APPENDIX A
HYDROGEOLOGICAL CHARACTERIZATION – SUMMARY OF FIELD ACTIVITIES

Appendix A

SAMPLING AND ANALYSIS PLAN PROCEDURES
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BLACK MOUNTAIN INDUSTRIAL COMPLEX
EAST LAKE MEAD PARKWAY
CLARK COUNTY, NEVADA

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1.0 INTRODUCTION

This report serves to outline the field procedures followed during the implementation of a hydrogeologic characterization sampling and analysis plan (SAP) prepared for the Titanium Metals Corporation (TIMET) in support of accelerated work at the TIMET facility (hereafter referred to as the Plant Site). In a letter to TIMET dated December 11, 2003, the State of Nevada, Division of Environmental Protection (NDEP) requested that accelerated work be performed at the TIMET facility to identify and characterize site-related chemicals in groundwater at the site boundary and their migration on and downgradient from the Plant Site and the Pabco Road Ponds Area (NDEP 2003).

The TIMET Project Team prepared a draft SAP, consisting of a field sampling plan and a quality assurance project plan (QAPP) in an integrated format, on October 24, 2004. NDEP issued review comments to the draft SAP on November 14, 2004. TIMET replied to the NDEP letter on January 6, 2005 providing further explanation and proposing revision to the sampling design. NDEP followed-up with a response letter on January 10, 2005. Outstanding comments and technical issues were discussed during a telephone conference and documented by NDEP in the January 19, 2005 minutes. A draft final SAP dated May 16, 2005 was then prepared to incorporate revisions based upon negotiations with the NDEP and additional information obtained from a BRC hydrogeologic investigation that had been completed at that time. The draft final SAP was approved by the NDEP in correspondence dated June 10, 2005 with the understanding that a few issues remained to be discussed prior to the implementation of field work. These issues were addressed during a telephone conference and documented by NDEP in the June 8, 2005 minutes.

The May 16, 2005 sampling and analysis plan proposed the installation of four additional groundwater monitoring wells, eight piezometers, fourteen soil borings, and the performance of hydraulic conductivity testing on selected on and off-site wells. Also included was the collection of soil samples and groundwater samples for analysis. Field work was conducted between December 5, 2005 and May 3, 2006, the details of which are provided herein.

2.0 INVESTIGATION TIMELINE AND METHODS

This section describes the remedial investigation activities conducted as part of the accelerated work at the TIMET Plant Site between December 5, 2005 and May 3, 2006. The following field activities were conducted as part of the hydrogeologic characterization:

- Installed eight groundwater piezometers at the Plant Site boundary (Figure 1) from December 6, 2005 through December 10, 2006.

- Installed four groundwater monitoring wells on the Plant Site (Figure 1) from December 10 through December 13, 2005.

- Advanced thirteen soil borings in potential source areas at the Plant Site (Figure 1) from January 9, 2006 through January 13, 2006.

- Conducted well development and hydraulic tests at a select list of Plant Site and off-site wells (Figure 2) in the weeks of January 30, 2006; March 6, 2006; and March 13, 2006.

- Measured water levels in the Qal aquifer at existing and new wells at the Plant Site and selected off-site existing wells (Figures 3 and 4, respectively) from April 19, 2006 through May 3, 2006.

- Collected groundwater samples from monitoring wells installed at the Plant Site and selected existing off-site wells (Figures 3 and 4 respectively) from April 19, 2006 through May 3, 2006.

- Measured survey coordinates at existing and new sampling locations on the Plant Site (Figure 1) on May 10, 2006.

2.1 EQUIPMENT DECONTAMINATION

Reusable sample collection equipment was thoroughly decontaminated before work began and between installation of each soil boring as well as between collection of samples from each location. Decontamination of the equipment followed general practices listed in the Standard Operating Procedures (SOPs) included in the final draft SAP. A portable steam cleaner and an on-site source of potable water were used for decontamination, and water derived from decontamination was collected and temporarily stored on site for characterization. An on-site source of potable water for the steam cleaner was used. No other equipment required decontamination.

2.2 INVESTIGATION-DERIVED WASTE MANAGEMENT

Minimal quantities of Investigation-Derived Waste (IDW) were generated during this investigation. IDW included soil cuttings from drilling activities, purge water and pump-test water from groundwater monitoring wells, and wastewater from decontamination procedures and collection of equipment rinsate samples.

Drilling mud cuttings were containerized during drilling and development. Soil and water phases of the drilling mud cuttings were separated by gravity. One composite IDW soil sample was obtained from soils

accumulated in drums at the drilling site. The soil sample was analyzed for metals by the toxicity characteristic leaching procedure (TCLP), VOCs, and radionuclides. After the IDW soil sample was analyzed and results were received, soil cuttings were disposed of in the J-2 Landfill on the Plant Site. Decanted water was transported to the Plant Site evaporation ponds for disposal.

Purge water and wastewater generated during this investigation were added to evaporation ponds located on the Plant Site. Water was disposed of in a drain which terminates in the evaporation ponds as directed by TIMET personnel.

2.3 DOCUMENTATION OF FIELD ACTIVITIES

Bound field notebooks with consecutively numbered, water-repellent pages were used to record field activities. Each logbook was clearly identified with the name of the activity and the dates of the entries. Field notes were recorded in the field logbook or on daily log sheets.

The field logbooks served as the primary record of field activities. Logbooks were written to allow a reviewer to reconstruct applicable events by introduction of entries in chronological order. The logbooks were maintained in a clean area and used only when outer gloves had been removed.

Information recorded in the logbooks included the following:

- Daily equipment calibration
- Daily Health and Safety Meetings
- Descriptions of sampling or other procedures

The field manager conducted a daily technical review of the logbook.

In addition to the field logbook, the field team also used the field forms included in Appendix A to record field activities.

2.4 PHOTOIONIZATION FIELD TESTING

As part of the investigation, soil samples were field analyzed for volatile organic compounds (VOCs) utilizing a Photovac MicroTIP™ photoionization detector (PID). Samples were collected utilizing a drill

rig with a split spoon sampler or in a cylindrical bag. Prior to transferring the soil from the split spoon sampler or bag to the laboratory provided sample jars, the sample was analyzed for VOCs utilizing the PID. Depending on the PID results, it was then determined whether the sample would be analyzed by the laboratory for VOCs. PID results are included on the lithologic logs included in Appendix B of this report.

2.5 X-RAY FLUORESCENCE FIELD TESTING

The following subsections discuss X-Ray Fluorescence Testing that was performed in the field as part of the hydrogeological investigation.

2.5.1 Purpose

Soil samples were collected as part of the hydrogeological investigation conducted at the TIMET facility. These soil samples were analyzed for total metals. In an effort to streamline and focus the investigation, all soil samples were screened for total metals using field-portable x-ray fluorescence (XRF) spectroscopy. This technique has gained widespread acceptance as a method of evaluating the nature and extent of select metals in soils, and data obtained from XRF has successfully been used in decision-making on many environmental sites. The primary purpose for analyzing the TIMET hydrogeological soil samples using XRF was to limit the number of soil samples analyzed by the off-site fixed laboratory; thereby reducing the overall expense of shipment, analysis, and management of fixed-laboratory data for all soil samples. A secondary objective was to evaluate whether XRF can be effectively used to guide subsequent soil investigations based on correlations between XRF data and fixed-laboratory analytical data. The fixed-laboratory that conducted all other analyses was Paragon Analytics, Inc., (Paragon) of Fort Collins, Colorado (a NDEP-approved laboratory)

2.5.2 Instrument and Technology

XRF spectroscopy is an analytical technique that exposes a sample (in this case, soil) to an x-ray source that has the appropriate excitation energy to cause elements in the sample to emit characteristic x-rays. A qualitative elemental analysis is possible from the characteristic energy, or wavelength, of the fluorescent x-rays emitted. A quantitative elemental analysis is possible from the number (intensity) of x-rays at a given wavelength.

