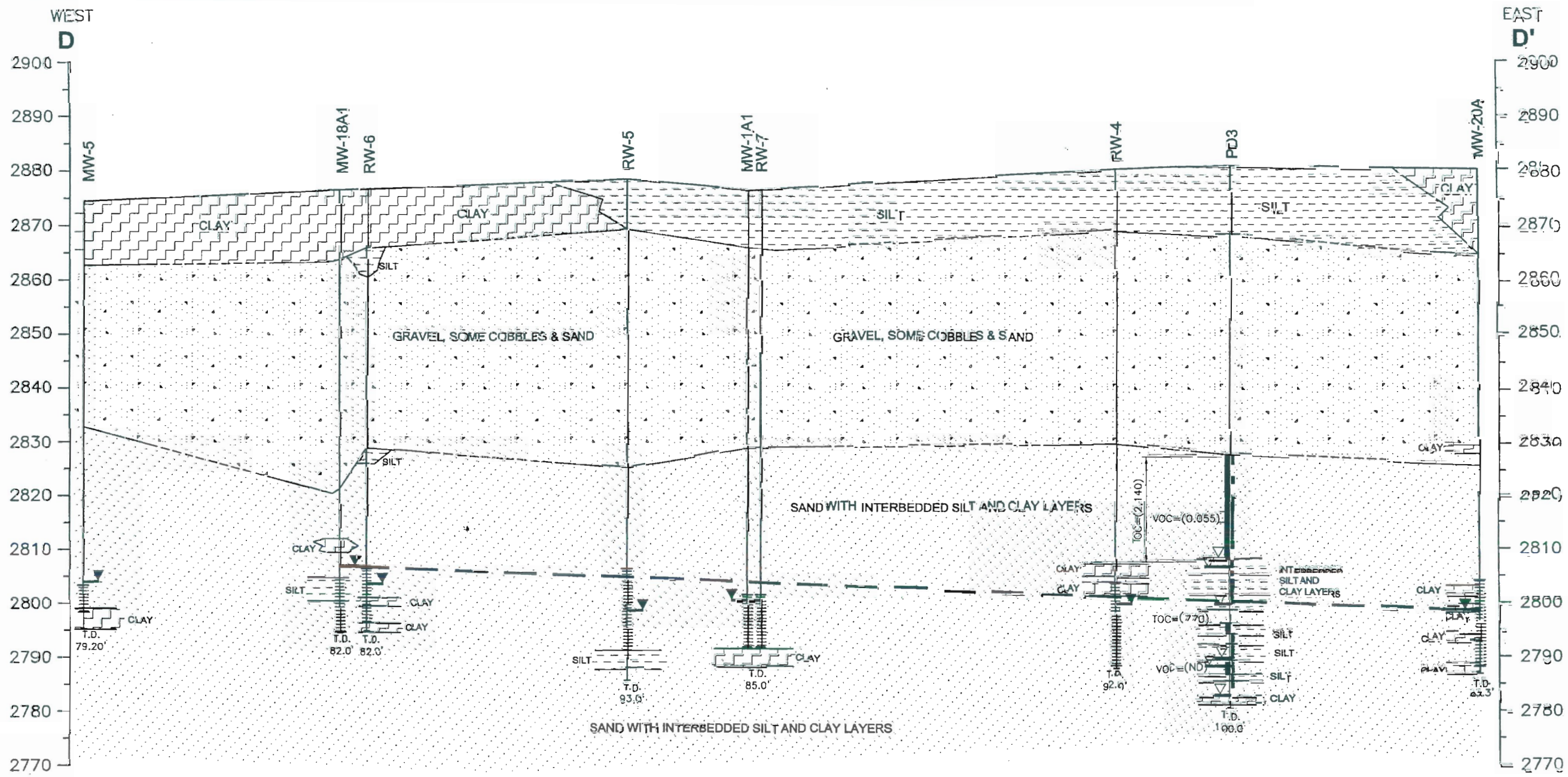
FIGURE 6

GEOLOGIC CROSS SECTION C - C'

DRAWING NO.

American Geosciences, Inc.

REVISION 1



NOTES:

1. RW-4 AND RW-6 WHERE PUMPING AT THE TIME OF MEASUREMENTS.
2. RECOVERY AND MONITORING WELLS INSTALLED PRIOR PRE-DESIGN INVESTIGATION, PD-3 ADVANCED DURING PRE-DESIGN INVESTIGATION.
3. VOC SOIL ANALYSIS AFTER JULY 6, 2000 WAS PERFORMED USING EPA METHOD 5035. PD-3 SOIL SAMPLE COLLECTED PRIOR TO 7/6/00.

LEGEND:

PD-V1	PRE-DESIGN INJECTION WELL
PD-1D	PRE-DESIGN PIEZOMETER
PD-2	PRE-DESIGN OBSERVATION WELL
RW-4	A ZONE RECOVERY WELL
— — —	INFERRED LITHOLOGIC CONTACT
— —	WATER TABLE SURFACE
VOC=(11.6)	TOTAL VOLATILE ORGANIC COMPOUNDS IN MILLIGRAMS PER KILOGRAM
TOC=(673)	TOTAL ORGANIC CARBON IN MILLIGRAMS PER KILOGRAM

BORING LOCATION

SCREENED INTERVAL

SAMPLING INTERVAL

T.D. 86.0' — TOTAL DEPTH OF BORING (FT. BELOW GROUND SURFACE)

GROUNDWATER ELEVATION (AS MEASURED 8-01-2000)

GROUNDWATER ENCOUNTERED DURING DRILLING

PHOTOIONIZATION DETECTOR MEASUREMENTS IN ppM (WHERE COLLECTED)

- PID NOT DETECTED = ND
- PID >0-5
- PID 5-10
- PID 10-15
- PID 15-20
- PID 20-25
- PID 25-30
- PID 30-35
- PID 40-45
- PID 45-50
- PID 60-65

SCALE: 1" = 20'

SCALE: 1" = 100'

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
6							
5							
4							
3							
2							
1	ECM	9-23-00	INITIAL ISSUE				
0	ECM	9-19-00	FOR REVIEW				

MOTIVEPOWER
BOISE, IDAHO
PRE-DESIGN INVESTIGATION
000080

CURRENT DATE 9-25-2000 | CADD FILE 8205

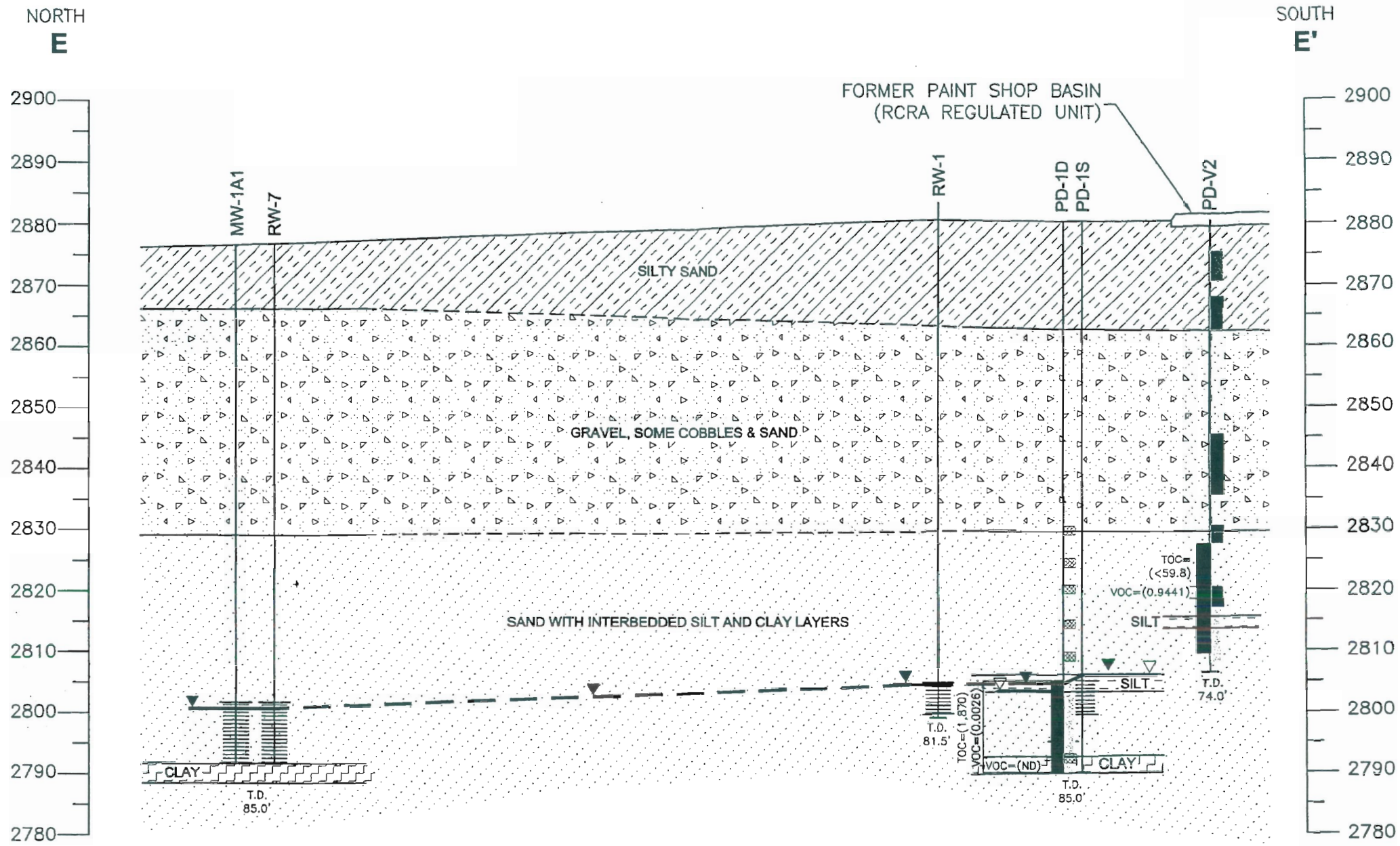
FIGURE 7

GEOLOGIC CROSS SECTION D - D'

DRAWING NO.

American Geosciences, Inc.

REVISION 1



NOTES:

1. RW-1 WELL WAS PUMPING AT THE TIME OF GROUNDWATER LEVEL MEASUREMENT.
2. VOC SOIL ANALYSIS AFTER JULY 6, 2000 WAS PERFORMED USING EPA METHOD 5035. PD-V2 SOIL SAMPLES COLLECTED PRIOR TO 7/6/00. PD-1S/1D SOIL SAMPLES COLLECTED AFTER 7/6/00.

LEGEND:

PDV1	PRE-DESIGN INJECTION WELL
PD1D	PRE-DESIGN PIEZOMETER
PD2	PRE-DESIGN OBSERVATION WELL
RW-4	A ZONE RECOVERY WELL
— — — —	INFERRED LITHOLOGIC CONTACT
——— ———	WATER TABLE SURFACE
VOC=(11.6)	TOTAL VOLATILE ORGANIC COMPOUNDS IN MILLIGRAMS PER KILOGRAM
TOC=(673)	TOTAL ORGANIC CARBON IN MILLIGRAMS PER KILOGRAM

BORING LOCATION

SCREENED INTERVAL

SAMPLING INTERVAL

T.D. 86.0' — TOTAL DEPTH OF BORING (FT. BELOW GROUND SURFACE)

GROUNDWATER ELEVATION (AS MEASURED 8-01-2000)

GROUNDWATER ENCOUNTERED DURING DRILLING

PHOTOIONIZATION DETECTOR MEASUREMENTS IN PPM (WHERE COLLECTED)

- PID NOT DETECTED = ND
- PID >0–5
- PID 5–10
- PID 10–15
- PID 15–20
- PID 20–25
- PID 25–30
- PID 30–35
- PID 40–45
- PID 45–50
- PID 60–65

SCALE: 1" = 20' (10', 5', 0)

SCALE: 1" = 40' (0, 20', 40')

NO	DRWN	DATE	REVISION	CHKD	DATE	APPVD	DATE
6							
5							
4							
3							
2							
1							
0	ECM	9-23-00	INITIAL ISSUE				

MOTIVEPOWER
BOISE, IDAHO
PRE-DESIGN INVESTIGATION
00008U

CURRENT DATE 9-25-2000 | CADD FILE 8205

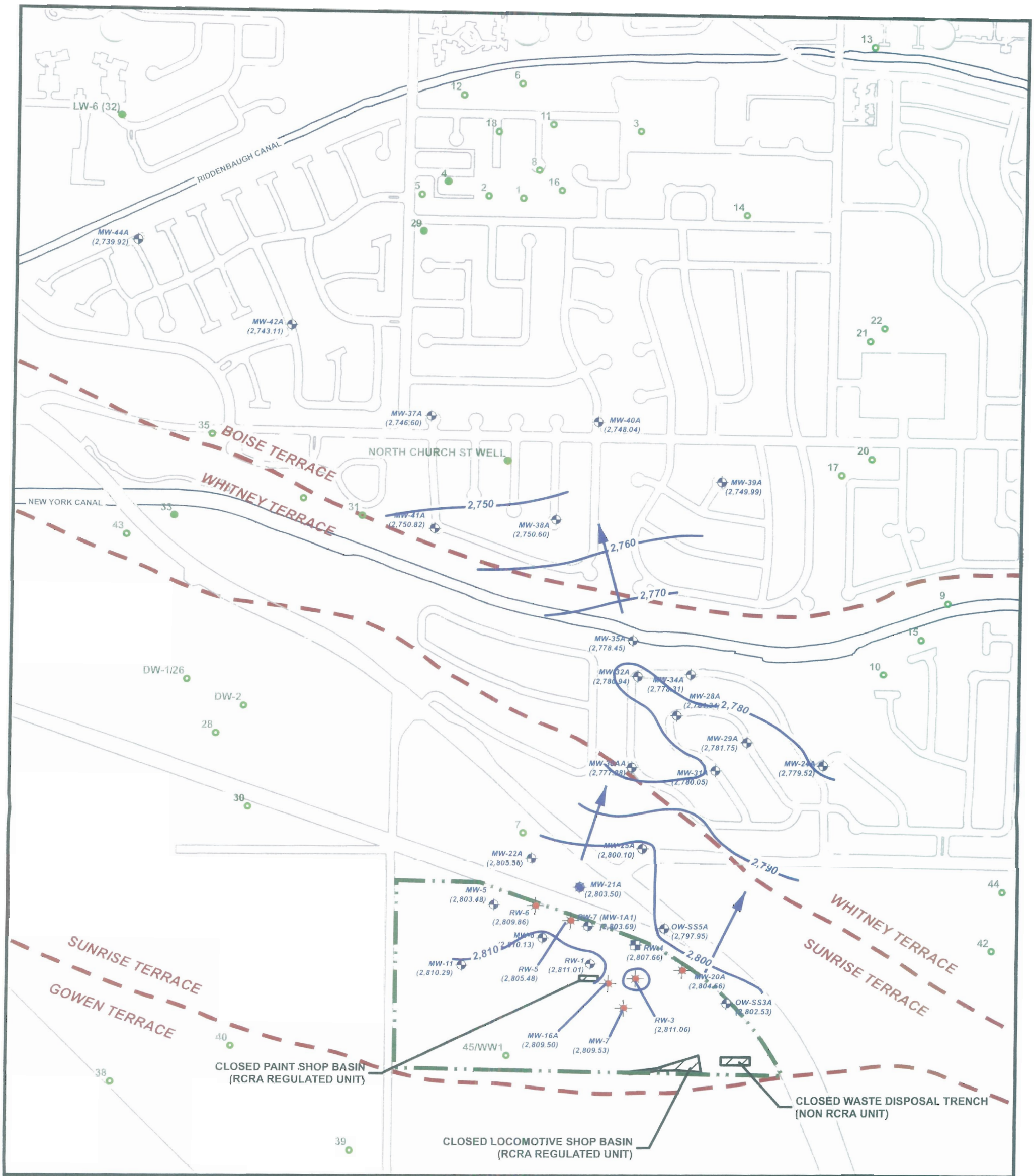
FIGURE 8

GEOLOGIC CROSS SECTION E - E'

DRAWING NO.

American Geosciences, Inc.

REVISION 0



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EDGE OF TERRACE
- FORMER DISPOSAL AREAS
- WATER WELL
- WATER WELL (ABANDONED)
- MONITORING WELL
- INJECTION/MONITORING WELL
- RECOVERY/MONITORING WELL
- INJECTION/RECOVERY/MONITORING WELL
- GROUNDWATER ELEVATION CONTOUR[1]
- FLOW DIRECTION[1]
- (2,809.53) GROUNDWATER ELEVATION IN FEET

N

0 300 600 1,200
Feet

[1]GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTION ARE BASED ON GROUNDWATER ELEVATIONS MEASURED IN LABELED MONITORING WELLS IN OCTOBER 2011.