The XRF instrument used in the TIMET hydrogeological investigation was a Model 722S hand-held XRF analyzer manufactured and distributed by Thermo Scientific (Niton). The XRF analyzer consisted of three major components: (1) a source that generates x-rays (radioisotope or x-ray tube); (2) a detector that converts x-rays emitted from the sample into measurable electronic signals; and (3) a data processing unit that records the emission or fluorescence energy signals and calculates the elemental concentrations in the sample. The Model 722S used two radioactive sources to generate the x-rays for excitation: Am-241 and Cd-109. The combination of these sources allowed for a wider suite of metals to be analyzed.

The TIMET site-related chemicals list is a comprehensive list of metals, which may or may not be effectively measured by XRF. XRF measurements were recorded for a total of 26 metals. The table below shows the total list of metals for which measurements were captured and identifies which total metals were also analyzed by Paragon.

Metals measured in field by XRF	**Metals measured in Lab by ICP, ICP/MS and CVAA**	**Common analytes between field and lab measurements**
Antimony, arsenic, barium, cadmium, cesium, chromium, cobalt, copper, europium, iron, lanthanum, lead, manganese, mercury, molybdenum, nickel, palladium, rubidium, selenium, silver, strontium, tellurium, tin, uranium, zinc, and zirconium	Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, thallium, titanium, uranium, vanadium, and zinc	Antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, uranium, and zinc

Notes:

CVAA Cold vapor atomic absorption
ICP Inductively coupled plasma
ICP/MS Inductively coupled plasma/mass spectrometry

Seventeen metals were measured in both settings (field and laboratory).

2.5.3 Field Sample Prep and Analysis

All soil boring samples were delivered to the staging area immediately after collection. At the staging area, PID readings for VOCs and lithologic logging were conducted as discussed in Section 2.4 above and Sections 3.1 and 4.1 below. Soil samples from all intervals were then homogenized by mixing in stainless steel containers. During sub-sampling of the homogenized interval of soil for all non-volatile laboratory testing, about 100 grams of soil were placed into individual zippered plastic baggies and labeled with the field ID number. These bagged samples were set aside for XRF analysis.

Preparation of samples for XRF analysis can be as simple as no preparation (in-situ analysis) or extensive preparation that may include drying, particle size reduction, homogenization, and sieving. To determine the level of preparation required for the hydrogeological soil samples, the condition of the soil matrix was evaluated. The soil matrix was generally a dry, sandy matrix with little clay and few cobbles, so no additional drying or particle size reduction was required. Because the project objectives were to measure total metals and not respirable metals (60-mesh or smaller particles), no sieving was required. As such, homogenization was the only preparation step conducted on the hydrogeological soil samples. The final sample container used during XRF analysis was the plastic zippered baggie. Soil sampling was conducted during the period between December 2005 and January 2006.

The Niton-722S instrument was factory-calibrated for the suite of analytes of interest. Analysis was generally conducted on the same day as it was sampled from the boring. At the start of each day of operation, the instrument was turned on and allowed to warm up for at least 30 minutes prior to conducting the auto-calibration check. A Teflon® block (blank matrix) and high and low check samples were analyzed initially and periodically during the daily run. Samples were analyzed by placing the instrument window against the flattened baggie containing the soil sample. Two successive measurements were taken for each sample (one for each of the radioactivity sources). The readings were recorded in an electronic file imported to Microsoft Excel®. The records were subsequently loaded into the TIMET database for the hydrogeological investigation. Upon initial review of the analytical data, it was noted that the instrument was not capturing total uranium measurements. As such, samples were reanalyzed in July 2006 to obtain measurements for total uranium.

XRF measurements and results from the laboratory were evaluated. Data evaluation, correlations, and conclusions will be presented in the Conceptual Site Model (CSM) that is due to the NDEP in April of 2007.

2.6 SAMPLE HANDLING AND CUSTODY PROCEDURES

This section describes sample handling procedures, including sample identification and labeling, documentation, chain-of-custody, and shipping.

2.6.1 Sample Identification

A unique sample identification number was assigned to each sample collected during this project. The sample identification numbering system was designed to be compatible with a computerized data management system that includes previous results for samples collected at this site. The sample numbering system allows each sample to be uniquely identified and provides a means of tracking the sample from collection through analysis. The numbering system indicates the site abbreviation, sampling type and the location number. For the soil boring samples, a number was added to specify the position of the sample in the vertical sequence. The numbering scheme is illustrated below.

Site:	TM – TIMET
Sampling Activity:	SB – soil sample collected from a boring MW – groundwater sample collected from a monitoring well
Specific Sample Location:	Specific sample locations were numbered consecutively for each specific sampling activity
Sample Depth:	For soil samples only, the sample depth was indicated by the depth of the bottom of the interval (for example, 9 to 10 feet was designed "10")

Field quality control samples for this investigation were limited to field duplicate samples for groundwater samples, trip blanks for VOC samples, equipment rinsates for each sampling equipment type, and source water blanks. One source water blank was collected for each source of water used at the site. As the only means of decontamination was steam cleaning (all other sampling equipment was disposable), one blank was collected from the on-site water source that was used during the event. This blank was designated as "source blank" sample identification number at the time it was collected. One equipment rinsate per day was collected from the drilling equipment. The equipment rinsate blanks were identified as "ER" followed by a consecutive number (starting with 101). No special requirements for nomenclature applied to these samples.

2.6.2 Sample Handling

A sample label was affixed to all sample containers. The labels were completed with the following information written in indelible ink:

- Project name and location
- Sample identification number
- Date and time of sample collection
- Preservative used
- Sample collector's initials
- Analysis required

After each soil sample was labeled, it was then refrigerated or placed in a cooler that contained sufficient ice to maintain the sample temperature at 4 ± 2 °C for every analysis type, except for radionuclide soil sample jars.

The following procedures (outlined in SOP 019 in the May 16, 2005 draft final SAP) were implemented when samples collected during this project were shipped:

- The cooler was filled with bubble wrap, sample bottles, and packing material. Sufficient packing material was used to prevent sample containers from breaking during shipment. Enough ice was added to maintain the sample temperature of 4 ± 2 °C.
- The chain-of-custody records were placed inside a plastic bag. The bag was sealed and taped to the inside of the cooler lid. The air bill, if required, was filled out before the samples were handed over to the carrier. The laboratory was notified if the sampler suspected that the sample contained any substance that would require laboratory personnel to take safety precautions.
- The cooler was closed and taped shut with strapping tape around both ends. If the cooler had a drain, it was taped shut both inside and outside of the cooler.
- Signed and dated custody seals were placed on the front and side of each cooler. Wide clear tape was placed over the seals to prevent accidental breakage.
- The chain-of-custody record was transported within the taped sealed cooler. When the cooler was received at the analytical laboratory, laboratory personnel opened the cooler and signed the chain-of-custody record to document transfer of samples.

2.6.3 Sample Custody

Standard sample custody procedures were used to maintain and document sample integrity during collection, transportation, storage, and analysis. A sample was considered to be in custody if one of the following statements applied:

- It was in a person's physical possession or view.
- It was in a secure area with restricted access.
- It was placed in a container and secured with an official seal such that the sample could not be reached without breaking the seal.

Chain-of-custody procedures provide an accurate written record that traces the possession of individual samples from the time of collection in the field to the time of acceptance at the laboratory. Information that the field personnel recorded on the chain-of-custody record included:

- Project name and number
- Sampling location
- Name and signature of sampler
- Destination of samples (laboratory name)
- Sample identification number
- Date and time of collection
- Number and type of containers filled
- Analysis requested
- Preservatives used (if applicable)
- Filtering (if applicable)
- Sample designation (grab or composite)
- Signatures of individuals involved in custody transfer, including the date and time of transfer
- Airbill number (if applicable)
- Project contact and phone number

Field personnel signed chain-of-custody records that were initiated in the field, and the airbill number was recorded. The record was placed in a waterproof plastic bag and taped to the inside of the shipping container used to transport the samples. Signed airbills served as evidence of custody transfer between field personnel and the courier, and between the courier and the laboratory. Copies of the chain-of-custody record and the airbill were retained and filed by field personnel before the containers were shipped.

Laboratory chain of custody began when samples were received and continued until samples were discarded. Laboratories analyzing samples for this project followed custody procedures at least as stringent as are required by the EPA CLP SOWs (EPA 1999a, 2000b). The laboratory designated a specific individual as the sample custodian. The custodian received all incoming samples, signed the accompanying custody forms, and retained copies of the forms as permanent records. The laboratory sample custodian recorded all pertinent information concerning the samples, including the persons delivering the samples, the date and time received, sample condition at the time of receipt (sealed, unsealed, or broken container; temperature; or other relevant remarks), the sample identification numbers, and any unique laboratory identification numbers for the samples. This information was entered into a computerized LIMS. When the sample transfer process was complete, the custodian was responsible for maintaining internal logbooks, tracking reports, and other records necessary to maintain custody throughout sample preparation and analysis.

The laboratory provided a secure storage area for all samples. Access to this area was restricted to authorized personnel. The custodian ensured that samples requiring special handling, including samples that were heat- or light-sensitive, radioactive, or had other unusual physical characteristics, were properly stored and maintained prior to analysis.

2.6.4 Sample Shipping

After samples were packed, and the chain of custody documentation completed, the coolers were transported to a FedEx pick-up location or store. The samples were sent overnight for next morning delivery to Paragon Analytics in Fort Collins, Colorado.

3.0 SUBSURFACE SOIL ASSESSMENT IN SELECT PSAS

This section describes the subsurface soil assessment activities conducted at selected PSAs on the TIMET property. Assessment activities included the advancement of soil borings, collection of soil samples, and

submittal of soil samples for analysis. TIMET originally intended to advance fourteen soil borings (TMWB-113 through TMSB-126) to the groundwater table in the vicinity of select potential source areas, including (1) the Unit 11 Discharge Channel, (2) the Pioche Manganese Landfill, (3) the Rutile Off Loading Area, (4) the J2 /S-18 Landfill, (5) the Old Caustic Pond, (6) the CSD North and South Ponds, (7) historical unlined ponds, and (8) a low-lying storm water retention area. However, the advancement of TIMET soil boring TMSB-122, intended to evaluate the soil conditions in the CSD South Pond, was not attempted due to the presence of subsurface utility lines at the location at which a ramp into the pond would have been constructed. It should be noted that an attempt was made to construct a ramp to the bottom of the CSD South Pond; however, due to the presence of the utility lines, the ramp had to be constructed at a steep angle. Upon constructing the ramp, the ramp was found to be at too steep of an angle for the drill rig to safely navigate to the bottom of the CSD Pond.

The data collected during the assessment of subsurface soil in the locations of select PSAs was intended to fill a data gap between the relatively shallow soil data that has been collected in the vicinity of these potential source areas and groundwater data beneath them. Physical and chemical analyses performed are outlined in Table 1.

3.1 SOIL BORING INSTALLATION AND SAMPLING, ANALYTICAL PROCEDURES, AND ABANDONMENT

The soil borings (designated TMSB-113 through TMSB-121 and TMSB-123 through TMSB-126) were advanced by the hollow-stem auger drilling method. Split spoon samplers were driven in advance of the lead auger every five feet. The split spoons were two feet long by two inches in diameter and were lined with 6-inch brass sleeves. One aliquot was used for soil lithology characterization using the Unified Soil Classification System (USCS) and field X-Ray Fluorescence analysis. The remaining aliquots were used for soil physical properties and chemical analysis. It should be noted that additional soil samples were collected from soil boring TMSB-107 and these samples were used for measuring total organic carbon and geotechnical properties, including grain size sieved through a No. to 200 mesh sieve, bulk density, and moisture content. With the exception of four borings in which the target depths were not achieved (discussed in detail below), these boreholes were advanced to the water table at each location depicted on Figure 1.

The depth of the groundwater table was not reached while advancing soil boring TMSB-113 due to an obstruction encountered at a depth of approximately 44 feet bgs. In the opinion of the drilling contractor, the obstruction encountered in the boring was likely a large cobble. Please note that since boring TMSB-

113 was believed to have been advanced to a depth relatively close to the groundwater contact, it was determined that an additional attempt to install boring TMSB-113 was not necessary.

The depth of the groundwater table was not reached while advancing soil borings TMSB-114 and TMSB-116 due to the presence of cobble sized volcanic rock encountered just below grade. Based on field observations at the time of the drilling activities, it appeared the rock encountered had been used to construct the large-scale terraces observed in the present-day topography of the TIMET facility. Three attempts were made to advance soil boring TMSB-114 and one attempt was made to advance soil boring TMSB-116. Soil boring TMSB-114 was not able to be advanced to a depth greater than 5 feet bgs and soil boring TMSB-116 was not able to be advanced to a depth greater than 10 feet bgs.

While advancing soil boring TMSB-119, elevated concentrations of methane gas (12%-20% LEL) were recorded from the boring at a depth of 10 feet bgs. Drilling efforts were immediately suspended upon the discovery of these concentrations and dry ice was added to the boring in an effort to reduce the presence of the gas. Once the concentrations of methane gas in the boring had been reduced to acceptable levels, drilling activities were resumed. However, upon reaching a depth of approximately 15 feet bgs, an obstruction was encountered in the boring that could not be penetrated. Please note that field observations made by the drilling contractor and the on-site geologist were not able to determine the nature of the obstruction. Due to the presence of elevated methane gas concentrations observed during the first attempt to install this boring, an additional attempt was not made.

After the boreholes had been drilled to their eventual depth and the appropriate soil samples had been collected, the boreholes were abandoned. The soil borings installed within the boundaries of the J2/S-18 Landfill (TMSB-117 through TMSB-120) were abandoned with the soil cuttings generated during the advancement of the boring from the total depth of the boring to 5 feet bgs. A bentonite slurry was used to complete the abandonment of each boring in the J2/S-18 Landfill from 5 feet bgs to ground surface. The soil borings installed at the remaining locations on the Plant Site were abandoned with a bentonite slurry from the total depth drilled to ground surface.