PORTIONS OF THIS FIGURE ARE PRESENTED IN COLOR. THEREFORE BLACK AND WHITE COPIES MAY NOT DEPICT ALL INFORMATION AS PRESENTED ON THE ORIGINAL DOCUMENT.

WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. EDD980976831

FIGURE 3

A-ZONE POTENTIOMETRIC SURFACE MAP
OCTOBER 2011

American Geosciences, Inc.

NO	DRN	REVISION	DATE	CHKD	DATE	APP	DATE		
								CURRENT DATE	12/02/2011
1	BAS	PREPARED ORIGINAL DRAWING	12/02/11	WTN	12/02/11	WTN	12/02/11	ARCMAP MXD	FIGURE 3 (A ZONE POT MAP)
								AGI PROJ NO	0008-015

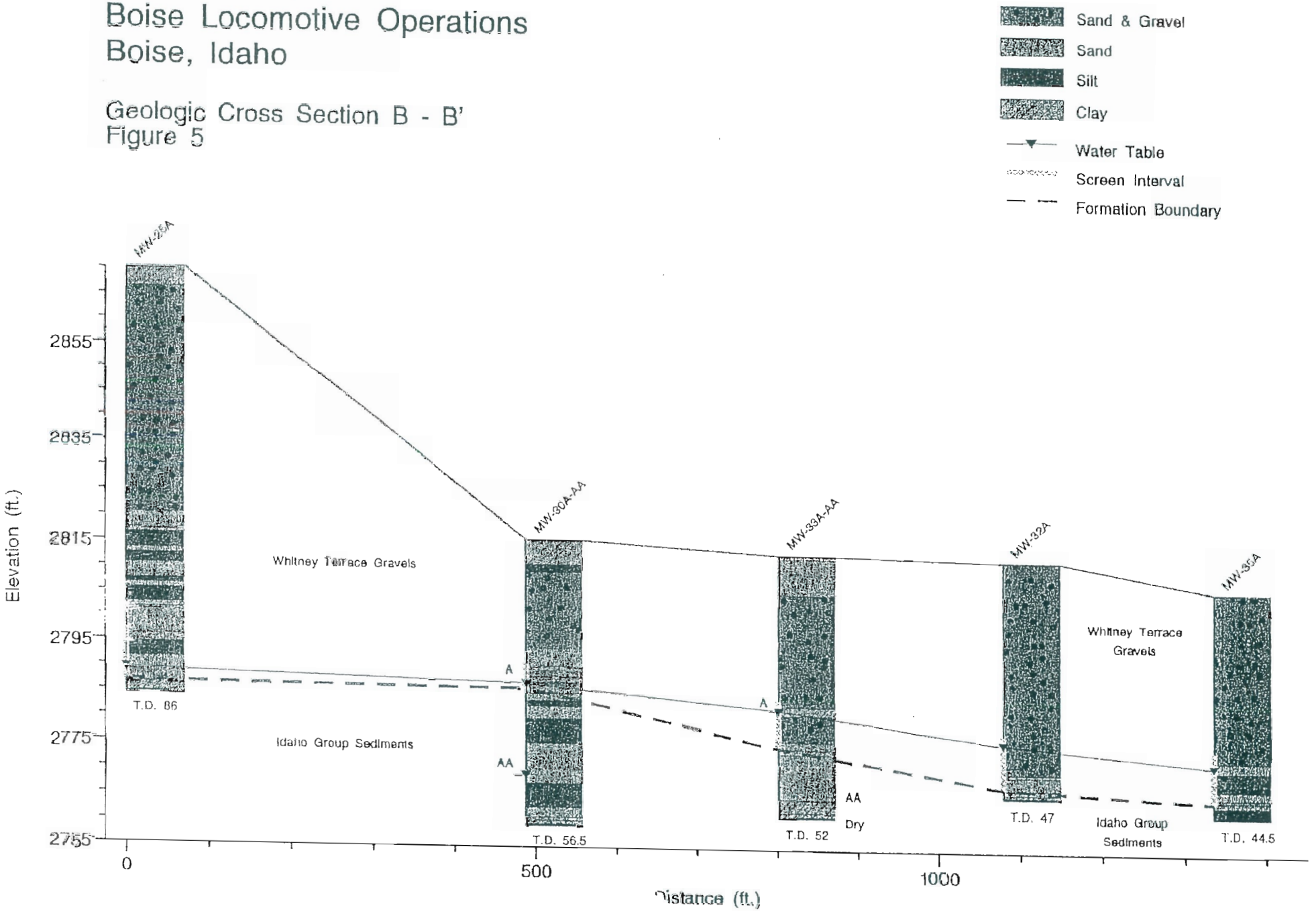
APPENDIX E-9

OFF-SITE A-ZONE GEOLOGIC CROSS-SECTIONS

MotivePower
A Wabtec company

MK Rail Corporation
Boise Locomotive Operations
Boise, Idaho

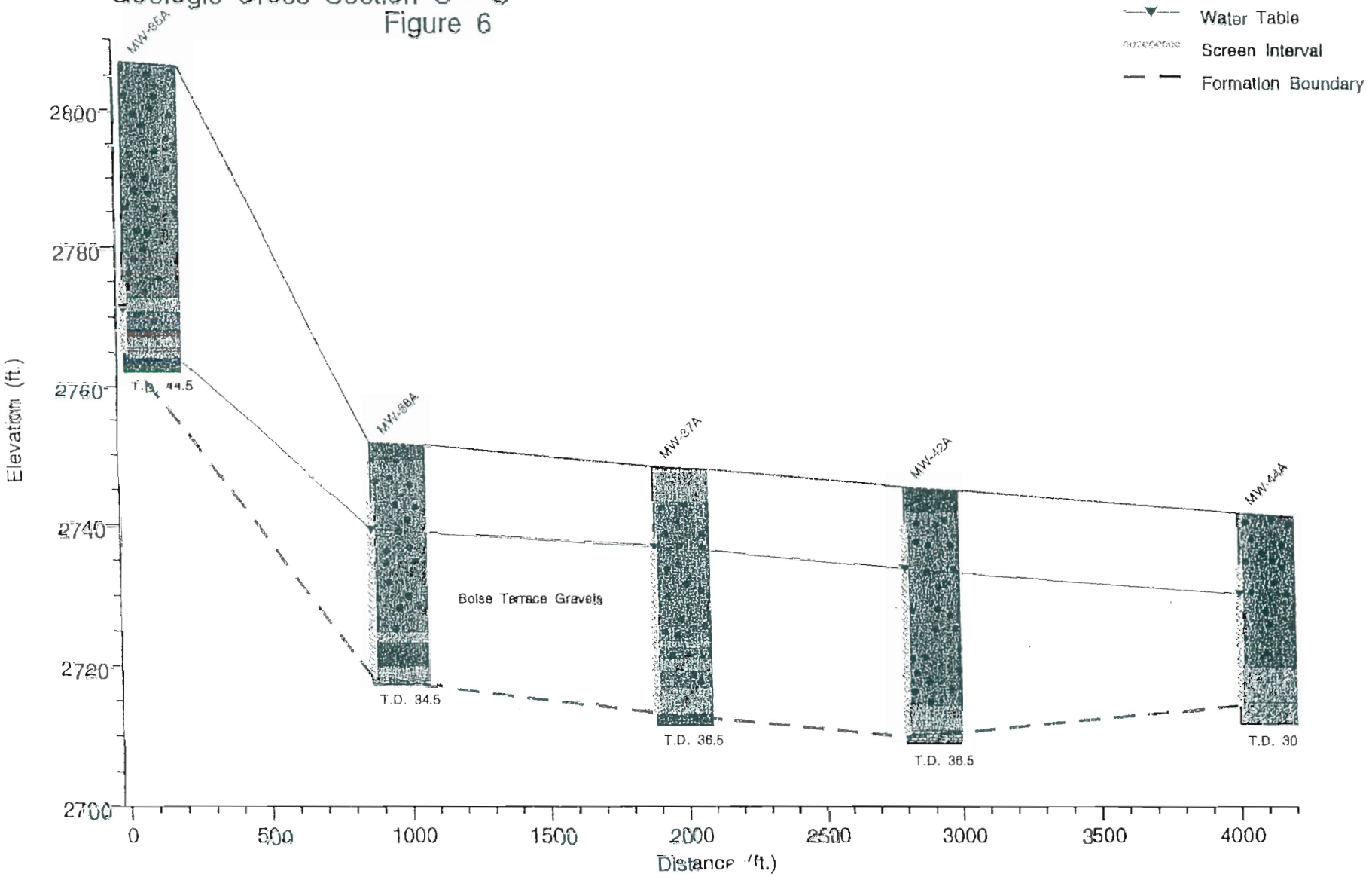
Geologic Cross Section B - B'
Figure 5



March 09, 1995

MK Rail Corporation
Boise Locomotive Operations
Boise, Idaho

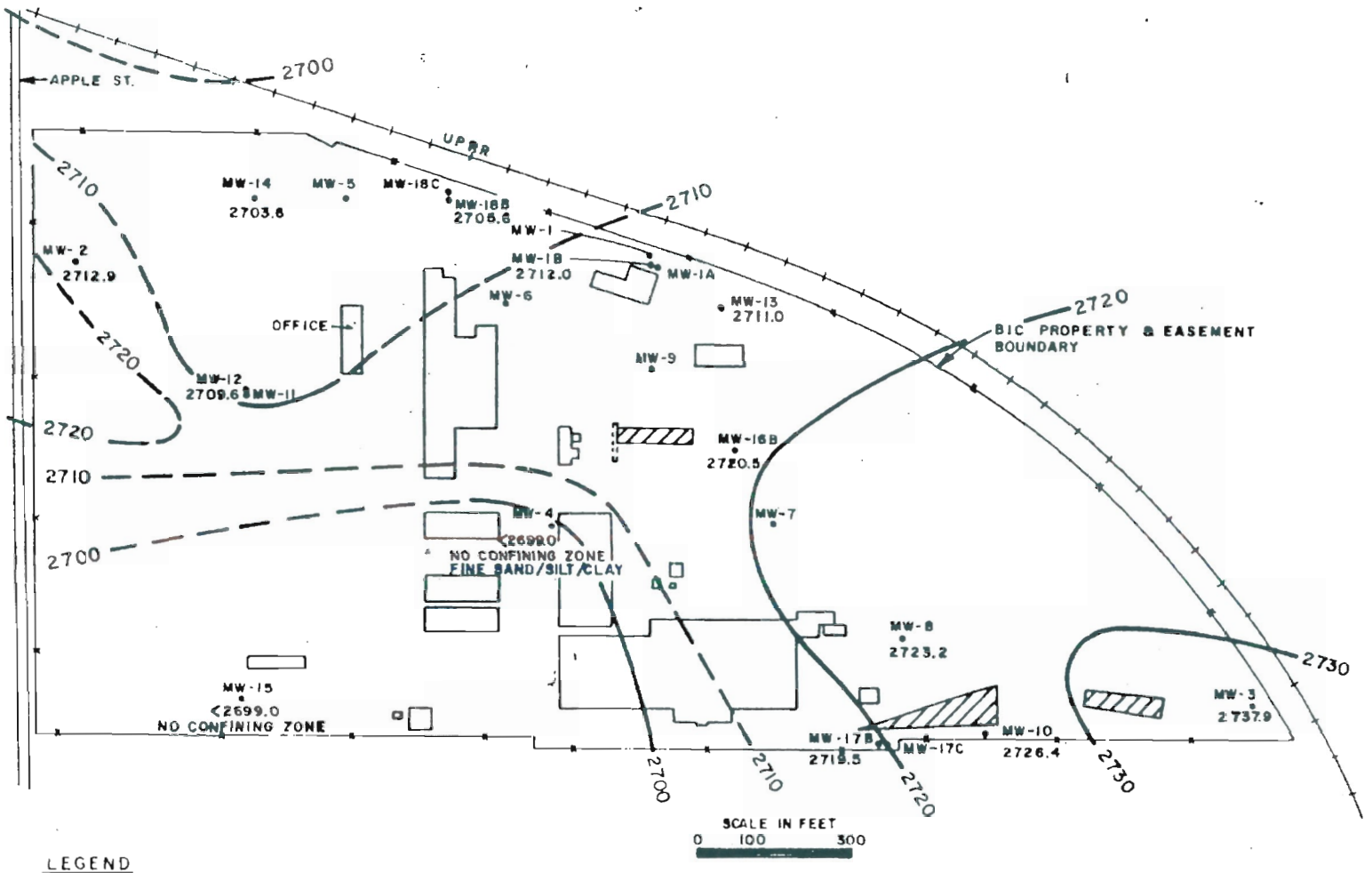
Geologic Cross Section C - C'
Figure 6



APPENDIX E-10

TOP STRUCTURE CONFINING STRATA B-ZONE

MotivePower
A Wabtec company



LEGEND

MW-2 MONITOR WELL DESIGNATION NO.

2719.9 TOP STRUCTURE CONFINING STRATA ELEVATION

WASTE MANAGEMENT UNIT

2700 STRUCTURE CONTOUR

BOISE INDUSTRIAL COMPLEX
BOISE, IDAHO

TOP STRUCTURE CONFINING
STRATA 160' ZONE

FIGURE 2-10

Appendix E-12

SAMPLING AND ANALYSIS PLAN

Wabtec-MotivePower Facility
Boise, Idaho
U.S. EPA ID No.: IDD980976831

Revised: December 2012

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1.0 Introduction

This plan outlines quality assurance/quality control (QA/QC) procedures for corrective action, compliance, and detection monitoring activities at the Wabtec-MotivePower facility, in Boise, Idaho.

1.1 Monitoring Well Specifications

Groundwater sampling is conducted at the Facility to meet the groundwater monitoring requirements of the Idaho Administrative Procedures Act (IDAPA) 58.01.05.008 (40 Code of Federal Regulations (CFR) §264.97). Groundwater monitoring is required to detect, characterize, and respond to releases of hazardous waste constituents into the uppermost aquifer from the closed regulated units at the Facility and to support Monitored Natural Attenuation (MNA) used in conjunction with active remediation measures to achieve the site-specific remedial objectives.

The locations of all on- and off-site wells associated with the MP site, including those initially installed for monitoring, injection, and recovery purposes, are shown on Figure 1 (Site Vicinity and Well Location Map). The locations of the wells to be sampled as part of this plan for the A-Zone and B-Zone are provided as Figure 2 (A-Zone Well Location Map) and Figure 3 (B-Zone Well Location Map). The well construction details are provided as Appendix A (Monitoring Well Construction Details).

1.2 Monitoring Well Sampling Frequency

The list of wells and sampling frequency is provided in the HWMA/RCRA Part B Permit issued by the Idaho Department of Environmental Quality (IDEQ). A copy of the list of possible wells to be sampled for both the A-Zone and B-Zone wells is incorporated here as Appendix B (List of Monitored Wells).

2.0 Groundwater Sampling Procedures

2.1 Water Level Measurements

A measurement of the depth to the water surface from the top of the well casing will be made using an electronic water level indicator to 0.01 feet. Measurements will be collected from a single marked location on the well casing. This point will be surveyed to ensure consistency with the measured water elevations. The measurements for all wells in a sampling event are taken before pumping/purging activities within a period of 48 hours, provided that there is not a significant change (>0.5 inch-Hg) in barometric pressure within the sampling period.

2.2 Well Purging Activities

Water sampled for chemical analysis must be representative of the water in the producing aquifer. Water that has been standing in the well casing for an extended period of time will be different from water in the surrounding aquifer. Therefore, to obtain aquifer water, the well must be purged of water in the borehole and casing.

Depending upon the diameter of the well, total depth, and elevation of the water table, purging will be conducted using either a dedicated disposable bailer, submersible pump, or dedicated pump (within recovery wells). Each is described in more detail as follows:

- Disposable Bailers – a dedicated bailer is used to purge the well. As groundwater is purged, water is typically transferred into a 55-gallon drum or similar container for later disposal as approved. A groundwater sample is then collected from the bailer using a sample tube to minimize turbulence.

- Submersible Pump (Grundfos) – an electric submersible pump attached to a hose reel or discharge tubing is lowered into a well and set at approximately two feet from the bottom of the well. The discharge rate is set at an allowable pumping rate to minimize turbulence and groundwater is purged from the well.