The borehole lithologic logs and well construction logs are included as Appendix B.

4.0 GROUNDWATER MONITORING WELL AND PEIZOMETER INSTALLATION

Four new upgradient groundwater monitoring wells (designated TMMW-101 through TMMW-104) were installed at the southernmost boundary of the Plant Site to assess background conditions in groundwater and identify contaminants that may be migrating on site from upgradient sources. In addition to the four upgradient monitoring wells installed, eight downgradient piezometers (designated TMPZ-105 through TMPZ-112) were installed along the northernmost boundary of the Plant Site. The piezometers were designed to facilitate future groundwater extraction as a remedial technique, if such groundwater extraction is necessary. Physical and chemical analyses performed on soil collected from the wells and piezometers are outlined in Table 1 and Figures 1 through 4 depict the monitoring well and piezometer locations. Details concerning the drilling methods, sampling methods, analysis performed, and installation procedures for the groundwater monitoring wells and the piezometers are discussed in the sections below.

4.1 SOIL BORING INSTALLATION, SAMPLING, AND ANALYSIS PROCEDURES

The soil borings for the four upgradient monitoring wells (TMMW-101 thru TMMW-104) and the eight downgradient piezometers (TMPZ-105 thru TMPZ-112) were advanced using the rota-sonic drilling method. The use of the rota-sonic drilling method was selected so that core samples could be collected continuously thus allowing for accurate characterization of lithology, formational contacts, unsaturated zones (if any) and potential water bearing zones. The core samples were collected in 3-foot long cylindrical bags and transported from the drilling location to a sample staging area. Lithologic logging of the core soil samples was conducted subsequent to the necessary soil being removed for chemical and geochemical tests. Soil classifications followed the procedures outlined in the American Society for Testing Materials' (ASTM) document D2488-90.

Soil samples were collected for chemical and physical tests as listed in Table 1 from the four new monitoring wells and the eight piezometers installed on the Plant Site. The soil sampling methods were performed in accordance with applicable procedures set forth as outlined in SOP 005 in the May 16, 2005 draft final SAP. The subsurface soil samples were collected directly from the three foot long cylindrical core bags for the borings advanced using the rota-sonic drilling technique. Soil collected from desired depths was placed in a disposable aluminum pan and homogenized, and then transferred to the appropriate sample containers for shipment to the laboratory. Details for containerization, preservation, and holding time are presented in Table 2.

4.2 MONITORING WELL AND PIEZOMETER INSTALLATION PROCEDURES

This section describes the procedures performed during the groundwater monitoring well and piezometer installation. Drilling and monitoring well construction were conducted in accordance with Chapter 534 of the Nevada Administrative Code (NAC) titled Underground Water and Wells. Prior to beginning the well construction activities, a Notice of Intent to drill was filed with the Nevada Division of Water Resources in accordance with §534.320 by Prosonic Corporation, the Nevada licensed well driller selected to perform the work.

The four new upgradient wells (TMMW-101 thru TMMW-104) were installed subsequent to boring advancement and sampling. Well construction methods were performed as outlined in SOP 020 from the May 16, 2005 draft final SAP. After the estimated top of the saturated zone was identified (using one or more of the following: measured water levels in nearby wells, estimated degree of saturation in soil core, and observations of free water in the boring), the well was deepened until the contact with the underlying MCF was identified in the soil core.

Four-inch PVC casing and screen were installed such that screen extended from a point about 10 feet above the estimated top of the saturated zone to total depth. As drive casing was withdrawn, sand pack was placed in the annulus to a point that was approximately 2 feet above the top of the screen. A 2-foot thick hydrated sodium bentonite seal was placed on top of the sand pack and the remainder of the annulus was grouted with a neat cement-grout. The neat cement grout was pumped into the annulus with a tremie pipe from the bottom up.

Surface completions were completed as follows. For the eight piezometers, their completions were finished to 1/2-inch above surface (e.g., sloped to drain) with a water-tight locking cap inside a tamper-resistant well vault clearly marked as “Monitoring Well”. For the four monitoring wells on the southern end of the Plant Site, each well casing was equipped with a water-tight locking cap and extended 2 to 3 feet above ground surface. The casing stick-ups were enclosed in a steel surface casing (e.g., protector casing) that extended from at least 5 feet below grade to at least 1 foot above the concrete surface pad and 6-inches above the top of casing. The wells were equipped with a locking cap and each well has two identifying signs, one on the locking cap and one on the concrete completion, which state, “TIMET Monitoring Well TMMW-10_, Do Not Destroy”. A typical well completion diagram can be found in SOP 020 from the May 16, 2005 draft final SAP. At the completion of well construction, the Prosonic Corporation filed their logs and records of work.

4.3 QUATERNARY-AGE ALLUVIUM AQUIFER PIEZOMETERS

The eight piezometers installed on the northern end of the Plant Site were constructed in a manner similar to that of the monitoring wells described above with the following exceptions:

- Screen and well casing were standard water well casing, 4½ inch SDR 17, belled-end in twenty (20) foot lengths
- Joints were screwed together for strength during installation
- Piezometers fully penetrated the alluvial aquifer
- Annular materials were placed as described above
- Piezometers were completed above grade and in surface casing/protective shrouds such that no grout or concrete is in contact with the actual well casing from 3 feet bgs to grade to accommodate installation of a pitless adapter and water line in the future. To accommodate this requirement, the surface casing/protective shroud was adequately cemented in place, and in continuity with the annular grout below 3 feet bgs, such that the well was sealed.
- Surface casings/protective shrouds were installed so that in the future, they can be removed without damage to the well casing. Satisfaction of this specification was coordinated with the driller during development of final well specifications.

It should be noted that, in accordance with NAC §534.300, the piezometers cannot be converted to extraction wells until groundwater has been appropriated in accordance with Nevada Revised Statutes (NRS) §534.050. Therefore, until such appropriation is deemed necessary and requested, these wells are not intended to be used for the withdrawal of groundwater.

4.4 INTERMEDIATE TERTIARY-AGE MUDDY CREEK FORMATION

The intermediate Tertiary-Age Muddy Creek Formation wells (designated TMMW-901 through TMMW-903 in the May 16, 2005 Sampling and Analysis Plan) were neither drilled nor installed in this round of characterization. The omission of these wells from the most recent round of characterization was approved by the NDEP.

5.0 MONITORING WELL DEVELOPMENT PROCEDURES

Each newly installed monitoring well was developed during the week of January 13, 2006. Well development procedures generally followed those outlined in SOP 021 from the May 16, 2005 draft final SAP. All new monitoring wells were developed using stainless steel manual equipment initially,

followed by an electric submersible pump to surge and pump the wells. Development was considered complete when pump water was clear and free of turbidity.

After the wells were developed, they were allowed to recover to 90 percent of original static water level. For wells that yielded 2 gpm or more during development, they were pumped at stepped rates in order to determine specific capacity. A minimum of three steps (e.g., three pumping rates) were performed; pumping during each step was constant until gauged water levels become asymptotic at that discharge. Pumping rates were established based on observed yield during development. Based on these stepped pumping rates, a pumping rate for aquifer tests was selected for each well.