- Dedicated Pumps – Recovery wells that are equipped with dedicated submersible pumps are sampled through in-line sampling ports located in the recovery wells' individual piping manifolds. The B-Zone wells are equipped with dedicated submersible pumps and are connected with a section of sampling pipe to the sampling port. The discharge flow rate is adjusted to minimize turbulence as groundwater is purged from the well. After sampling is completed the sampling pipe and power source are disconnected from the well.

The equipment used for the above activities will be decontaminated using a steam cleaner, alconox detergent, and distilled water rinse as necessary.

For most operations, an adequate purge is defined as either three well volumes or evacuation to dryness. However, specific project requirements may specify some other purge quantity. A well volume (casing volume) is calculated using the following formula:

$$V = \pi r^2 (h_1 - h_2)(7.48) \qquad (1)$$

where

V = well volume in gallons,

R = well casing radius in feet,

h_1 = total well depth in feet,
h_2 = depth to water in feet, and
7.48 = conversion factor from cubic feet to gallons.

Measurements are referenced from the top of the casing. Depth to water is measured with an electronic water level indicator. Evacuated volume is determined by actual volumetric measurement of water removed from the well or by measuring the rate and duration of pumping. The total volume of water removed will be recorded, even if a well is evacuated to dryness. Upon completion of the well purge, the water levels are measured again.

Field parameters will be collected at each monitoring well prior to sampling. At a minimum, these parameters will include dissolved oxygen (DO), oxidation reduction potential (ORP), pH, temperature, and conductivity[1]. A minimum of three samples will be collected and analyzed and will meet the field criteria as presented in the EPA's TEGD. In the event wells are purged to dryness a minimum of one field sample per well casing is required. The casing volumes are monitored for the parameters until the values have stabilized (no greater than 10% fluctuation from the previous reading – with pH values stable to one-tenth of a pH unit) or until a minimum of three casing volumes have been purged, prior to sampling. In the event field parameters do not stabilize within the required three purge volumes, additional purging may be necessary. Field parameters must meet stabilization criteria even if additional purges are required. If the recovery of a single casing volume requires more than one day, then the well may be sampled after one casing volume has been purged, but the sample will be collected within 24 hours of purging. The measurements obtained are recorded on field data sheets.

2.3 Sample Collection and Preservation

Samples should be collected as soon as possible after purging is complete. In no event should more than 24 hours elapse between purging and sampling. If more than 24 hours has elapsed, the well volume must be purged again.

Groundwater samples obtained directly from their dedicated sampling equipment will be placed in appropriate laboratory-supplied containers as specified by the appropriate U.S. EPA method. Sample containers are supplied with preservative chemicals already added by the laboratory. Each bottle will be filled completely and all headspace eliminated. After closing the container, it is checked for any visible bubbles.

[1] Note that in some cases, including wells sampled for bioremediation indicator parameters, initial field parameter readings are collected prior to well purging with a down hole meter in order to attempt to gather initial DO and ORP readings before water in the well is disturbed as these readings are considered more reliable.

3.0 Sample Custody

3.1 Field Sampling and Analysis Record

Field measurements and other information observed during sampling activities are recorded for each sample collected.

For each well where field monitoring is performed, the Water Sampling Field Data form will be completed (see Appendix C).

3.2 Sample Labels

For each sample collected, the date, time of collection, and well identification is filled out on a sample label (see Appendix D). The label is then attached to each sample container at the time of collection. The groundwater samples are collected into appropriate laboratory-supplied containers, placed immediately on ice, and kept at approximately 39 degrees Fahrenheit or 4 degrees Celsius until laboratory receives the samples.

3.3 Chain-of-Custody

To establish the documentation necessary to trace sample possession from the time of collection, the chain-of-custody record will be filled out in duplicate, with one copy to accompany every sample shipment from the time of collection through receipt by the analytical laboratory. The field sampler shall retain one copy of the form. A record of the relinquishing of the sample should be provided. A sample chain-of-custody record is attached as Appendix E. The samples shall be delivered to the laboratory for analysis as soon as possible, within the appropriate hold times specified in U.S. EPA SW-846.

4.0 Internal QA/QC Checks

In addition to the groundwater samples collected from the wells, several QA/QC samples will be collected as well in order to evaluate the sampling and analytical program. The QA/QC samples included are as follows:

- Trip Blank – This sample (provided in each cooler delivered to the laboratory) will consist of a sample container containing distilled water (with appropriate reagent) which is shipped together with the other samples from the site to the laboratory. This serves as a check on reagent and environmental contamination during sample transport.

- Equipment Rinsate Blank – This sample (1 sample per 20 samples collected in a sampling event or as specified in the permit) will consist of distilled water dispensed into

a sample container from the sampling equipment used for acquiring samples, at the completion of decontamination activities. This is used to evaluate the adequacy of the decontamination procedure used. This blank will be analyzed for the tested parameters. In the event that contaminants are measured in the equipment blank sample, the following actions will be conducted as follows:

- The cleaning time (and thereby the rinse water/purge volume) will be doubled during decontamination activities in the subsequent sampling event. If contaminants are measured again, then an alternative method of decontamination or equipment usage (i.e., changing disposable equipment) will be evaluated and submitted to the Director for approval.

- If the total VOC concentration measured in the equipment rinsate blank sample is less than the measured total VOC concentration in the subsequent monitoring well collected during the same sampling event, then no additional sampling will be performed, and the measured contaminant concentrations will be considered representative of that well.

- If the total VOC concentration measured in the equipment rinsate blank sample is greater than the measured total VOC concentration in the subsequent monitoring well collected during the same sampling event, then the monitoring well will be re-sampled and the measured concentration of contaminants of the re-sample will be considered representative of that well for that particular sampling event.

- Duplicate – This sample (1 duplicate sample for every 20 samples collected) is collected at the same time and place to ensure that the only source of variation lies in the sampling technique. This sample is collected to assess whether sampling operations are being conducted so that the results are reproducible. If the results of the duplicate samples indicate a greater than 20% difference, sampling operations will be reviewed and corrections made.

5.0 Calibration Procedures and Frequency

The equipment used to measure DO, ORP, pH, temperature, and specific conductance will be calibrated each day, prior to the activities performed. Calibration activities will be performed in accordance with the equipment manufacturer's instructions.

6.0 Documentation of Field Activities

All measurements, data, observations, and pertinent information associated with the groundwater sampling activities will be documented in a field notebook and corresponding sampling forms as already mentioned in each section of the above-mentioned activities.

7.0 Laboratory Analytical Procedures

The laboratory quality assurance procedures will be consistent with those specified in U.S. EPA SW-846 Method 8260B and other applicable analytical methods, as prescribed by the analytical suite. The analytical parameters, their method detection limits (MDLs), practical quantification limits (PQLs) and methods of analysis are attached (Appendix F, Laboratory Statement-of-Qualifications). A full QA/QC report will accompany each analytical data report and will be maintained in the project files. Laboratory QA/QC data will be reviewed to allow early detection of problems in sampling or analytical procedures.

8.0 Data Reduction, Validation, and Reporting

Analytical results will be reviewed on the original laboratory certificates of analysis. Outliers will be identified based upon comparisons with other samples and results of QA/QC samples collected.

During the data review, codes or qualifiers that pertain to QA/QC issues may be identified for a particular analytical result. A list of these qualifiers and their definitions are provided in Table 2 (Validation Data Qualifiers). The field data collected for this project will be reviewed for completeness and that the data were used appropriately during sample collection. The calibration of the field instruments will be verified and the results compared to previous rounds.

9.0 Preventive Maintenance and Decontamination Procedures

All equipment used for groundwater sampling activities will be checked prior to each sampling event. In addition, the normal sequence for decontaminating water sampling equipment consists of the following steps (except where indicated):

- Wash with alconox or other phosphate free detergent and potable or distilled/deionized water.

- Rinse thoroughly with potable or distilled/deionized water. Continue until all trace of detergent is removed.

- Rinse with distilled or deionized water.
- Air dry.

10.0 Procedures Used to Assess Data Precision, Accuracy, and Completeness

The results of the blind duplicates will be used to assess precision. For accuracy of the analysis, the laboratory will calculate the percent recovery of spikes. Completeness will be calculated as a percentage of valid data compared to the amount of data expected, and this is established by the laboratory according to the appropriate U.S. EPA methodology.

References

1. Test America, 2011. Statement of Qualifications.
2. Puls, Robert W. and Michael J. Barcelona. 1996. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, EPA/540/S-95/504.
3. U.S. EPA, 1986. RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, OSWER 9950.
4. U.S. EPA, 1989. Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), EPA/540/I-89/002.
5. U.S. EPA, 1992. Handbook for Sampling and Sample Preservation of Water and Wastewater.
6. U.S. EPA, 1994. Contract Laboratory program National Functional Guidelines for Organic Data Review, EPA-540/R-94/012.
7. U.S. EPA, 1997. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA SW-846.
8. U.S. EPA, 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater, EPA/600/R-98/128.

Tables

Table 1

Recommended Sample Containers, Preservation Techniques, and Holding Times (SW-846)

Parameter	Container	Preservation	Hold Time
Volatile Organics			
Concentrated Waste samples	8-oz widemouth glass with Teflon liner	None	14 Days
Liquid Samples			
-No residual chlorine present	2 40-ml voa vials with Teflon-lined septum caps	4 Drops con. HCI, cool, 4°C	14 Days
-Residual chlorine present	2 40-ml voa vials with Teflon-lined septum caps	Collect sample in a 4 oz soil VOA container which has been preserved with 4 drops of 10% sodium thiosulfate; gently mix sample and transfer to a 40-ml VOA vial that has 4 drops of con. HC1, cool, 4°C	14 Days
-Acrolein and Acrylonitrile	2 40-ml voa vials with Teflon-lined septum caps	Adjust to pH 4-5, cool 4°C	14 Days
Soil/Sediments and Sludges	4-oz (120 ml) widemouth glass with Teflon-lined lid	Cool, 4°C	14 Days
Semivolatile Organics/Organochlorine Pesticides/Polychlorinated Biphenyls			
Concentrated Waste Samples	8-oz widemouth glass with Teflon lined lid	None	14 Days
Liquid Samples			
-No residual chlorine present	1 gallon or 2-1/2 gallon amber glass with Teflon lined lid	Cool, 4°C	Samples must be extracted within 7 days and extracts analyzed within 40 days of the extraction date.
-Residual chlorine present	1 gallon or 2-1/2 gallon amber glass with Teflon lined lid	Add 3 ml 10% sodium thiosulfate per gallon, cool, 4°C	Samples must be extracted within 7 days and extracts analyzed within 40 days of the extraction date.

See footnotes at end of table.

Table 1 (cont.)

Parameter	Volume Required (ml)	Container[2]	Preservation[3,4]	Hold Time[5]
Soils/Sediments and Sludges		8-oz widemouth glass with Teflon lined lid	Cool, 4°C	14 Days
100 Physical Properties				
Color	50	P,G	Cool, 4°C	48 Hours
Conductance	100	P,G	Cool, 4°C	28 Days
Hardness	100	P,G	Nitric acid to pH <2	6 Months
Odor	200	G Only	Cool, 4°C	24 Hours
pH	25	P,G	None Required	Analyze Immediately
Residue				
-Filterable	100	P,G	Cool, 4°C	7 Days
-Nonfilterable	100	P,G	Cool, 4°C	7 Days
-Total	100	P,G	Cool, 4°C	7 Days
- Volatile	100	P,G	Cool, 4°C	7 Days
Precipitate	1000	P,G	Cool, 4°C	48 Hours
Temperature	1000	P,G	None Required	Analyze Immediately
Turbidity	100	P,G	Cool, 4°C	48 Hours
200 Metals				
Dissolved	200	P,G	Filter on site Nitric acid to pH <2	6 Months
Suspended	200	P,G	Filter on site	6 Months[6]
Total	100	P,G	Nitric acid to pH <2	6 Months
Chromium VI	200	P,G	Cool, 4°C	24 Hours
Mercury Dissolved	100	P,G	Filter, Nitric acid to pH <2	28 Days
Total	100	P,G	Nitric acid to pH <2	28 Days
300 Inorganics, Nonmetallics				
Acidity	100	P,G	Cool, 4°C	14 Days
Alkalinity	100	P,G	Cool, 4°C	14 Days
Bromide	100	P,G	None Required	28 Days
Chloride	50	P,G	None Required	28 Days
Chlorine	200	P,G	None Required	Analyze Immediately
Cyanides	500	P,G	Cool, 4°C NaOH to pH>12 0.6g ascorbic acid[8]	14 Days[7]
Fluoride	300	P,G	None Required	28 Days
Iodine	100	P,G	Cool, 4°C	24 Hours

See footnotes at end of table.

Table 1 (cont.)

Parameter	Volume Required (ml)	Container[2]	Preservation[3,4]	Hold Time[5]
300 Inorganics, Nonmetallics (cont.)				
Nitrogen				
-Ammonia	400	P,G	Cool, 4°C H_2SO_4 to pH <2	28 Days
-Kjeldahl, Total	500	P,G	Cool, 4°C H_2SO_4 to pH <2	28 Days
-Nitrate plus Nitrite	100	P,G	Cool, 4°C H_2SO_4 to pH <2	28 Days
-Nitrate	100	P,G	Cool, 4°C	48 Hours
-Nitrite	50	P,G	Cool, 4°C	48 Hours
Dissolved Oxygen	300	G bottle and top	None Required	Analyzed Immediately
Winkler	300	G bottle and top	Fix on site and store in dark	8 Hours
Phosphorus				
Orthophosphate, Dis.	50	P,G	Filter on site Cool, 4°C	48 Hours
Hydrolyzable	50	P,G	Cool, 4°C H_2SO_4 to pH <2	28 Days
Total	50	P,G	Cool, 4°C H_2SO_4 to pH <2	28 Days
Total Dissolved	50	P,G	Filter on site, Cool 4°C H_2SO_4 to pH <2	24 Hours
Silica	50	P Only	Cool, 4°C	28 Days
Sulfate	50	P,G	Cool, 4°C	28 Days
Sulfide	500	P,G	Cool, 4°C, add 2ml zinc Acetate plus NaOH to pH >9	7 Days
Sulfite	50	P,G	None Required	Analyze Immediately

See footnotes at end of table.

Table 1 (cont.)

Parameter	Volume Required (ml)	Container[2]	Preservation[3,4]	Hold Time[5]
400 Organics				
Biochemical Oxygen Demand	1000	P,G	Cool, 4°C	48 Hours
COD	50	P, G	Cool, 4°C H_2SO_4 to pH <2	28 Days
Oil and Grease	1000	G Only	Cool, 4°C H_2SO_4 to pH <2	28 Days
Organic Carbon	25	P,G	Cool, 4°C H_2SO_4 or (HCL) to pH	28 Days
Phenolics	500	G Only	Cool, 4°C H_2SO_4 to pH <2	28 Days
Methylene Blue Activated Substances	250	P,G	Cool, 4°C	48 Hours
Nitrilotriacetic Acid	50	P,G	Cool, 4°C	24 Hours

Footnotes

[1]A general discussion on sampling water and industrial wastewater may be found in ASTM, Part 31, pp. 72-82 (1976), Method D 3370.

[2]Plastic (P) or Glass (G). For metals, polyethylene with polypropylene cap (no liner) is preferred.

[3]Sample preservation should be performed immediately upon sample collection. For composite samples, each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then samples may be preserved by maintaining at 4°C until compositing and sample splitting is completed.

[4]When any sample is to be shipped by common carrier or sent through the United States mail, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR 172). The person offering such material for transportation is responsible for ensuring such compliance. For preservation requirements, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: hydrochloric acid (HCI), in water solutions at concentrations of 0.04 percent by weight or less (pH about 1.96 or greater), nitric acid (HNO3) in water solutions at concentrations o 0.35 percent by weight or less (pH about 1.62 or greater), sulfuric acid (H_2SO_4) in water solutions at concentrations of 0.35 percent by weight or less (pH about 1.15 or greater), and sodium hydroxide (NaOH) in water solutions at concentrations of 0.080 percent by weight or less (pH about 12.30 or less).

[5]Samples should be analyzed as soon as possible after collection. The times listed are the maximum that samples may be held before analysis and still be considered valid. Samples may be held for longer periods only if the permittee or monitoring laboratory has data on file to show that the specific types of sample under study are stable for the longer time and has received a variance from the Regional Administrator. Some samples may not be stable for the maximum time period given in the table. A permittee or monitoring laboratory is obligated to hold the sample for shorter time if knowledge exists to show this is necessary to maintain sample stability.