6.0 HYDRAULIC CONDUCTIVITY TESTING

Aquifer tests were performed on newly constructed and existing monitoring wells the weeks of March 6 and March 13, 2006. Since observation wells close enough to each pumped well were generally not available to observe drawdown at a radial distance during the tests, the available methods of aquifer testing and analysis were limited. Moreover, because of the low well yield noted during past aquifer testing, obtaining reliable drawdown data at constant flow was logistically problematic. Therefore, aquifer testing consisted of single-well constant-discharge recovery tests using Theis's recovery method for unconfined aquifers (Kruseman and de Ridder 1991).

The single well recovery tests were designed to ensure the "critical time," or the time required to eliminate casing storage effects, was significantly exceeded. Transmissivity was estimated from specific capacity data for the purpose of computing critical time. The pumping period was chosen to significantly exceed (i.e., minimum of 5-fold) the critical time. Emphasis was placed on maintaining constant discharge to the extent possible during the pumping period. Existing transmissivity estimates for the site were used to specify the minimum pumping period.

The following general protocols were followed while performing the pumping tests:

- For constant-rate pumping tests, drawdown was monitored as a function of time while the well was pumped, and recovery was monitored after the pump was shut off.
- An optimal pumping rate was selected for each well based on specific capacity tests conducted at the end of development.

- The drilling company monitored and controlled the pumping rate, as requested.
- Flow rate was measured at the start of pumping using a bucket with marked gallon increments and a stop watch. Flow rates were adjusted until the appropriate flow rate was achieved.

During testing, water levels were monitored using an electronic pressure transducer with a data logger and a hand-held electric water-level sounder. Both measurement units had the capability to measure water levels to within an accuracy of 0.01 foot. The data logger for recording transducer measurements had a memory capacity to store all measurements for the longest planned test. The transducer was set below the pump and was securely supported at least a few inches above the bottom of the well. The pump was installed as close as practical to the bottom of the well and the transducer and pump had a spacing of at least one foot. Where practical, the pump was equipped with a check valve to prevent backflow into the well after the pump was shut off. Both the pump and transducer were suspended in the well by securing them to the top of the casing and did not rest on the bottom of the well.

After the pump had been set and the discharge line had been installed, the transducer was calibrated against the water level as measured from the top of casing with the electric sounder. In addition, the data logger was set to record water level measurements at an interval of one second for the first minute, then gradually increased to one minute for the remainder of the test.

After the transducer was calibrated but before the pump was started, water levels were monitored using the transducer to evaluate equilibration. Installing the pump and transducer caused water levels to rise, and, therefore, the pump was turned on to start the test only after water levels had stabilized. To assist in evaluating equilibration and to help evaluate test results, the transducer and data logger recorded temperature as well as water level.

The constant-rate tests were commenced by starting the pump and adjusting the flow to the correct rate. During the first five minutes of the test, flow rate was measured and recorded at intervals of approximately one minute.

After the drawdown phase of testing was completed, recovery was monitored until it was at least 95 percent complete. Water levels were monitored during recovery with the transducer/data logger and hand-held electric water-level sounder. The transducer/data logger monitored water levels during recovery at the same frequency as during the drawdown phase, i.e., at one-second intervals for the first 10

minutes and at intervals of one per minute for the remainder of the test. Neither the pump nor any other equipment was removed from the well until recovery measurements were complete.

We proposed in the Sampling and Analysis Plan that wells that yielded less than 1 gpm during development and specific capacity testing were to be slug tested as slug tests are most practical at low-yielding wells where the aquifer is predominantly fine-grained and has an estimated transmissivity less than about 5 to 10 square feet per day. In this investigation, a slug test was only performed in monitoring well TMMW-102 and the test was conducted as a rising-head test (i.e. a slug-out test). Recovery was monitored after the well was drawn down as rapidly as possible using a pump (i.e., bail-down–recovery). For conducting the slug test with the pump, the pump and transducer were installed as described above for a constant-rate pump test. The well was allowed to equilibrate, and then was pumped out rapidly with the discharge valve fully open. The pump was not allowed to run dry. Water levels were monitored during the pump-out phase of the slug test, and the pump was shut off when the selected drawdown was attained. Rising water levels were monitored using an electronic pressure transducer and data logger. Supplemental measurements were made with a hand-held electric water-level sounder. The data logger was programmed to make measurements at intervals that were no greater than those described above for the constant-rate pump tests. Water-level measurements continued until at least 95 percent of drawdown was recovered. Neither the pump nor any other equipment was removed from the well until recovery measurements were complete.

The results from the hydraulic conductivity tests are anticipated to be included as part of the CSM that is due to the NDEP in April of 2007.

7.0 GROUNDWATER SAMPLING PROCEDURES

Groundwater sampling from existing and newly installed wells was performed as described in the following subsections. Monitoring well sampling was conducted from April 19, 2006 through May 3, 2006.

7.1 MONITORING WELL PURGING PROCEDURES

Monitoring wells were purged as outlined in SOP 015 from the May 16, 2005 draft final SAP. During purging, groundwater stabilization parameters were measured from direct-reading instruments for temperature, pH, specific conductance, and turbidity. Details regarding the procedures for collecting

these field-based tests were outlined in SOPs 011, 012, 013, and 088, respectively, from the May 16, 2005 draft final SAP.

7.2 MONITORING WELL SAMPLING AND ANALYSIS PROCEDURES

Groundwater from existing and newly installed wells was collected for chemical analysis of analytes listed in Table 1. Details concerning containerization, preservation, and holding times of project-specific methods are listed in Table 2.

8.0 MONITORING WELL SURVEY

A professional land surveyor, licensed by the State of Nevada, provided horizontal and vertical coordinates for all existing and new well completions. Horizontal coordinates were established using Nevada State Plane Coordinate System East Zone, North American Datum of 1983 (NAD83). Vertical elevation data conformed to the North American Vertical Datum of 1988 (NAVD88) and were reported in feet above mean sea level (msl). Survey data was merged with existing survey data in the TIMET database. The survey was completed by PBS&J Engineering on May 10, 2006. The coordinates are included in Table 3 of this report.