[6]Sample should be filtered immediately on site before adding preservative for dissolved metals.

[7]Maximum holding time is 24 hours when sulfide is present. Optionally, all samples may be tested with lead acetate paper before pH adjustments to determine if sulfide is present. If present, sulfide can be removed by the addition of cadmium nitrate powder until a negative spot test is obtained. The sample is filtered and then sodium hydroxide is added to pH 12.

[8]Should only be used in the presence of residual chlorine.

Taken from Antech Ltd. Quality Assurance Plan, June 2000, Antech Ltd., One Triangle Drive, Export, Pennsylvania, 15632
Phone (724) 733-1161, Fax (724) 327-7793.

Data Qualifiers

<	< [Custom Value]
>	> [Custom Value]
A-01	[Custom Value]
B	Analyte was detected in the associated Method Blank.
B1	Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
B7	Analyte detected in refrigerator/freezer holding blank. Reported value for this sample within 10x detected concentration in holding blank.
BCD	The contamination reported in the HPLC method blank for one detector was not confirmed by the other detector.
C	Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
C1	Calibration Verification recovery was above the method control limit for this analyte, however the average % difference for all analytes met method criteria.
C2	Calibration Verification recovery was below the method control limit for this analyte, however the average % difference for all analytes met method criteria.
C4	Calibration Verification recovery was below the method control limit for this analyte.
C8	Calibration Verification recovery was above the method control limit for this analyte. A high bias may be indicated.
CF2	Confirmatory analysis was past holding time.
CF5	The sample was originally analyzed with a positive result, however the reanalysis did not confirm the presence of the analyte.
CF6	Results confirmed by reanalysis.
CF7	Result may be elevated due to carry over from previously analyzed sample.
CISP	The concentration indicated for this analyte is derived from a single point calibration.
CL1	Recovery for this analye was within Laboratory historical limits but outside contract required limits of 70-130 %.
CN4	Amenable cyanide results reported from total determination method.
CSTM	[Custom Value]
E	Concentration exceeds the calibration range and therefore result is semi-quantitative.
E1	Concentration estimated. Analyte exceeded calibration range. Reanalysis not possible due to insufficient sample remaining.
E3	Concentration estimated. Analyte exceeded calibration range. Reanalysis not peformed due to holding time requirements.
EPH%	[Custom Value] %RPD
H	Sample analysis performed past method-specified holding time.
H1	Sample analysis performed past the method-specified holding time per client's approval.
H10	The holding time calculation is based on a sampling time of 00:00 on the sampling date noted on the Chain of Custody. No sampling time was provided to the laboratory.
H2	Initial analysis within holding time. Reanalysis for the required dilution or confirmation was past holding time.
H3	Sample was received and analyzed past holding time.

H4	Sample was extracted past holding time, but analyzed within analysis holding time.
H8	The sample was extracted past the holding time.
HT2	Received out of 48 hour hold for 5035 preparation.
HT3	Sample received with insufficient holding time remaining for analysis to be performed within the method's holding time requirements.
HTI	The holding time for this test is immediate. The laboratory measurement, therefore, may not be suitable for compliance purposes.
I	Internal Standard recovery was outside of method limits. Matrix interference was confirmed by reanalysis.
ID2	Secondary ion abundances were outside method requirements. Identification based on analytical judgement.
IH1	Target analyte was detected in the method blank at or above the reporting limit. The background was subtracted from the QC samples and the client's sample(s).
IH10	Target analyte was not detected in the method blank at or above the reporting limit. The QC samples and client sample(s) were not blank corrected.
IH11	The client sample was not blank corrected.
IH2	Target analyte was detected in the method blank at or above the reporting limit. The background was not subtracted from the client's sample(s).
IH3	Target analyte was detected in the client's field blank at or above the reporting limit. The background was subtracted from the client's sample(s).
IH4	Target analyte was detected in the client's field blank at or above the reporting limit. The background was not subtracted from the client's sample(s).
IH8	Target analyte was detected in the method blank below the reporting limit but above the MDL. The background was subtracted from the QC samples and the client's sample(s).
J	Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). Concentrations within this range are estimated.
K	The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/l. Therefore the reported result is an estimated value only.
K1	The sample dilutions set up for the BOD analysis failed to meet the criteria of a residual dissolved oxygen of at least 1 mg/L. Therefore the reported result is an estimated value only.
K2	The seed depletion was outside the method acceptance limits. Therefore, the reported result is an estimated value only.
K3	The dilution water D.O. depletion was > 0.2 mg/L.
K4	The seed depletion was not within method recommended limits. The LCS, which is a means of checking dilution water quality and seed effectiveness, was within acceptance limits.
K5	Residual chlorine detected. Sample dechlorinated prior to analysis.
L	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above the acceptance limits. Analyte not detected, data not impacted.
L1	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was above acceptance limits.
L2	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was below acceptance limits.
M1	The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
M10	Matrix Spike recovery was low. Data Reported per ADEQ policy 0154.000

M2	The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
M3	Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
M4	The MS/MSD required a dilution due to matrix interference. Because of this dilution, the matrix spike concentrations in the sample were reduced to a level where the recovery calculation does not provide useful information. See Blank Spike (LCS).
M6	Any analyte not run due to matrix
M7	The MS and/or MSD were above the acceptance limits. See Blank Spike (LCS).
M8	The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
M9	Matrix Spike recovery was high. Data Reported per ADEQ policy 0154.000
MCP	No results were reported for the MS and/or MSD due to a clogged autosampler port. Batch was accepted based on Blank Spike (LCS) recoveries.
MHA	Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
MNR	No results were reported for the MS/MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.
MNR1	There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike.
MNR3	Insufficient sample received to meet method QC requirements.
MNR4	Insufficient sample received to meet method QC requirements. Batch QC requirements satisfy ADEQ policies 0154.000 and 0155.000
N1	See case narrative.
N2	See corrective action report.
NO	No
NoRES	>100,000
P	The sample, as received, was not preserved in accordance to the referenced analytical method.
P1	Sample received and analyzed without chemical preservation.
P12	The method required trip blank was not provided along with this sample.
P13	Sample volume, as received, was inappropriate to meet method specifications.
P2	Sample received without chemical preservation, but preserved by the laboratory.
P3	Sample was received above recommended temperature.
P4	Sample received in inappropriate sample container.
P6	Sample received unpreserved, however the sample was analyzed within 7 days per EPA recommendation.
P7	Sample filtered in lab.
P8	Sample unable to be adjusted to correct pH due to matrix.
P9	This analyte has been shown to degrade upon preservation with HCl and cannot accurately be quantitated.
pH	pH [Custom Value]
pH<1	pH<1
pH<2	pH<2
pH>12	pH>12
pH>13	pH>13

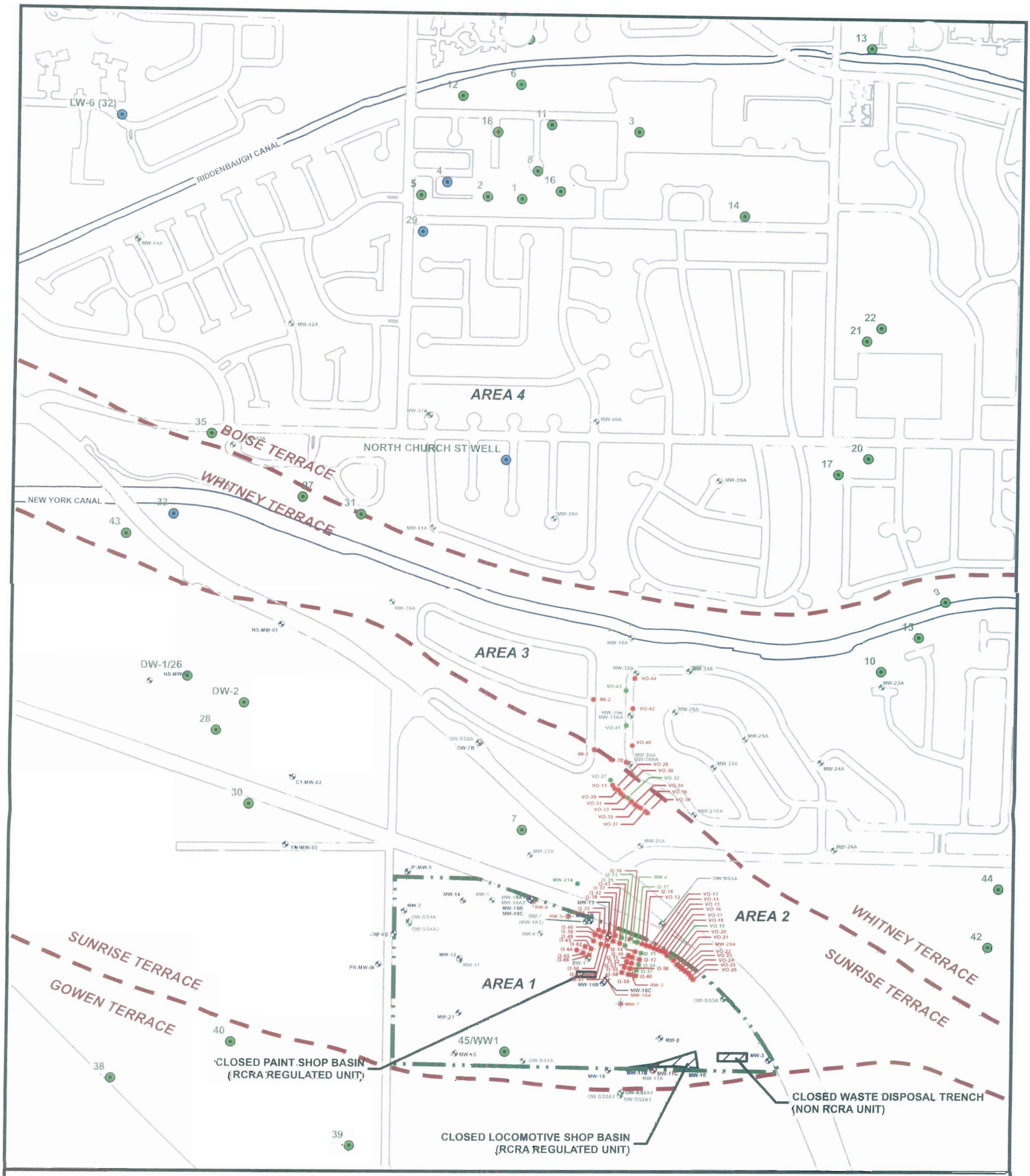
pH>2	pH>2
P-HS	Sample container contained headspace.
PV	Acid preservation was indicated on the sample vial. However, a pH of <2 was not obtained.
PX	Sample for VOA analysis not received in preserved VOA vials or Encore or similar sampling device.
Q2	The chromatographic pattern is consistent with diesel fuel.
Q3	The chromatographic pattern is not consistent with diesel fuel.
Q5	Results in the diesel organics range are primarily due to overlap from a gasoline range product.
QFL	Florisil clean-up (EPA 3620) performed on extract.
QGP	Gel Permeation (EPA 3640) clean-up performed on extract.
QP	Hydrocarbon result partly due to individual peak(s) in quantitation range.
QP1	The primary contamination elutes between [Custom Value], which is in the motor oil range.
QP2	The primary contamination elutes between [Custom Value], which is in the diesel fuel range.
QP3	The primary contamination elutes between [Custom Value], which is in the kerosene range.
QP4	The primary contamination elutes between [Custom Value], which is in the mineral spirits range.
QP5	There was insufficient contamination present to perform a pattern match.
QP6	The contamination did not match any standards in our library.
QP7	The contamination is similar to our [Custom Value] standard.
QSG	Silica Gel clean-up performed on extracts.
QSP	Sulfuric Acid / Permanganate (EPA3665) clean-up performed on extract.
QSU	Sulfur (EPA 3660) clean-up performed on extract.
QU	Unquantitated hydrocarbons present in the sample outside of the reported carbon range.
R	The RPD exceeded the method control limit. The individual analyte QA/QC recoveries, however, were within acceptance limits.
R1	The RPD between the primary and confirmatory analysis exceeded 40%. Per method 8000B, the higher value was reported.
R10	The RPD between the primary and confirmatory analysis exceeded 40%. Per method 8000B, the lower value was reported due to apparent chromatographic problems.
R12	The RPD between the primary and confirmatory analysis exceeded 40%. Per method 8000C, the lower value was reported.
R13	The RPD calculation is not applicable for results expressed as less than (<) or greater than (>).
R2	The RPD exceeded the acceptance limit.
R3	The RPD exceeded the acceptance limit due to sample matrix effects.

R4	Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
R7	LCS/LCSD RPD exceeded the acceptance limit. Recovery met acceptance criteria.
R9	Sample RPD exceeded the laboratory control limit.
RL1	Reporting limit raised due to sample matrix effects.
RL4	Reporting limit raised due to insufficient sample volume.
S10	Insufficient sample available for reanalysis.
S12	Sample highly flammable and ignited upon contact.
S6	Sediment present.
S7	Sample breakthrough to 2nd section is > 10%. Results may be biased low.
SB	Sustained burning when exposed to open flame.
SPS	Percent solids result provided by the client.
SSV	Solvent volume not present on sample vial. The lab has assumed a 1:1 ratio.
STW	No tare weight present on sample vial. Result should be considered an estimated value.
T1	Method approved by EPA, but not yet licensed by ADHS.
T14	The PAH compounds were analyzed and reported by method 8270.
T15	The method used is for screening purposes only; the result reported for this analyte is an estimate.
T16	Trace <2 mg/L.
T2	Cited ADHS licensed method does not contain this analyte as part of method compound list.
T4	The cited licensed method does not contain this analyte as part of the method compound list.
T5	Less than the prescribed sample amount was available to perform the leachate extraction. The volume of extraction fluid was adjusted proportionately based on the method prescribed ratio of extraction fluid to sample weight.
T6	The temperature during the 18 hour TCLP extraction exceeded the 21-25 degrees C range stated in EPA Method 1311. The temperature range during the extraction was [Custom Value] degrees C.
T7	Tentatively identified compound. Concentration is estimated based on the closest internal standard.
T8	The reported result cannot be used for compliance purposes.
TND	Compound not detected using TIC procedure. Quantitation is estimated based on closest Internal Standard. An assumption is made that the compound will purge or extract and respond chromatographically consistent with target compounds analyzed by this method.
YES	Yes
Z	Due to sample matrix effects, the surrogate recovery was below the acceptance limits.
Z1	Surrogate recovery was above acceptance limits.
Z10	Surrogate outside laboratory historical limits but within method guidelines. No effect on data.
Z11	Surrogate low but all targets within method criteria. No effect on data.
Z2	Surrogate recovery was above the acceptance limits. Data not impacted.

Z3	The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.
Z5	Due to sample matrix effects, the surrogate recovery was outside acceptance limits. Secondary surrogate recovery was within the acceptance limits.
Z6	Surrogate recovery was below acceptance limits.
Z7	Surrogate recovery was high. Data reported per ADEQ policy 0154.000.
Z8	Surrogate recovery was low. Data reported per ADEQ policy 0154.000.
ZE	The EPH surrogate recovery was outside QC limits due to poor fractionation. Both fractions were evaluated for all EPH carbon ranges. The sample was non-detect at the reporting limit for all carbon ranges, so the data was accepted without further analysis.
ZX	Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.

For Ohio VAP: The laboratory must implement corrective action procedures to resolve the deviation and limit qualification of the final results. The laboratory is not permitted to deviate from its VAP approved SOP if it intends to attest under affidavit that the "results" are VAP certified. When all corrective actions listed in the SOP have been exhausted, it may be necessary to use technical judgment in which case the decision process and rationale is presented in the final report and/or affidavit and the data will be noted as 'not VAP certified' on the affidavit.

Figures



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EDGE OF TERRACE
- FORMER DISPOSAL AREAS
- WATERWELL
- WATER WELL (ABANDONED)
- A ZONE MONITORING WELL
- A ZONE INJECTION WELL
- A ZONE INJECTION/MONITORING WELL
- A ZONE INJECTION/RECOVERY/MONITORING WELL
- A ZONE RECOVERY WELL
- B ZONE MONITORING WELL
- C ZONE MONITORING WELL

N

0 300 600 1,200
Feet

PORTIONS OF THIS FIGURE ARE PRESENTED IN COLOR. THEREFORE BLACK AND WHITE COPIES MAY NOT DEPICT ALL INFORMATION AS PRESENTED ON THE ORIGINAL DOCUMENT.