9.0 REFERENCES

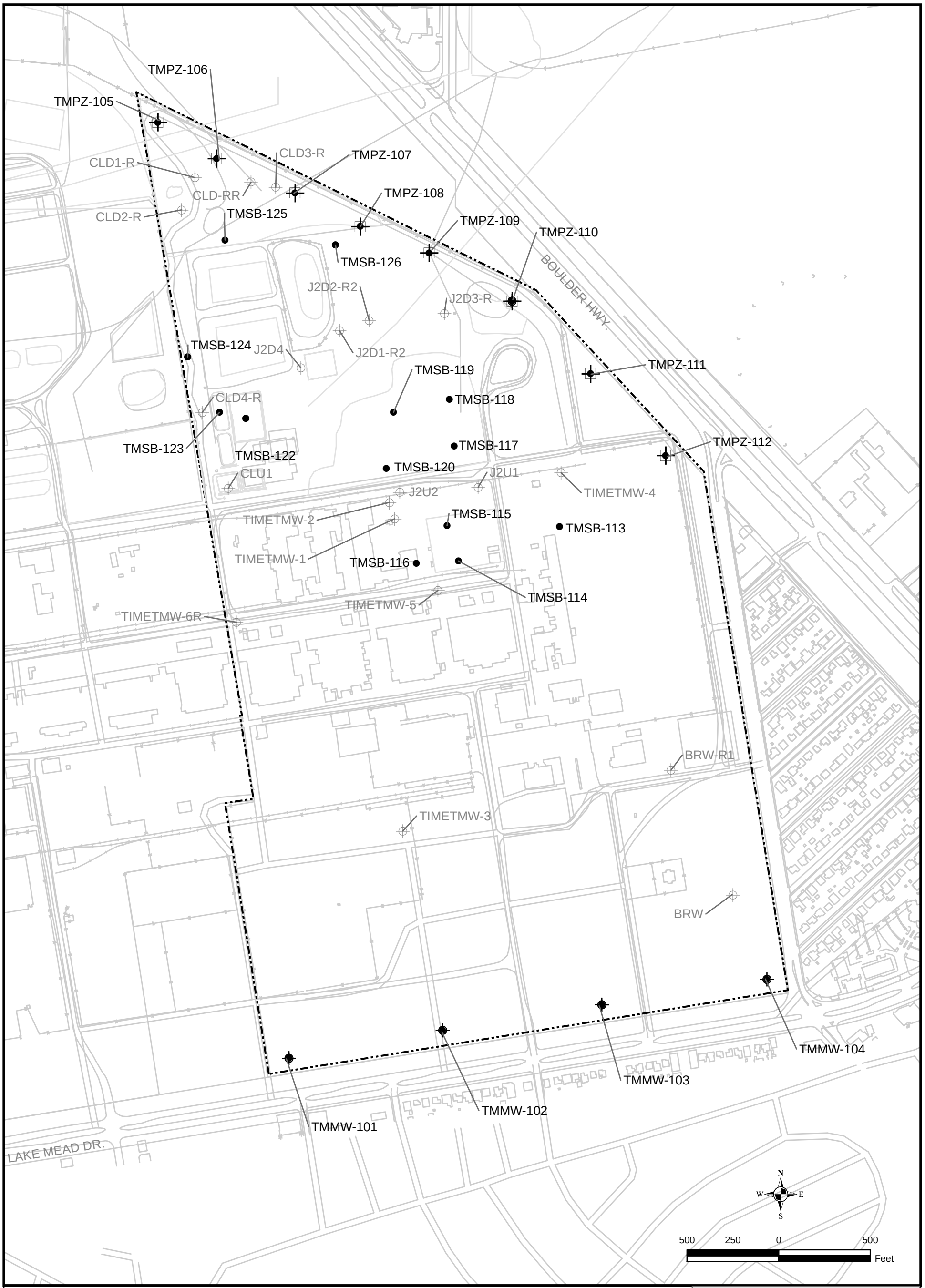
EPA. 1999a. "U.S. EPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration." Document Number OLM04.2. May.

EPA. 2000b. "U.S. EPA Contract Laboratory Program Statement of Work for Inorganic Analysis, Multi-Media, Multi-Concentration." Document Number ILM04.1. January.

Kruseman, G.P., and deRitter, N.A., 1990. Analysis and Evaluation of Pumping Test Data, 2nd Edition, International Institute for Land Reclamation and Improvement Publication 47. The Netherlands.

NDEP. 2003. Letter Regarding Review of Responses to NDEP Recommendations for Accelerated Work to Abate, Mitigate, and Eliminate Environmental Contaminants. From NDEP Bureau of Corrective Actions, Staff Engineer III, Brian Rakvica, P.E. To Titanium Metals Corporation Health, Safety, and Environmental Affairs Manager, Craig Wilkinson . December 11.

FIGURES



EXISTING ACTIVE AND UNUSED WELL LOCATIONS

PIEZOMETER LOCATIONS

SOIL BORING WITH NEW WELL LOCATIONS

NEW SOIL BORINGS

Sampling and Analysis Plan
Hydrogeologic Characterization
Titanium Metals Corporation
Henderson, Nevada

FIGURE 1
SOIL BORING AND MONITORING WELL LOCATIONS

TIMET

10/13/04 :\TIMET\SAP\MXD\FIGURE3.mxd TTEMI-MO MKH

WELL LOCATION

LOCATION OF HYDRAULIC TEST

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Sampling and Analysis Plan
Hydrogeologic Characterization
Titanium Metals Corporation
Henderson, Nevada

FIGURE 2
HYDRAULIC TEST LOCATIONS

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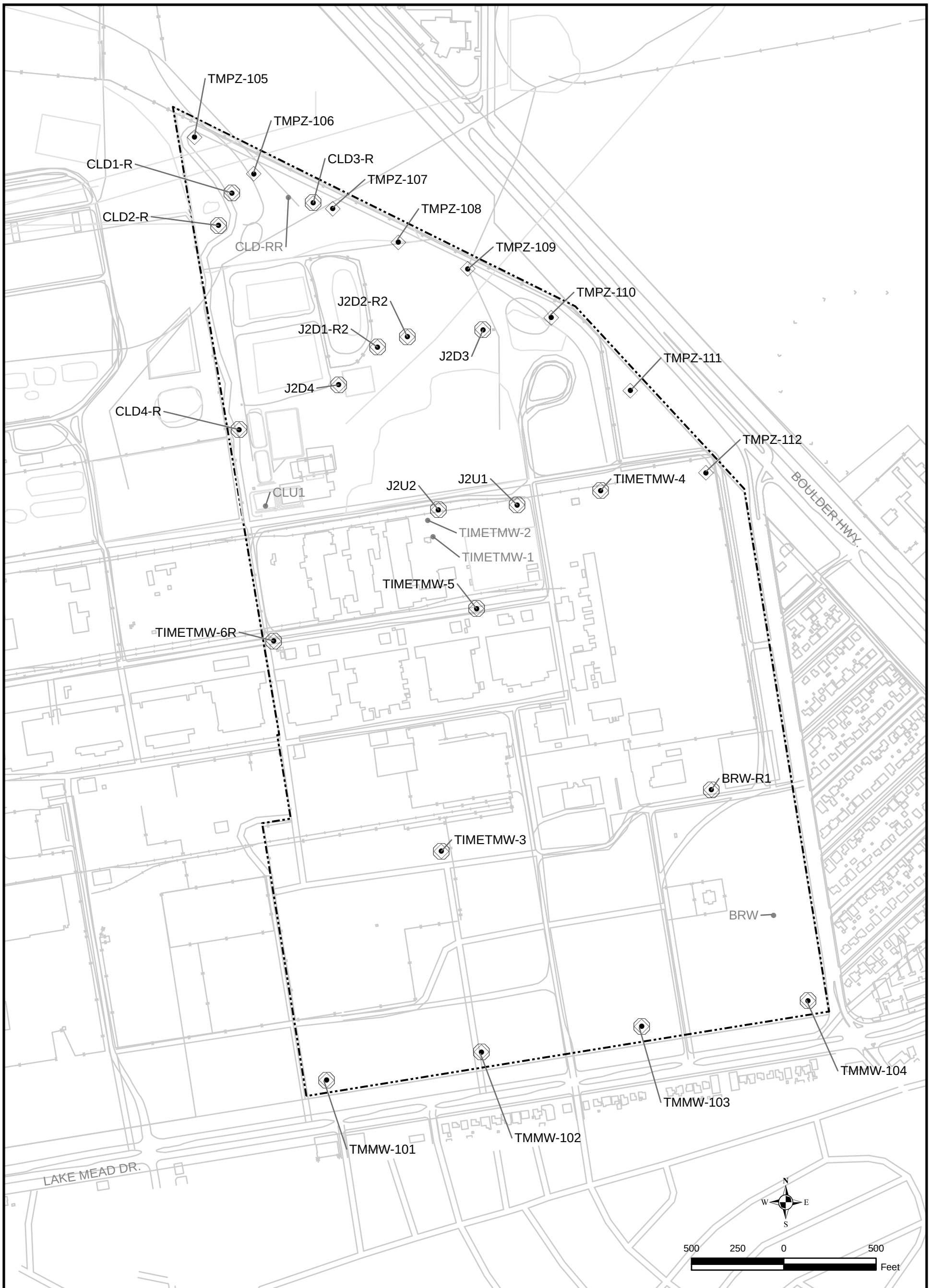
09/20/04 :\TIMET\SAP\MXD\offsite_wells_AQ_TESTS.mxd TTEMI-MO MKH



WATER LEVEL MEASUREMENT

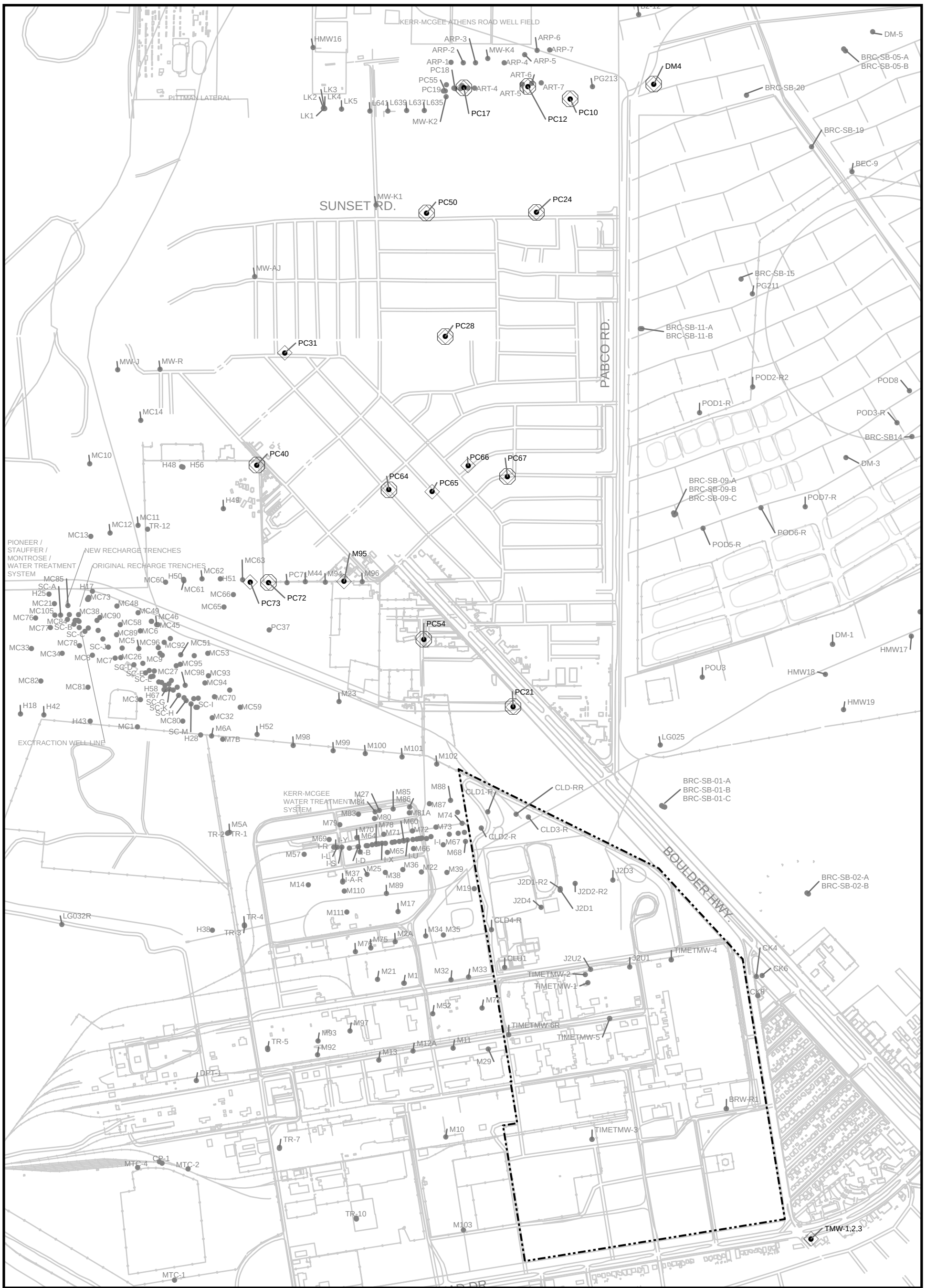
GROUNDWATER SAMPLE AND WATER LEVEL MEASUREMENT

Sampling and Analysis Plan
Hydrogeologic Characterization
Titanium Metals Corporation
Henderson, Nevada

FIGURE 3
ON-SITE GROUNDWATER SAMPLING LOCATIONS

TIMET

09/20/04 .:\TIMET\SAP\MXD\proposed_sample_locations.mxd TTEMI-MO MKH



EXISTING WELL LOCATION

WATER LEVEL MEASUREMENT

GROUNDWATER SAMPLE AND WATER LEVEL MEASUREMENT

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Sampling and Analysis Plan
Hydrogeologic Characterization
Titanium Metals Corporation
Henderson, Nevada

FIGURE 4
OFF-SITE GROUNDWATER SAMPLING LOCATIONS

TIMET

09/20/04 :\TIMET\SAP\MXD\offsite_wells.mxd TTEMI-MO MKH

TABLES

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
Plant Site Locations						
TMSB-101	70	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-101-01	0-1	Characterize soil to assess location as background groundwater location
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-101-05	4-5	Characterize soil to assess location as background groundwater location
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-101-10	9-10	Characterize soil to assess location as background groundwater location
		Anions, VOCs at 70 feet Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-101-15 Every 5 ft to GW interface	14-15, 19-20, etc	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-101-70	69-70	Investigate whether potential surface contamination has infiltrated the soil column
TMMW-101 (new well in TMSB-101 borehole)	70	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level, stabilization parameters[1], and hydraulic test	GW	TMMW-101	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize groundwater quality, horizontal groundwater gradient, and aquifer properties of shallow groundwater near the upgradient Plant Site boundary
TMSB-102	65	Anions, metals, and radionuclides Field screen VOCs	Soil	TM-SB-102-01	0-1	Characterize soil to assess location as background groundwater location
		Anions, metals, and radionuclides Field screen VOCs	Soil	TM-SB-102-05	4-5	Characterize soil to assess location as background groundwater location
		Anions, metals, and radionuclides Field screen VOCs	Soil	TM-SB-102-10	9 – 10	Characterize soil to assess location as background groundwater location
		Anions Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-102-15 Every 5 ft until GW interface	14-15, 19-20, etc	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-102-25	24-25	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-102-30	29-30	Investigate whether potential surface contamination has infiltrated the soil column