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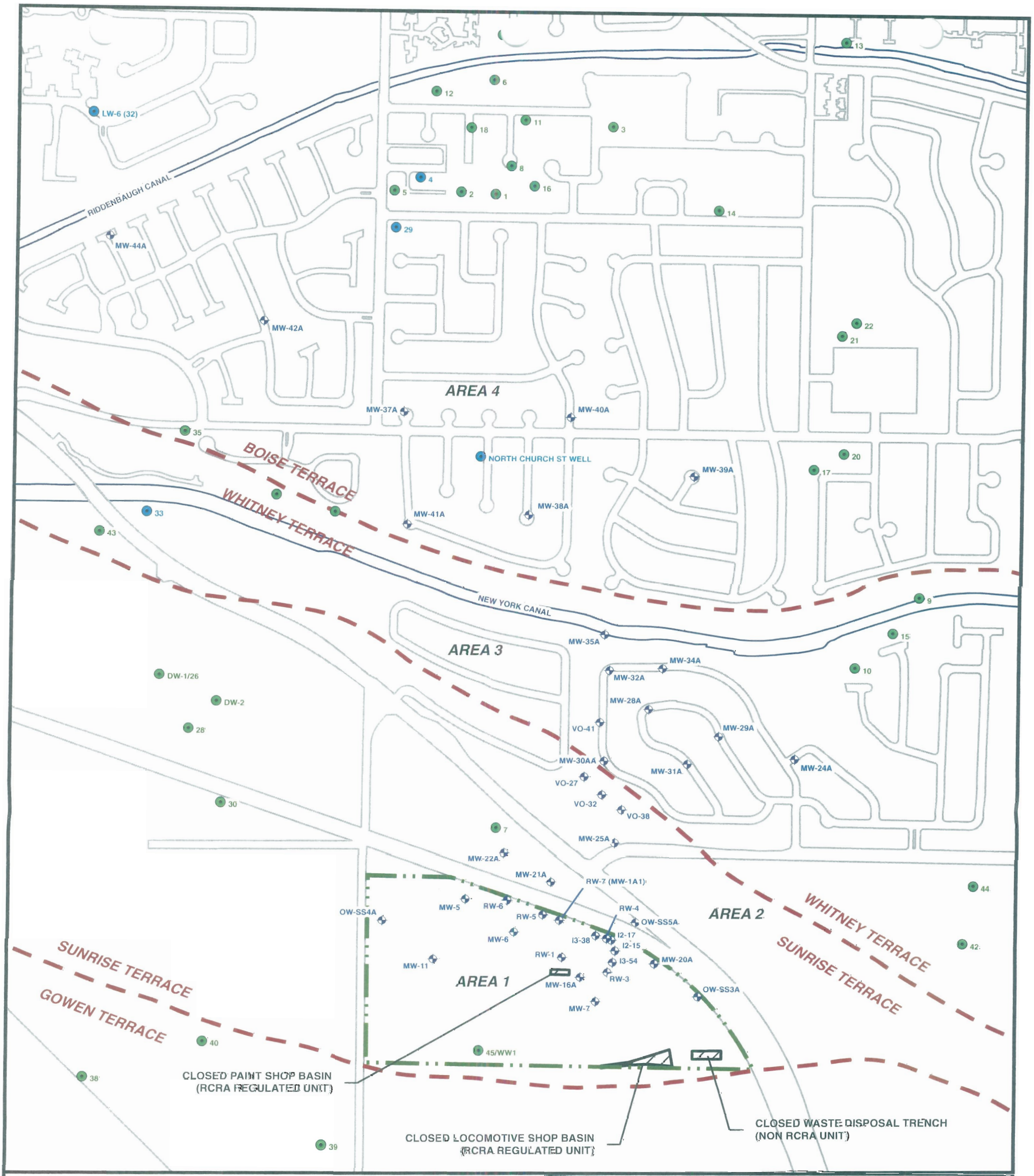
BOISE, IDAHO
EPA ID. EDD980976831

FIGURE 1

SITE VICINITY AND WELL LOCATION MAP

American Geosciences, Inc.

NO	DRN	REVISION	DATE	CHKD	DATE	APP	DATE		
								CURRENT DATE	12/14/11
1	BAS	PREPARED ORIGINAL DRAWING	12/14/11	WTN	12/14/11	WTN	12/14/11	ARCMAP MXD	FIGURE 1 (SITE VICINITY & WELL LOCATION MAP-SAP)
								AGI PROJ NO	0008-015



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EDGE OF TERRACE
- WATER SUPPLY WELL
- WATER SUPPLY WELL (ABANDONED)
- A-ZONE WELLS TO BE SAMPLED

PORTIONS OF THIS FIGURE ARE PRESENTED IN COLOR. THEREFORE BLACK AND WHITE COPIES MAY NOT DEPICT ALL INFORMATION AS PRESENTED ON THE ORIGINAL DOCUMENT.

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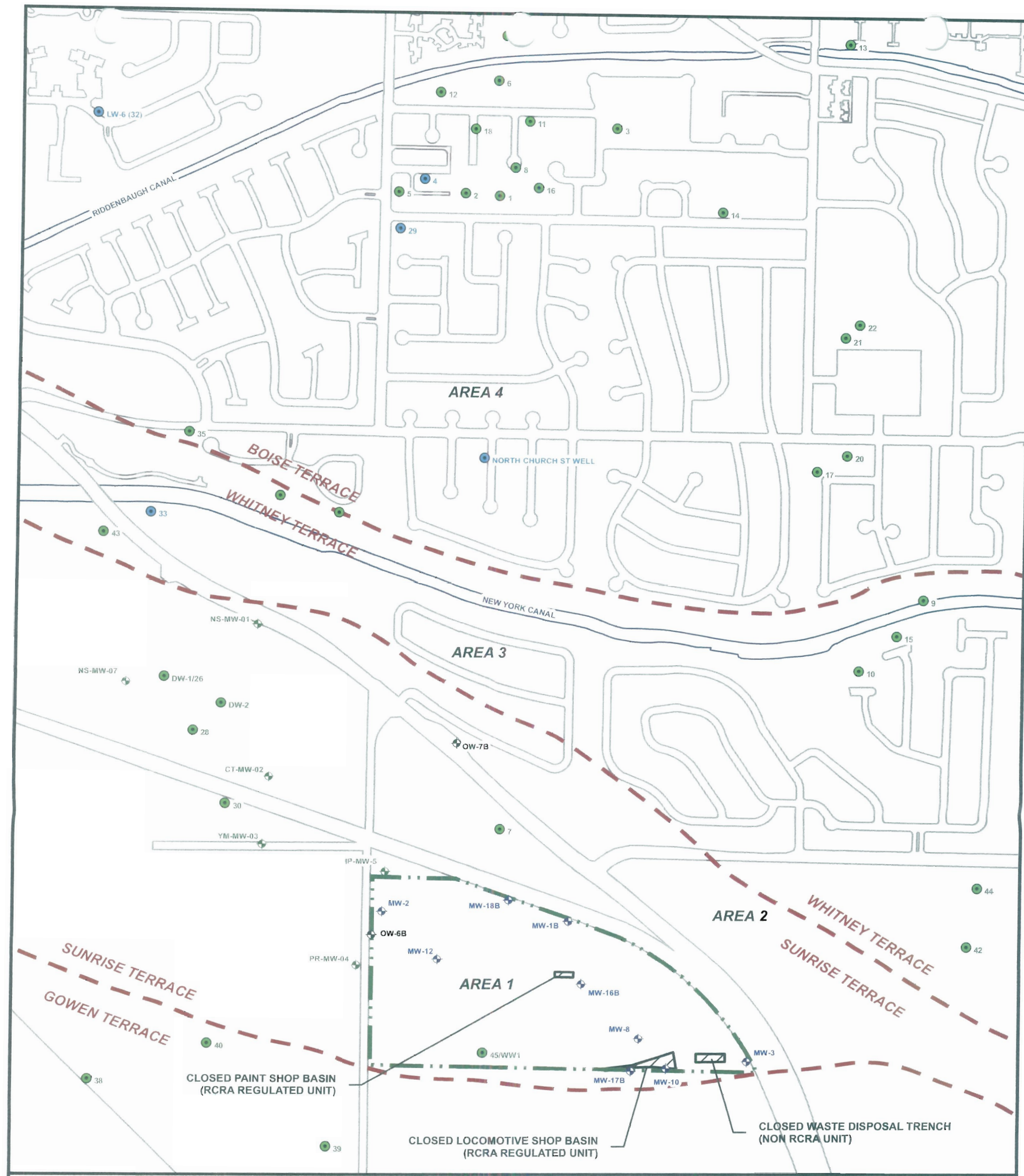
FIGURE 2

A-ZONE WELL LOCATION MAP
SAMPLING AND ANALYSIS PLAN

American Geosciences, Inc.

NO	DRN.	REVISION	CHKD	DATE	APP	DATE		
							CURRENT DATE	01/19/12
0	BAS.	ORIGINAL FIGURE	WTN	01/19/12	WTN.	01/19/12	ARCMAP MXD	FIGURE 2 (A-ZONE WELL LOCATION MAP-SAP)
							AGI PROJ NO	0608-018



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EDGE OF TERRACE
- WATER SUPPLY WELL
- WATER SUPPLY WELL (ABANDONED)
- B-ZONE WELL TO BE SAMPLED
- B-ZONE OBSERVATION WELL
- B-ZONE USEPA MONITORING WELL

N

0 300 600 1,200
Feet

PORTIONS OF THIS FIGURE ARE PRESENTED IN COLOR. THEREFORE BLACK AND WHITE COPIES MAY NOT DEPICT ALL INFORMATION AS PRESENTED ON THE ORIGINAL DOCUMENT.

WABTEC - MOTIVEPOWER
BOISE, IDAHO
EPA ID. EDD980976831

FIGURE 3

A-ZONE WELL LOCATION MAP
SAMPLING AND ANALYSIS PLAN

American Geosciences, Inc.

							CURRENT DATE	01/19/12
0	BAS	ORIGINAL FIGURE	WTN	01/19/12	WTN	01/19/12	ARCMAP MXD	FIGURE 3 (B-ZONE WELL LOCATION MAP-SAP)
NO	DRN	REVISION	CHKD	DATE	APP	DATE	AGI PROJ NO	0008-018

Appendix A

Monitoring Well Construction Details

Well Construction Details
Wahtec-MotivePower Facility
U.S. EPA ID NO.: IDD980976831
Boise, Idaho

Monitoring Well Identification	Installation Date	State Plain Coordinates (Northing)	State Plain Coordinates (Easting)	Ground Surface Elevation (feet)	Top of PVC/ Pipe Casing Elevation (feet)	Total Boring Depth (feet)	Total Well Depth Below Ground Surface - BGS (feet)	Total Well Depth Mean Sea Level - MSL (feet)	Screened Interval Below Ground Surface - BGS (feet)	Screened Interval Mean Sea Level - MSL (feet)	Sand Interval Below Ground Surface - BGS (feet)	Sand Interval Mean Sea Level - MSL (feet)	Well Diameter (inches)	Well Material
Zone A Wells - On-Site														
PD-1S	6/21/2000	689943.1401	2514124.831	2880.05	2880.03	81.30	81.00	2799.05	76.00 - 81.00	2804.05 - 2799.05	73.50 - 81.30	2806.55 - 2798.75	2	PVC Casing/Screen
PD-1D	6/21/2000	689943.2461	2514124.536	2880.05	2879.98	90.00	88.00	2792.05	83.00 - 88.00	2795.05 - 2792.05	83.80 - 88.50	2796.25 - 2791.55	2	PVC Casing/Screen
PD-2	6/23/2000	689916.203	2514401.052	2881.68	2881.49	90.00	83.50	2798.18	78.50 - 83.50	2803.18 - 2798.18	76.50 - 83.50	2805.18 - 2798.18	2	PVC Casing/Screen
PD-4S	7/10/2000	689338.7177	2514642.252	2887.09	2886.80	41.50	41.00	2846.09	36.00 - 41.00	2851.09 - 2846.09	34.20 - 41.50	2852.89 - 2845.59	2	PVC Casing/Screen
PD-4I	7/10/2000	689346.5932	2514647.522	2886.87	2886.57	86.00	83.60	2803.27	73.50 - 83.50	2813.37 - 2803.37	70.50 - 83.50	2816.37 - 2803.37	2	PVC Casing/Screen
PD-4D	7/12/2000	689338.6737	2514653.686	2886.91	2886.66	90.50	90.50	2796.41	88.30 - 90.50	2798.61 - 2796.41	86.00 - 90.50	2800.91 - 2796.41	2	PVC Casing/Screen
PD-5	7/8/2000	689406.6194	2515018.001	2886.31	2886.03	63.50	62.00	2824.31	57.00 - 62.00	2829.31 - 2824.31	53.50 - 62.00	2832.81 - 2824.31	2	PVC Casing/Screen
OW-SS2A1	11/19/2000	689015.2041	2513864.048	2889.68	2887.46	42.00	42.00	2847.68	37.00 - 42.00	2852.68 - 2847.68	33.50 - 42.00	2856.18 - 2847.68	2	PVC Casing/Screen
OW-SS2A3	12/4/2000	689003.1865	2513863.511	2889.37	2887.07	90.00	32.50	2856.87	22.50 - 32.50	2866.87 - 2856.87	20.50 - 32.50	2868.87 - 2856.87	2	PVC Casing/Screen
OW-SS2A4	12/4/2000	689022.2371	2513869.845	2889.48	2887.38	84.00	83.00	2806.48	73.00 - 83.00	2816.48 - 2806.48	71.00 - 84.00	2818.48 - 2805.48	2	PVC Casing/Screen
OW-SS3A	11/15/2000	689602.5385	2514501.307	2881.58	2878.74	81.00	79.50	2802.08	74.50 - 79.50	2807.08 - 2802.08	72.00 - 80.00	2809.58 - 2801.58	2	PVC Casing/Stainless Steel Screen
OW-SS4A	11/19/2000	690081.2021	2512535.886	2875.37	2873.74	72.00	71.00	2804.37	66.00 - 71.00	2809.37 - 2804.37	64.00 - 71.00	2811.37 - 2804.37	2	PVC Casing/Stainless Steel Screen
OW-SS4A2	11/28/2000	690068.9148	2512536.219	2876.35	2873.45	125.00	125.00	2751.35	120.00 - 125.00	2756.35 - 2751.35	118.00 - 125.00	2758.35 - 2751.35	2	PVC Casing/Stainless Steel Screen
OW-SS5A	12/8/2000	690070.8476	2514108.798	2882.05	2879.49	100.50	99.50	2782.55	89.50 - 99.50	2792.55 - 2782.55	87.50 - 100.50	2794.55 - 2781.55	2	PVC Casing/Screen
OW-SS8A	12/3/2000	691194.3488	2512953.065	2873.03	2870.10	81.00	80.00	2793.03	75.00 - 80.00	2798.03 - 2793.03	73.00 - 81.00	2800.03 - 2792.03	2	PVC Casing/Stainless Steel Screen
MW-1A1 (RW-7)	6/14/1988	690213.1968	2514108.626	2876.60	2877.48	85.00	84.89	2791.71	74.94 - 84.89	2801.66 - 2791.71	66.00 - 85.00	2810.60 - 2791.60	2	8" Permanent Steel Casing 56.8' PVC/SS Casing & 304 SS Screen
MW-1A2 (DRY)	6/14/1988	690213.0368	2514108.651	2876.60	2877.48	121.50	121.10	2755.50	110.87 - 121.10	2765.73 - 2755.50	102.00 - 121.50	2774.60 - 2755.10	2	8" Permanent Steel Casing 56.8' PVC/SS Casing & 304 SS Screen
MW-4[1]	1/15/1986	ABN[2]	ABN	2880.82	ABN	200.00	92.40	2788.42	87.40 - 92.40	2793.42 - 2788.42	81.00 - 96.00	2799.82 - 2784.82	2	6"Permanent Casing 58' PVC/TEFLON Casing & TEFLON Screen
MW-5	12/14/1985	690346.6417	2513522.864	2874.49	2874.29	79.20	76.10	2798.39	71.10 - 76.10	2803.39 - 2798.39	61.00 - 77.20	2813.49 - 2797.29	2	6" Permanent Casing 57' PVC/TEFLON Casing & TEFLON Screen
MW-6	12/13/1986	690138.9968	2513826.705	2879.04	2879.75	78.00	76.70	2802.34	71.70 - 76.70	2807.34 - 2802.34	68.00 - 78.00	2811.04 - 2801.04	2	6" Permanent Casing 58' PVC/TEFLON Casing & TEFLON Screen
MW-7	1/13/1986	689704.3783	2514335.65	2883.55	2884.13	91.00	90.10	2793.45	79.70 - 90.10	2803.85 - 2793.45	73.50 - 91.00	2810.05 - 2792.55	4	8" Permanent Casing 58' PVC/SS Casing & 316 SS Screen
MW-9 (RW-1)[3]	3/25/1998	689849.362	2513657.504	2883.59	2881.48	81.50	80.90	2802.69	75.60 - 80.90	2807.99 - 2802.69	71.00 - 81.50	2812.59 - 2802.09	4	8" Permanent Steel Casing 58' PVC/SS Casing & 316 SS Screen
MW-11	10/15/1986	689979.7099	2513330.016	2876.81	2876.58	74.00	72.58	2804.23	67.68 - 72.58	2809.13 - 2804.23	61.00 - 74.00	2815.81 - 2802.81	4	8" Permanent Steel Casing 68' PVC/Steel Casing & 304 SS Screen
MW-16A	4/7/1988	689855.4146	2514239.948	2882.10	2883.01	95.00	92.30	2789.80	82.32 - 92.25	2799.78 - 2789.85	75.00 - 95.00	2807.10 - 2787.10	2	12" Permanent Steel Casing 58' PVC/SS Casing & 304 SS Screen
MW-18A1	5/4/1988	690348.3561	2513759.547	2876.75	2877.97	82.00	81.86	2794.89	71.93 - 81.86	2804.82 - 2794.89	66.00 - 82.00	2810.75 - 2794.75	2	10" Permanent Steel Casing 50' PVC/SS Casing & 304 SS Screen
MW-18A2 (DRY)[1]	5/3/1988	ABN	ABN	2873.37	ABN	119.00	117.84	2755.53	107.91 - 117.84	2765.46 - 2755.53	104.00 - 119.00	2769.37 - 2754.37	2	10" Steel Casing 56' PVC/SS Casing & 304 SS Screen
MW-20A	5/23/1990	689939.4324	2514698.454	2879.84	2881.67	93.30	92.30	2787.54	76.00 - 92.00	2803.84 - 2787.84	74.00 - 93.30	2805.84 - 2786.54	4	8" Permanent Steel Casing 69.2' PVC Casing & 304 SS Screen

*See footnotes at end of table.

Monitoring Well Identification	Installation Date	State Plain Coordinates (Northing)	State Plain Coordinates (Easting)	Ground Surface Elevation (feet)	Top of PVC/ Pipe Casing Elevation (feet)	Total Boring Depth (feet)	Total Well Depth Below Ground Surface - BGS (feet)	Total Well Depth Mean Sea Level - MSL (feet)	Screened Interval Below Ground Surface - BGS (feet)	Screened Interval Mean Sea Level - MSL (feet)	Sand Interval Below Ground Surface - BGS (feet)	Sand Interval Mean Sea Level - MSL (feet)	Well Diameter (inches)	Well Material
RW-2	6/4/1990	689915.5919	2513957.183	2881.26	2883.54	93.50	92.00	2789.26	71.50 - 91.50	2809.76 - 2789.76	68.00 - 92.00	2813.26 - 2789.26	4	PVC Casing & Screen
RW-3[1]	5/30/1990	689885.8423	2514407.761	2882.04	2884.36	94.20	94.20	2787.84	72.80 92.80	2809.24 - 2789.24	70.80 94.20	2811.24 - 2787.84	4	8" Permanent Steel Casing 71.4' PVC Casing & PVC Screen
RW-4	6/7/1990	690096.7469	2514401.822	2880.03	2882.01	92.00	92.00	2788.03	76.50 - 91.50	2803.53 - 2788.53	74.60 - 92.00	2805.43 - 2788.03	4	8" Permanent Steel Casing 68' PVC Casing & PVC Screen
RW-5	6/12/1990	690247.7392	2514004.395	2878.57	2880.12	93.00	93.00	2785.57	72.20 - 87.10	2806.37 - 2791.47	69.00 - 87.10	2809.57 - 2791.47	4	8" Permanent Steel Casing 68' PVC Casing & PVC Screen
RW-6	6/22/1990	690339.2964	2513783.471	2876.93	2878.29	82.00	80.90	2796.03	70.40 - 80.40	2806.53 - 2796.53	68.00 - 81.00	2808.93 - 2795.93	4	8" Permanent Steel Casing 68' PVC Casing & PVC Screen
Zone A Wells - Off-Site														
MW-17A (DRY)	5/17/1988	689290.9077	2514533.75	2887.06	2887.40	101.00	94.09	2792.97	84.16 - 94.09	2802.90 - 2792.97	73.00 - 101.00	2814.06 - 2786.06	2	10" Permanent Steel Casing 39' PVC/SS Casing & 304 SS Screen
MW-21A	8/30/1990	690453.3087	2514053.795	2875.79	2877.91	85.00	83.80	2791.99	72.90 - 83.30	2802.89 - 2792.49	71.10 - 83.80	2804.69 - 2791.99	4	8" Permanent Steel Casing PVC Casing & 304 SS Screen
MW-22A	12/19/1990	690630.1769	2513756.942	2874.98	2874.44	81.00	79.60	2795.38	68.50 - 78.70	2806.48 - 2796.28	66.10 - 80.00	2808.88 - 2794.98	4	8" Permanent Steel Casing PVC Casing & 304 SS Screen
MW-25A	4/16/1991	690689.8431	2514442.764	2873.14	2875.30	86.00	84.00	2789.14	73.00 - 83.50	2800.14 - 2789.64	72.50 - 84.00	2800.64 - 2789.14	4	8" Permanent Steel Casing PVC Casing & 304 SS Screen
MW-23A	8/13/1992	691686.361	2515921.959	2821.71	2820.85	56.50	56.00	2765.71	40.40 - 55.40	2781.31 - 2766.31	38.90 - 56.00	2782.81 - 2765.71	2	PVC Casing & Screen
MW-24A[4]	9/10/1992	691211.0099	2515553.137	2821.36	2821.03	81.00	45.90	2775.46	35.30 - 45.30	2786.06 - 2776.06	33.00 - 45.90	2788.36 - 2775.46	2	PVC Casing & Screen
MW-26A	9/29/1992	690666.5517	2515640.574	2825.82	2825.24	46.00	44.80	2781.02	34.80 - 44.80	2791.02 - 2781.02	33.50 - 45.00	2792.32 - 2780.82	2	PVC Casing & 304 SS Screen
MW-27AA	6/15/1993	690884.4296	2514773.008	2821.73	2821.48	54.00	49.00	2772.73	39.00 - 49.00	2782.73 - 2772.73	37.00 - 50.00	2784.73 - 2771.73	2	PVC Casing & 304 SS Screen
MW-28A	6/18/1993	691520.2579	2514644.605	2818.20	2817.89	55.00	53.50	2764.70	32.90 - 53.50	2785.30 - 2764.70	30.70 - 55.00	2787.50 - 2763.20	2	PVC Casing & 304 SS Screen
MW-29	7/13/1993	691351.1802	2515080.734	2821.36	2821.15	47.50	43.00	2778.36	33.00 - 43.00	2788.36 - 2778.36	30.60 - 43.00	2790.76 - 2778.36	2	PVC Casing & 304 SS Screen
MW-30A	7/19/1993	691198.4605	2514371.166	2819.15	2818.83	30.60	30.00	2789.15	25.00 - 30.00	2794.15 - 2789.15	23.00 - 30.60	2796.15 - 2788.55	2	PVC Casing & PVC Screen
MW-30AA	7/15/1993	691198.6936	2514371.363	2819.15	2818.85	56.50	54.70	2764.45	39.50 - 54.70	2779.65 - 2764.45	39.10 - 55.00	2780.05 - 2764.15	2	PVC Casing & 304 SS Screen
MW-31A	7/22/1993	691146.4127	2514906.664	2820.00	2819.72	54.50	45.60	2774.40	39.30 - 45.60	2780.70 - 2774.40	37.30 - 45.90	2782.70 - 2774.10	2	PVC Casing & 304 SS Screen
MW-32A	7/27/1993	691764.0476	2514399.816	2815.88	2815.52	47.00	45.30	2770.58	34.90 - 45.30	2780.98 - 2770.58	33.00 - 45.50	2782.88 - 2770.38	2	PVC Casing & 304 SS Screen
MW-33A	7/30/1993	691494.285	2514369.036	2816.72	2816.37	39.00	38.80	2777.92	29.50 - 38.80	2787.22 - 2777.92	27.40 - 39.00	2789.32 - 2777.72	2	PVC Casing & 304 SS Screen
MW-33AA	7/29/1993	691499.632	2514368.66	2816.76	2816.39	52.00	49.00	2767.76	44.00 - 49.00	2772.76 - 2767.76	43.00 - 49.20	2773.76 - 2767.56	2	PVC Casing & 304 SS Screen
MW-34A	8/3/1993	691777.2531	2514728.521	2818.58	2818.28	51.00	46.60	2771.98	36.60 - 46.60	2781.98 - 2771.98	34.90 - 46.80	2783.68 - 2771.78	2	PVC Casing & 304 SS Screen
MW-35A	6/9/1994	691988.6917	2514366.454	2810.92	2810.40	44.50	41.80	2769.12	31.80 - 41.80	2779.12 - 2769.12	30.20 - 42.00	2780.72 - 2768.92	2	PVC Casing & 304 SS Screen
MW-36A[5]	3/6/2000	692201.8597	2512871.57	2815.67	2815.25	44.00	42.00	2773.67	32.00 - 42.00	2783.67 - 2773.67	30.00 - 42.00	2785.67 - 2773.67	2	PVC Casing & 304 SS Screen
MW-37A	1/11/1995	693370.802	2513095.189	2751.62	2751.03	36.50	34.80	2716.82	9.80 - 34.80	2741.82 - 2716.82	8.50 - 35.10	2743.12 - 2716.52	2	PVC Casing & 304 SS Screen
MW-38A	1/12/1995	692732.6013	2513878.824	2755.26	2755.03	34.50	33.60	2721.66	8.60 - 33.60	2746.66 - 2721.66	7.50 - 34.50	2747.76 - 2720.76	2	PVC Casing & 304 SS Screen
MW-39A	1/16/1995	692975.0077	2514902.557	2758.61	2758.30	49.00	42.30	2716.31	12.30 - 42.30	2746.31 - 2716.31	10.00 - 43.00	2748.61 - 2715.61	2	PVC Casing & 304 SS Screen

*See footnotes at end of table.

Well Construction Details (continued)

Monitoring Well Identification	Installation Date	State Plain Coordinates (Northing)	State Plain Coordinates (Easting)	Ground Surface Elevation (feet)	Top of PVC/ Pipe Casing Elevation (feet)	Total Boring Depth (feet)	Total Well Depth Below Ground Surface - BGS (feet)	Total Well Depth Mean Sea Level - MSL (feet)	Screened Interval Below Ground Surface - BGS (feet)	Screened Interval Mean Sea Level - MSL (feet)	Sand Interval Below Ground Surface - BGS (feet)	Sand Interval Mean Sea Level - MSL (feet)	Well Diameter (inches)	Well Material
MW-40A	1/18/1995	693340.2302	2514132.13	2754.39	2754.19	44.00	41.60	2712.79	11.60 - 41.60	2742.79 - 2712.79	9.10 - 42.50	2745.29 - 2711.89	2	PVC Casing & 304 SS Screen
MW-41A	1/19/1995	692672.47	2513125.387	2752.75	2752.44	29.50	25.80	2726.95	5.80 - 25.80	2746.95 - 2726.95	5.00 - 26.50	2747.75 - 2726.25	2	PVC Casing & 304 SS Screen
MW-42A	1/20/1995	693927.1483	2512219.618	2748.75	2748.49	36.50	35.40	2713.35	5.40 - 35.40	2743.35 - 2713.35	5.00 - 36.50	2743.75 - 2712.25	2	PVC Casing & 304 SS Screen
MW-43A	1/23/1995	693172.1487	2511873.141	2748.00	2747.84	38.50	33.50	2714.50	3.50 - 33.50	2744.50 - 2714.50	3.00 - 33.90	2745.00 - 2714.10	2	PVC Casing & 304 SS Screen
MW-44A	1/26/1995	694434.6355	2511261.033	2745.03	2744.75	30.00	27.40	2717.63	7.40 - 27.40	2737.63 - 2717.63	6.20 - 28.00	2738.83 - 2717.03	2	PVC Casing & 304 SS Screen
Zone B Wells - On-Site														
MW-1[1][6]	10/18/1984			2875.02	ABN	175.00	167.00	2708.02	147.00 - 167.00	2728.02 - 2708.02	135.00 - 167.00	2740.02 - 2708.02	4	6" Permanent Steel Casing to ~ 168' (perforated 150-160') PVC Casing Screen
MW-1B[1][6]	6/10/1988			2875.30	2876.02	170.00	170.00	2705.30	157.05 - 167.20	2718.25 - 2708.10	134.00 - 170.00	2741.30 - 2705.30	4	PVC/SS Casing & 304 SS Screen
MW-2	10/18/1984	690227.5464	2513009.254	2872.89	2874.86	162.00	160.00	2712.89	146.00 - 160.00	2726.89 - 2712.89	83.00 - 161.00	2789.89 - 2711.89	4	6" Permanent Steel Casing +2.23'-150' PVC/Teflon Casing & PVC Screen
MW-3	11/21/1985	689350.888	2515252.518	2889.25	2890.94	153.00	145.50	2743.75	135.70 - 145.50	2753.55 - 2743.75	128.00 - 153.00	2761.25 - 2736.25	2	6" Permanent Steel Casing +2.51'-118' PVC/Teflon Casing & Teflon Screen
MW-8	1/11/1986	689491.5604	2514579.736	2886.26	2887.39	164.00	163.20	2723.06	157.90 - 163.20	2728.36 - 2723.06	150.00 - 164.00	2736.26 - 2722.26	4	8" Permanent Steel Casing 58' PVC/Steel Casing & 316 SS Screen
MW-12[7]	10/22/1986	689861.106	2512858.338	2876.89	2877.21	166.00	164.55	2712.34	154.00 - 164.55	2722.89 - 2712.34	145.50 - 166.00	2731.39 - 2710.89	4	8" Permanent Steel Casing 154.5' PVC/SS Casing & 304 SS Screen
MW-16B[8]	5/11/2001	689701.4872	2513750.028	2882.62	2882.85	158.50	158.50	2724.12	148.50 - 158.50	2734.12 - 2724.12	146.00 - 158.50	2736.62 - 2724.12	2	PVC/SS & 304 SS Screen (0.020" slot)
MW-18B-R[9]	4/29/1991	690352.8709	2513754.582	2876.76	2878.79	169.00	167.70	2709.06	141.50 - 167.20	2735.26 - 2709.56	139.00 - 169.00	2737.76 - 2707.76	4	12" Permanent Steel Casing 58' & 8" Permanent Steel Casing 118' PVC Casing &
MW-31[10]	6/12/1905	689514.7754	2512852.292	2880.07	2880.51	170.00	170.00	2710.07	NA[11] - NA	NA - NA	NA - NA	NA - NA	8	12" Permanent Steel Casing 58' & 8" Permanent Steel Casing 118' Open Borehole
Zone B Wells - Off-Site														
MW-10	10/29/1986	689305.2094	2514751.425	2888.16	2889.77	160.00	157.02	2731.14	146.52 - 157.02	2741.64 - 2731.14	134.00 - 157.00	2754.16 - 2731.16	4	8" Permanent Steel Casing 98.5' PVC/Steel Casing & 304 SS Screen
MW-17B	5/17/1988	689290.5547	2514533.658	2887.13	2887.40	166.00	166.00	2721.13	155.47 - 165.40	2731.66 - 2721.73	150.00 - 166.00	2737.13 - 2721.13	2	10" Permanent Steel Casing 39' PVC/SS Casing & 304 SS Screen
MW-19 (DRY)	6/20/1990	689159.597	2513787.715	2889.66	2887.15	165.50	164.00	2725.66	153.20 - 163.20	2736.46 - 2726.46	149.50 - 164.00	2740.16 - 2725.66	4	12" Permanent Steel Casing 58' & 8" Permanent Steel Casing 125' PVC Casing &
OW-6B	5/16/2001	690004.1195	2512443.869	2871.90	2872.23	155.00	150.00	2721.90	140.00 - 150.00	2731.90 - 2721.90	138.00 - 150.00	2733.90 - 2721.90	2	PVC/SS & 304 SS Screen (0.020" slot)
OW-7B	6/6/2001	691191.0263	2512957.358	2872.89	2869.66	174.00	172.50	2700.39	162.50 - 172.50	2710.39 - 2700.39	160.00 - 172.50	2712.89 - 2700.39	2	PVC/SS & 304 SS Screen (0.020" slot)
Zone B Wells - Off-Site - EPA														
CT-MW-02	9/20/1997	690981.1092	2511797.856	2865.85	2863.41	164.00	151.00	2714.85	141.00 - 151.00	2724.85 - 2714.85	139.00 - 164.00	2726.85 - 2701.85	2	PVC/SS & 304 SS Screen (0.020" slot)
IP-MW-5	10/1/1997	690395.0875	2512524.009	2873.99	2871.23	170.00	145.00	2728.99	135.00 - 145.00	2738.99 - 2728.99	133.00 - 150.00	2740.99 - 2723.99	2	PVC/SS & 304 SS Screen (0.020" slot)
YM-MW-03	9/30/1997	690559.197	2511761.519	2870.66	2868.11	158.00	148.00	2722.66	138.00 - 148.00	2732.66 - 2722.66	136.00 - 158.00	2734.66 - 2712.66	2	PVC/SS & 304 SS Screen (0.020" slot)
PR-MW-04	9/30/1997	689815.1094	2512351.355	2878.32	2875.70	194.00	155.00	2723.32	145.00 - 155.00	2733.32 - 2723.32	143.00 - 165.00	2735.32 - 2713.32	2	PVC/SS & 304 SS Screen (0.020" slot)
NS-MW-01	9/16/1997	691927.5482	2511716.401	2851.20	2848.66	158.00	144.50	2706.70	134.50 - 144.50	2716.70 - 2706.70	132.00 - 158.00	2719.20 - 2693.20	2	PVC/SS & 304 SS Screen (0.010" slot)
NS-MW-07	10/3/1997	691569.206	2510905.214	2859.60	2856.58	120.00	120.00	2739.60	110.00 - 120.00	2749.60 - 2739.60	108.00 - 120.00	2751.60 - 2739.60	2	PVC/SS & 304 SS Screen (0.010" slot)

*See footnotes at end of table.

Well Construction Details (continued)

Monitoring Well Identification	Installation Date	State Plain Coordinates (Northing)	State Plain Coordinates (Easting)	Ground Surface Elevation (feet)	Top of PVC/ Pipe Casing Elevation (feet)	Total Boring Depth (feet)	Total Well Depth Below Ground Surface - BGS (feet)	Total Well Depth Mean Sea Level - MSL (feet)	Screened Interval Below Ground Surface - BGS (feet)	Screened Interval Mean Sea Level - MSL (feet)	Sand Interval Below Ground Surface - BGS (feet)	Sand Interval Mean Sea Level - MSL (feet)	Well Diameter (inches)	Well Material
Zone C Wells[1]														
MW-13	3/16/1987	689994.5132	2513781.193	2881.36	2880.27	278.00	269.25	2612.11	253.35 - 264.25	2628.01 - 2617.11	220.50 - 269.25	2660.86 - 2612.11	4	10" Permanent Steel Casing 81.33' & 8" Steel Casing 213.33' PVC/SS Casing & 304 SS
MW-14[8]	2/27/1987	690214.8535	2512871.106	2873.90	2874.26	268.50	265.50	2608.40	255.00 - 265.50	2618.90 - 2608.40	226.00 - 267.75	2647.90 - 2606.15	4	10" Permanent Steel Casing 164.25' & 8" Permanent Steel Casing 231' PVC/SS Casing &
MW-15	2/12/1987	689262.4036	2512833.229	2885.16	2882.82	256.50	255.17	2629.99	240.00 - 250.17	2645.16 - 2634.99	228.41 - 256.00	2656.75 - 2629.16	4	10" Permanent Steel Casing 98 & 8" Steel Casing 231' PVC/SS Casing & 304 SS Screen
MW-16C	3/24/1988	689701.4872	2513750.028	2883.43	2882.51	278.00	264.98	2618.45	245.65 - 264.98	2637.78 - 2618.45	220.00 - 278.00	2663.43 - 2605.43	2	12" Permanent Steel Casing PVC/SS Casing & 304 SS Screen
MW-17C	5/13/1988	689726.7004	2513768.318	2888.08	2887.41	280.00	279.50	2608.58	259.12 - 279.50	2628.96 - 2608.58	231.00 - 280.00	2657.08 - 2608.08	4	10" Permanent Steel Casing 98.51 & 8" Steel Casing 217.5 PVC/SS Casing & 304 SS Screen
MW-18C	4/26/1988	689160.2185	2514069.061	2877.77	2876.86	200.00	277.75	2600.02	257.78 - 277.75	2619.99 - 2600.02	201.00 - 280.00	2676.77 - 2597.77	4	10" Permanent Steel Casing 227.75' PVC/SS Casing & 304 SS Screen

Footnotes:

(1) Well elevations were surveyed prior to August 2000.

(2) ABN - Well was abandoned.

(3) Well MW-9 was originally installed on 1/14/86 and renamed as RW-1 on 1998. Later this well was abandoned and redrilled on 3/25/98 40' South and 25' East of previous MW-9/RW-1 location.

(4) Well was re-modified on 08/20/93.

(5) Well top repaired on 03/06/2000.

(6) Well MW-1 was abandoned by drilling on June 1988 and replaced with MW-1B.

(7) Modified for traffic cover.

(8) Nested well MW-16A/16B/16C was installed in April 1988. Because a sampling pump became lodged in MW-16B and could not be recovered, MW-16B was abandoned; well MW-16B was relocated/replaced in May 2001.

(9) Well MW-18A1/18A2/18B were installed in May 1988. Due to leaking problems, wells MW-18A2 and MW-18B were abandoned; well MW-18B was replaced /relocated in 4/29/1991.

(10) Well MW-31 is completed as open borehole.

(11) Not available.

Table 1

Injection Well Construction Detail
Wabtec - MotivePower Facility
Boise, Idaho

Monitoring Well Identification	Type of Well	Installation Date	Total Depth (feet)	Location of Well						Well Boring Diameter		Well Casing		Screen Interval (feet)	Surface Seal	
				Township	Range	Section	1/4	1/4	1/4	Diameter (inches)	Depth (feet)	Diameter (inches)	Depth (feet)		Type	Interval (feet)
MotivePower Property - On site																
I2-10	Existing	1/29/2001	86.0	3N	2E	36		NW	NW	4.25	86.0	2	81.0	81.0 - 86.0	Cement Grout	0 - 79.0
I2-11	Existing	2/6/2001	77.0	3N	2E	36		NW	NW	4.25	88.5	2	72.0	72.0 - 77.0	Cement Grout	0 - 69.5
I2-12	Existing	2/4/2001	77.0	3N	2E	36		NW	NW	4.25	88.5	2	72.0	72.0 - 77.0	Cement Grout	0 - 69.5
I2-13	Existing	2/8/2001	82.0	3N	2E	36		NW	NW	4.25	82.0	2	72.0	72.0 - 82.0	Cement Grout	0 - 70.0
I2-14	Existing	2/7/2001	82.0	3N	2E	36		NW	NW	4.25	82.0	2	72.0	72.0 - 82.0	Cement Grout	0 - 68.0
I2-15	Existing	2/5/2001	82.0	3N	2E	36		NW	NW	4.25	82.0	2	72.0	72.0 - 82.0	Cement Grout	0 - 70.0
I2-16	Existing	2/10/2001	82.0	3N	2E	36		NW	NW	4.25	82.0	2	72.0	72.0 - 82.0	Cement Grout	0 - 69.0
I2-17	Existing	2/12/2001	77.0	3N	2E	36		NW	NW	4.25	88.0	2	72.0	72.0 - 77.0	Cement Grout	0 - 69.5
I2-18	Existing	2/9/2005	89.0	3N	2E	36		NW	NW	4.25	89.0	2	84.0	84.0 - 98.0	Cement Grout	0 - 82.0
I3-34	Existing	5/7/2001	89.0	3N	2E	36		NW	NW	4.25	90.0	2	79.0	79.0 - 89.0	Cement Grout	0 - 76.5
I3-36	Existing	5/2/2001	93.5	3N	2E	36		NW	NW	4.25	93.5	2	83.5	83.5 - 93.5	Cement Grout	0 - 81.0
I3-37	Existing	5/5/2001	86.5	3N	2E	36		NW	NW	4.25	88.0	2	76.5	76.5 - 86.5	Cement Grout	0 - 74.0
I3-38	Existing	5/2/2001	90.0	3N	2E	36		NW	NW	4.25	93.0	2	80.0	80.0 - 90.0	Cement Grout	0 - 77.5
I3-39	Existing	5/1/2001	90.5	3N	2E	36		NW	NW	4.25	91.0	2	80.5	80.5 - 90.5	Cement Grout	0 - 78.0
I3-40	Existing	4/26/2001	91.0	3N	2E	36		NW	NW	4.25	92.0	2	81.0	81.0 - 91.0	Cement Grout	0 - 78.5
I3-41	Existing	4/22/2001	91.5	3N	2E	36		NW	NW	4.25	91.5	2	81.5	81.5 - 91.5	Cement Grout	0 - 78.0
I3-42	Existing	4/22/2001	92.0	3N	2E	36		NW	NW	4.25	92.0	2	82.0	82.0 - 92.0	Cement Grout	0 - 79.5
I3-43	Existing	5/4/2001	85.0	3N	2E	36		NW	NW	4.25	87.0	2	75.0	75.0 - 85.0	Cement Grout	0 - 72.5
I3-49	Existing	5/16/2001	91.5	3N	2E	36		NW	NW	4.25	92.0	2	81.5	81.5 - 91.5	Cement Grout	0 - 79.0
I3-50	Existing	5/9/2001	92.0	3N	2E	36		NW	NW	4.25	92.0	2	82.0	82.0 - 92.0	Cement Grout	0 - 79.5
I3-51	Existing	5/18/2001	92.5	3N	2E	36		NW	NW	4.25	94.0	2	82.5	82.5 - 92.5	Cement Grout	0 - 80.0
I3-52	Existing	6/1/2001	79.0	3N	2E	36		NW	NW	4.25	82.0	2	69.0	69.0 - 79.0	Cement Grout	0 - 66.5
I3-53	Existing	5/31/2001	79.3	3N	2E	36		NW	NW	4.25	83.0	2	69.3	69.3 - 79.3	Cement Grout	0 - 66.5
I3-54	Existing	5/23/2001	80.5	3N	2E	36		NW	NW	4.25	81.0	2	70.5	70.5 - 80.5	Cement Grout	0 - 68.0
I3-55	Existing	6/7/2001	79.5	3N	2E	36		NW	NW	4.25	82.0	2	69.5	69.5 - 79.5	Cement Grout	0 - 67.0
I3-56	Existing	6/5/2001	77.5	3N	2E	36		NW	NW	4.25	82.0	2	67.5	67.5 - 77.5	Cement Grout	0 - 65.0
I3-57	Existing	5/21/2001	80.0	3N	2E	36		NW	NW	4.25	88.0	2	70.0	70.0 - 80.0	Cement Grout	0 - 67.5
I3-58	Existing	6/4/2001	79.0	3N	2E	36		NW	NW	4.25	82.0	2	69.0	69.0 - 79.0	Cement Grout	0 - 66.5
I3-59	Existing	6/1/2001	79.5	3N	2E	36		NW	NW	4.25	80.5	2	69.5	69.5 - 79.5	Cement Grout	0 - 67.0
I3-60	Existing	6/8/2001	81.0	3N	2E	36		NW	NW	4.25	82.0	2	71.0	71.0 - 81.0	Cement Grout	0 - 68.5
I3-62	Existing	6/24/2001	86.5	3N	2E	36		NW	NW	4.25	88.0	2	76.5	76.5 - 86.5	Cement Grout	0 - 74.0
I3-63	Existing	6/22/2001	87.0	3N	2E	36		NW	NW	4.25	90.0	2	77.0	77.0 - 87.0	Cement Grout	0 - 74.5
I3-64	Existing	6/27/2001	84.5	3N	2E	36		NW	NW	4.25	86.0	2	74.5	74.5 - 84.5	Cement Grout	0 - 72.0
I3-65	Existing	6/20/2001	86.0	3N	2E	36		NW	NW	4.25	87.0	2	76.0	76.0 - 86.0	Cement Grout	0 - 73.5
I3-66	Existing	6/26/2001	85.5	3N	2E	36		NW	NW	4.25	88.0	2	75.5	75.5 - 85.5	Cement Grout	0 - 72.5
V0-12	Existing	5/10/2005	88.5	3N	2E	36		NW	NW	4.25	90.0[1]	2	88.5	78.0 - 88.0	Cement Grout	0 - 76.5
V0-13	Existing	5/6/2005	88.5	3N	2E	36		NW	NW	4.25	90.0	2	88.5	78.0 - 88.0	Cement Grout	0 - 76.5
V0-14	Existing	5/5/2005	89.0	3N	2E	36		NW	NW	4.25	90.0	2	89.0	78.5 - 88.5	Cement Grout	0 - 77.0
V0-15	Existing	5/3/2005	89.0	3N	2E	36		NW	NW	4.25	90.0	2	89.0	78.5 - 89.5	Cement Grout	0 - 77.0
VO-16	Existing	5/2/2005	88.0	3N	2E	36		NW	NW	4.25	90.0	2	88.0	78.0 - 88.0	Cement Grout	78.0-88 .0
VO-17	Existing	5/1/2005	90.5	3N	2E	36		NW	NW	4.25	90.0	2	90.5	80.5 - 90.5	Cement Grout	78.0 - 90.5
VO-18	Existing	4/29/2005	88.0	3N	2E	36		NW	NW	4.25	90.0	2	88.0	78.0 - 88.0	Cement Grout	77.0 - 88.0
VO-19	Existing	5/3/2005	89.0	3N	2E	36		NW	NW	4.25	90.0	2	89.0	79.0 - 89.0	Cement Grout	0 - 79.0
VO-20	Existing	5/2/2005	87.0	3N	2E	36		NW	NW	4.25	90.0	2	87.0	77.0 - 87.0	Cement Grout	75.0 - 77.0
VO-21	Existing	4/30/2005	89.0	3N	2E	36		NW	NW	4.25	90.0	2	89.0	79.0 - 89.0	Cement Grout	78.0 - 89.0
VO-22	Existing	4/29/2005	89.0	3N	2E	36		NW	NW	4.25	90.0	2	89.0	79.0 - 89.0	Cement Grout	77.0 - 89.0
VO-23	Existing	4/28/2005	89.0	3N	2E	36		NW	NW	4.25	90.0	2	89.0	79.0 - 89.0	Cement Grout	77.0 - 89.0
VO-24	Existing	4/27/2005	87.0	3N	2E	36		NW	NW	4.25	90.0	2	87.0	77.0 - 87.0	Cement Grout	75.0 - 87.0
VO-25	Existing	4/28/2005	87.8	3N	2E	36		NW	NW	4.25	90.0	2	87.8	77.8.0 - 87.8	Cement Grout	76.0 - 88.0
VO-26	Existing	4/27/2005	90.0	3N	2E	36		NW	NW	4.25	90.0	2	90.0	80.0 - 90.0	Cement Grout	78.0 - 90.0

See footnotes at end of table.

Table 1 (cont.)

Monitoring Well Identification	Type of Well	Installation Date	Total Depth (feet)	Location of Well						Well Bore		Well Casing		Screen Interval (feet)	Surface Seal	
				Township	Range	Section	1/4	1/4	1/4	Diameter (inches)	Depth (feet)	Diameter (inches)	Depth (feet)		Type	Interval (feet)
Breckenridge Subdivision Property - Off site																
VO-11	Existing	9/12/2002	50.5	3N	2E	25		SE	SW	4.25	50.5	2	40.5	40.5 - 50.5	Cement Grout	0 - 38.0
VO-27	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-28	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-29	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-30	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-31	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-32	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-33	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-34	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-35	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-36	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-37	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-38	Proposed[1]	TBD	50.0	3N	2E	25		SE	SW	4.25	50.0	2	40.0	40.0 - 50.0	Cement Grout	0 - 38.0
VO-39	Existing	6/2/2005	49.5	3N	2E	25		SE	SW	4.25	50.0	2	49.5	39.0 - 49.0	Cement Grout	0 - 37.5
VO-40	Existing	6/1/2005	45.5	3N	2E	25		SE	SW	4.25	50.0	2	45.5	35.0 - 45.0	Cement Grout	0 - 33.0
VO-41	Existing	6/2/2005	47.0	3N	2E	25		SE	SW	4.25	50.0	2	47.0	36.5 - 46.5	Cement Grout	0 - 34.5
VO-42	Existing	6/3/2005	46.0	3N	2E	25		SE	SW	4.25	50.0	2	46.0	35.5 - 45.5	Cement Grout	0 - 34.0
VO-43	Existing	6/6/2005	46.5	3N	2E	25		SE	SW	4.25	50.0	2	46.5	36.0 - 46.0	Cement Grout	0 - 34.0
VO-44	Existing	6/7/2005	46.5	3N	2E	25		SE	SW	4.25	50.0	2	46.5	36.0 - 46.0	Cement Grout	0 - 34.0

Footnotes:

[1] Well depths and screened intervals for the proposed wells are approximate and will be based on field conditions encountered at the time of installation.

[2] TBD indicates to be determined

Appendix B

List of Monitored Wells

Appendix B - List of Monitored Wells
Groundwater Monitoring and Bioremediation Monitoring
A-Zone (and B-Zone) Wells
Semi-annual Sampling Unless Noted

Area 4 A-Zone Wells

MW-37A
MW-38A
MW-39A
MW-40A
MW-41A
MW-42A
MW-44A

Area 3 A-Zone Wells

MW-24A
MW-28A
MW-29A
MW-30AA
MW-31A
MW-32A
MW-34A
MW-35A

Area 3 A-Zone BMP-Specific Wells

VO-27
VO-38
VO-41

Area 2 A-Zone Wells

MW-21A
MW-22A
MW-25A
OW-SS5A

Area 1 A-Zone Wells

RW-1 (MW-9)
RW-3
RW-4
RW-5
RW-6
RW-7 (MW-1A1)
MW-5
MW-6
MW-7
MW-11
MW-16A
MW-20A
OW-SS3A
OW-SS4A

Area 1 A-Zone BMP-Specific Wells

I2-17 (I2-15 is an alternate)
I3-38
I3-57 (I3-54 is an alternate)

Area 1 B-Zone Wells

MW-1B
MW-2
MW-3
MW-8
MW-10
MW-12
MW-16B
MW-17B
MW-18B

Appendix C

MotivePower Water Sampling Field Data Sheet

MotivePower
Water Sampling Field Data

Well # _____

Date _____ **Sampled By: _____**

_____

Initial Static Water Level from MP: _____ at _____
Total Depth from MP: _____
Pumping Method Used: _____
Time Pump Turned On: _____ Off: _____
Flow Rate Range: _____
Total Gallons Purged: _____
Time Well Sampled: _____ Duplicate Taken: _____

Time	Temp C	Cond	pH	DO	ORP	Meas. Flow Rate	Adjust Flow Rate	Manual Water Level	Comments

Additional Natural Attenuation Field Measurement Results

Ferric Iron ppm = Total Fe____- Ferrous Fe____= Ferric Fe_____

Sulfate _____

Comments:_____

_____

_____

_____

Appendix D

Example Sample Label

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certified Lab Affidavit

For VAP certified laboratories to attest to certified data under OAC 3745-300-13(N) and OAC 3745-300-04(A). (Note that Ohio EPA is to receive a legible copy of the CL's affidavit. The entity that was provided the CL's submission under affidavit may retain the CL's affidavit original.)

TestAmerica Laboratories, Inc.

State of *Tennessee*)
) ss:
County of *Davidson*)

I, *Ryan Fitzwater*, being first duly sworn according to law, state that, to the best of my knowledge, information and belief:

1. I am an adult over the age of eighteen years old and competent to testify herein.

2. I am employed by *TestAmerica Nashville* as a *Project Manager*. I am authorized to submit this affidavit on behalf of the laboratory.

3. The purpose of this submission is to support a request for a no further action letter or other aspects of a voluntary action, under Ohio's Voluntary Action Program (VAP) as set forth in Ohio Revised Code Chapter 3746 and Ohio Administrative Code (OAC) Chapter 3745-300.

4. *TestAmerica Nashville* performed analyses for *TA North Canton* for a voluntary action at submitted by Duke Energy.

5. This affidavit applies to and is submitted with the following information, data, documents or reports for the property:

Document ID	Date of Document
NUF1693	*9/16/11*

6. *TestAmerica Nashville* was a VAP certified laboratory pursuant to OAC 3745-300-04 when it performed the analyses referenced herein.

7. The analyses under this affidavit consist of certified data, as described by OAC 3745-300-04.

8. Unless otherwise described in this paragraph, *TestAmerica Nashville* performed the analyses within its current VAP certification. The laboratory was certified for each analyte, parameter group and method used at the time that it performed the analyses. The analyses were performed consistent with the laboratory's standard operating procedures and quality assurance program plan as approved under OAC 3745-300-04.

9. The information, data, documents and reports identified under this affidavit are true, accurate and complete.

Further affiant sayeth naught.

Signature of Affiant

Sworn to before me and subscribed in my presence this 16th day of September, 2011.

Notary Public

2960 Foster Creighton Drive Nashville, TN 37204 tel 615.726.0177 fax 615.726.34

P.O. Box 1160
Beaver, WV 25813
800-256-3950 • 304-255-3900
Quality Environmental Containers

PROJECT NAME

SAMPLE ID | SAMPLE DATE

SAMPLED BY | SAMPLE TIME

PRESERVATIVE | ___ GRAB

ANALYSIS REQUESTED | ___ COMPOSITE

Appendix E

Example Chain-of-Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Nashville Division
2960 Foster Creighton
Nashville, TN 37204

Phone: 615-726-0177
Toll Free: 800-765-0980
Fax: 615-726-3404

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?

Compliance Monitoring? Yes ____ No ____

Enforcement Action? Yes ____ No ____

Client Name/Account #: _____

Address: _____

City/State/Zip: _____

Project Manager: _____

Telephone Number: _____ Fax No.: _____

Sampler Name: (Print) _____

Sampler Signature: _____

Site State: _____

PO#: _____

TA Quote #: _____

Project ID: _____

Project #: _____

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	Preservative: HNO_3 (Red Label)	Preservative: HCl (Blue Label)	Preservative: NaOH (Orange Label)	Preservative: H_2SO_4 Plastic (Yellow Label)	Preservative: H_2SO_4 Glass(Yellow Label)	Preservative: None (Black Label)	Preservative: Other (Specify)	Matrix: Groundwater	Matrix: Wastewater	Matrix: Drinking Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify):	Analyze For:											RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report

Special Instructions:

Method of Shipment: FEDEX

Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by TestAmerica:	Date	Time

Laboratory Comments:

Temperature Upon Receipt:

VOCs Free of Headspace? Y N

Appendix F

Laboratory Statement of Qualifications

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Statement of Qualifications

TestAmerica Laboratories, Inc.
2960 Foster Creighton Drive
Nashville, TN 37204

Bosco Ramirez
Laboratory Director

Phone (800) 765.0980
Fax (615) 726.3404

July 2011

INTRODUCTION – NASHVILLE DIVISION

The TestAmerica Laboratories, Inc. Nashville Division has been serving environmental consulting/engineering, industrial, and government clients since 1980. The laboratory, operating as Specialized Assays, Inc., grew to be one of the premier environmental laboratories in the United States by the mid-1990s. TestAmerica, Inc. acquired Specialized Assays in late 1998 adding to its already expansive laboratory network to secure a top position in the environmental laboratory industry.

Services and Capabilities

The Nashville Division of TestAmerica provides our clients value-added services such as customized sampling kits, pre-paid overnight shipping of samples to our laboratory, customized electronic deliverables, and access to your laboratory data in a PDF, ASCII or EXCEL file via our TestAmerica website. The Nashville Division of TestAmerica occupies 48,000 square feet and maintains an extensive inventory of state-of-the-art laboratory equipment. Analytical instruments are directly linked to a laboratory information management system (LIMS), enabling electronic capture of all data required to produce analysis and quality assurance reports. Our 140 highly skilled and devoted staff uses the LIMS to monitor holding times and insure client-specific action or permit levels are achieved. Accurate and defensible scientific information is obtained through the application of chemistry and a rigorous quality control program. The Nashville laboratory holds certifications in States coast to coast for environmental laboratory analyses, as well as being NELAC, AIHA, and A2LA accredited.

Analytical Capabilities

TestAmerica Nashville has the capability to analyze a variety of matrices including: water, wastewater, soil, hazardous wastes, air, and industrial hygiene samples. TestAmerica Nashville is a full-service environmental laboratory providing comprehensive analytical services for:

- *RCRA and CERCLA compliance testing for air, groundwater, soil and waste*
- *TCLP Analysis and Fingerprint Characterization*
- *Underground Storage Tank assessment as per state agency requirements*
- *Wastewater testing for NPDES and pretreatment agreement compliance*
- *Landfill groundwater and leachate monitoring*
- *Priority Pollutants and stormwater run-off testing*

Laboratory Summary

Laboratory Director
Bosco Ramirez
615.726-0177; 708-704-0085
Bosco.Ramirez@TestAmericainc.com

Quality Assurance Manager
Michael Dunn
Mike.Dunn@TestAmericainc.com

Technical Manager
James D. Carmichael,
Jamey.Carmichael@TestAmericainc.com

Glenn Norton, Volatile Organics
Glenn.Norton@TestAmericainc.com

Rodney Street, Metals
Rodney.Street@TestAmericainc.com

Regional Director, Sales and Marketing
Mark Miller
615.804.9524
Mark.Miller@TestAmericainc.com

Project Management
Andy Johnson
Andy.Johnson@TestAmericainc.com

Gail Lage
Gail.Lage@TestAmericainc.com

Ryan Fitzwater
Ryan.Fitzwater@TestAmericainc.com

Roxanne Connor
Roxanne.Connor@TestAmericainc.com

Capabilities

Hazardous Waste
Assessments
UST
RCRA
Effluent Monitoring
NPDES
Brownfields Program
Landfill Monitoring
ASTM
Drinking Water
ASTM
NIOSH

Data Deliverables / Management

LIMS production by Promium Element

Data deliverables in all major electronic data formats available

Data Deliverables in multiple reporting levels including full validation packages

Instrumentation

3 x ICP
35 x GC/MS
4 x HPLC
60 x GC
2 x UV/VIS
4 x Hg
4 x TOX
65 Position TCLP Extractor
12 x ZHEs
4 x Wet Chem Auto Analyzer
6 x Ion Chromatograph
1 x ICPMS

Summary of State Certifications

Alabama	New Jersey
Alaska	New York
Arkansas	North Carolina
Arizona	North Dakota
California	Ohio
Colorado	Oklahoma
Connecticut	Oregon
Florida	Pennsylvania
Illinois	Rhode Island
Iowa	South Carolina
Kansas	Tennessee
Kentucky	Texas
Louisiana	Utah
Maryland	Virginia
Massachusetts	Washington
Minnesota	West Virginia
Mississippi	Wisconsin
Nevada	Wyoming
New Hampshire	

Summary of Additional Accreditations

AIHA – Metals

NELAP

A2LA

CALA

Laboratory Size

Total Square Feet 46,000

Personnel

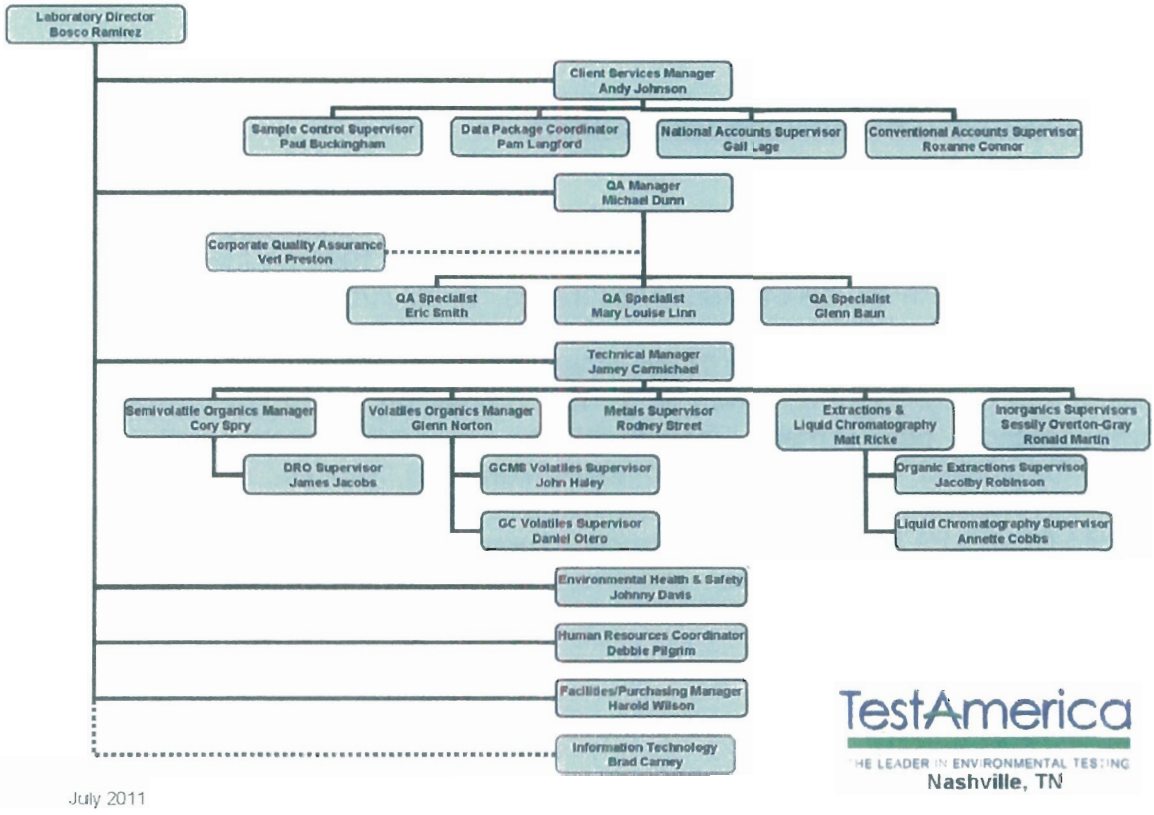
Total	122
Technical	80
Administrative	22

Organization

TestAmerica Laboratories, Inc. consists of 39 laboratories throughout the United States. Corporate offices are located in North Canton, Ohio.

TestAmerica Nashville is staffed with professionals of varying levels and types of education and certifications, including Chemists, Biologists, and Certified Laboratory Technicians

The organizational structure of the Nashville Division of TestAmerica Laboratories is outlined below. Following the organization chart are professional summaries for laboratory management.



July 2011

NASHVILLE RESUME SUMMARY

Laboratory Director, Bosco Ramirez

Bosco Ramirez is a dedicated professional with 22 years experience in technical operations and management of environmental testing laboratories. His leadership and management roles are a function of his technical depth and breadth and his major strengths in laboratory operations and business management, technical staff management, quality assurance, environmental testing/analyses and business development.

Technical Manager, James D. Carmichael

Mr. Carmichael has a B. S. in Biochemistry from Auburn University. He has served as the Nashville lab's Technical Manager since July 2011. Prior experience includes Semivolatile organics operation manager, preventive maintenance supervisor, supervision of GC extractable organics departments, and GC/GCMS analyst. Present duties include method development, instrumentation evaluation/recommendations/repair, support for project management and

sales/marketing, process optimization, SOP revision/development, analyst training, data review. He has been with the Nashville lab since 1995.

Quality Assurance Manager, Michael H. Dunn

Mr. Dunn has a B. S. and a M.S. in Chemistry from Middle Tennessee State University. He served as the Nashville lab's Technical Director since 1996 and for many of those years, he was also in charge of Quality Assurance. In July 2011, he was named Quality Assurance Manager. Prior experience included supervision of organic and inorganic departments, lab management at Textron Aerostructures, technical service chemist at Supelco, and performing microanalysis for the Tennessee Crime Lab. Present duties include method development, instrumentation evaluation/recommendations/repair, support for project management and sales/marketing, process optimization, SOP revision/development, analyst training, data review, and Operational Management of the Inorganic Chemistry Department. Mike also serves as one of the Technical contacts for the TestAmerica Best Practice initiative which seeks out method and analytical improvements and assists in implementation throughout the company. He has been with the Nashville lab since 1991.

Additional Information

This document provides an overview of TestAmerica Laboratories, Inc. Nashville. For more detailed information about TestAmerica, please contact the Nashville laboratory at – 1-800.765.0980 or (615) 726.0177 or visit our website at www.TestAmericaInc.com.