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
TMSB-102 (cont'd)		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-102-45	44-45	Investigate whether potential surface contamination has infiltrated the soil column
TMMW-102 (new well in TMSB-102 borehole)	65	Anions, total metals, radionuclides, VOCs, TDS, alkalinity, perchlorate Water level, stabilization parameters[1], and hydraulic test	GW	TMMW-102	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize groundwater quality, horizontal groundwater gradient, and aquifer properties of shallow groundwater near the upgradient Plant Site boundary
TMSB-103	65	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-103-01	0-1	Characterize soil to assess location as background groundwater location.
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-103-05	4-5	Characterize soil to assess location as background groundwater location.
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-103-10	9 - 10	Characterize soil to assess location as background groundwater location.
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-103-15	14-15	Investigate whether potential surface contamination has infiltrated the soil column
		Anions Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-103-20 Every 5 ft until GW interface	19-20, 34-35, etc.	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-103-25	24-25	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-103-30	29-30	Investigate whether potential surface contamination has infiltrated the soil column
TMMW-103 (new well in TMSB-103 borehole)	65	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level, stabilization parameters[1], and hydraulic test	GW	TMMW-103	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize groundwater quality, horizontal groundwater gradient, and aquifer properties of shallow groundwater near the upgradient Plant Site boundary
TMSB-104	65	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-104-01	0-1	Characterize soil to assess location as background groundwater location.
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-104-05	4-5	Characterize soil to assess location as background groundwater location.

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
TMSB-104 (cont'd)		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-104-10	9 – 10	Characterize soil to assess location as background groundwater location.
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-104-15 Every 5 ft until GW interface	14-15, etc.	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-104-20	19-20	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-104-25	24-25	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-104-35	34-35	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-104-60	59-60	Investigate whether potential surface contamination has infiltrated the soil column
TMMW-104 (new well in TMSB-104 borehole)	65	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level, stabilization parameters[1], and hydraulic test	GW	TMMW-104	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize groundwater quality, horizontal groundwater gradient, and aquifer properties
TMSB-105	25	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-105-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-105-05	4-5	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-105-10	9 - 10	Investigate potential soil impacts
		Anions Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-105-15 Every 5 ft until GW interface	14-15, 19-20	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-105-25	24-25	Investigate potential soil impacts

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
TMPZ-105	25	Water level	GW	TMPZ-105	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize horizontal groundwater gradient
TMSB-106	25	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-106-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-106-05	4-5	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-106-10	9 - 10	Investigate potential soil impacts
		Anions Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-106-15 Every 5 ft until GW interface	14-15, 19-20	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-105-25	24-25	Investigate potential soil impacts
TMPZ-106	25	Water level	GW	TMPZ-106	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize horizontal groundwater gradient
TMSB-107	25	Anions, metals, radionuclides, organochlorine pesticides, TOC, grain size, bulk density, and moisture content Field screen VOCs	Soil	TMSB-107-01	0-1	Investigate potential soil impacts Characterize geotechnical properties and TOC content of the Qal
		Anions, metals, radionuclides, organochlorine pesticides, TOC, grain size, bulk density, and moisture content Field screen VOCs	Soil	TMSB-107-05	4-5	Investigate potential soil impacts Characterize geotechnical properties and TOC content of the Qal
		Anions, metals, radionuclides, organochlorine pesticides, TOC, grain size, bulk density, and moisture content Field screen VOCs	Soil	TMSB-107-10	9 - 10	Investigate potential soil impacts Characterize geotechnical properties and TOC content of the Qal

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
TMSB-107 (cont'd)		Anions, organochlorine pesticides, TOC, grain size, bulk density, and moisture content Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-107-15 Every 5 ft until GW interface	14-15, 19-20	Investigate potential soil impacts Characterize geotechnical properties and TOC content of the Qal and/or shallow MCF
		Anions, organochlorine pesticides, VOCs, TOC, grain size, bulk density, and moisture content Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-105-25	24-25	Investigate potential soil impacts Characterize geotechnical properties and TOC content of the Qal and/or shallow MCF
TMPZ-107	25	Water level	GW	TMPZ-107	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize horizontal groundwater gradient
TMSB-108	30	Anions, metals, radionuclides, and organochlorine pesticides Field screen VOCs	Soil	TMSB-108-01	0-1	Investigate potential soil impacts
		Anions, metals, radionuclides, and organochlorine pesticides Field screen VOCs	Soil	TMSB-108-05	4-5	Investigate potential soil impacts
		Anions, VOCs, metals, radionuclides, and organochlorine pesticides Field screen VOCs	Soil	TMSB-108-10	9-10	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-108-15 Every 5 ft until GW interface	14-15, 19-20, etc	Investigate potential soil impacts
TMPZ-108	30	Water level	GW	TMPZ-108	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize horizontal groundwater gradient
TMSB-109	30	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-109-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-109-05	4-5	Investigate potential soil impacts
TMSB-109 (cont'd)		Anions, VOCs, metals, and radionuclides Field screen VOCs	Soil	TMSB-109-10	9 - 10	Investigate potential soil impacts

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
		Anions Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-109-15 Every 5 ft until GW interface	14-15, etc	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-109-20	19-20	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold - metals, radionuclides	Soil	TMSB-109-30	29-30	Investigate potential soil impacts
TMPZ-109	30	Water level	GW	TMPZ-109	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize horizontal groundwater gradient
TMSB-110	35	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-110-01	0-1	Investigate potential soil impacts
		Anions, VOCs, metals, and radionuclides Field screen VOCs	Soil	TMSB-110-05	4-5	Investigate potential soil impacts
		Anions, VOCs, metals, and radionuclides Field screen VOCs	Soil	TMSB-110-10	9-10	Investigate potential soil impacts
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-110-15 Every 5 ft until GW interface	14-15, 19-20, etc	Investigate whether potential surface contamination has infiltrated the soil column
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-110-30	29-30	Investigate whether potential surface contamination has infiltrated the soil column
TMPZ-110	35	Water level	GW	TMPZ-110	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize horizontal groundwater gradient
TMSB-111	35	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-111-01	0-1	Investigate potential soil impacts
		Anions, VOCs, metals, and radionuclides Field screen VOCs	Soil	TMSB-111-05	4-5	Investigate potential soil impacts
TMSB-111 (cont'd)		Anions, VOCs, metals, and radionuclides Field screen VOCs	Soil	TMSB-111-10	9-10	Investigate potential soil impacts

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-111-15 Every 5 ft until GW interface	14-15, 19-20, etc	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-111-30	29-30	Investigate potential soil impacts
TMPZ-111	35	Water level	GW	TMPZ-111	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize horizontal groundwater gradient
TMSB-112	35	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-112-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-112-05	4-5	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-112-10	9-10	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-112-15	14-15	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-112-20	19-20	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-112-25	24-25	Investigate potential soil impacts
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-112-30 Every 5 ft until GW interface	29-30, etc	Investigate potential soil impacts
TMPZ-112	35	Water level	GW	TMPZ-112	In Qal or Shallow MCF (shallowest part of the saturated zone)	Characterize horizontal groundwater gradient
TMSB-113	43	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-113-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-113-05	4-5	Investigate potential soil impacts

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-113-10	9-10	Investigate potential soil impacts
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-113-15 Every 5 ft until 1st GW interface	14-15, 19-20, etc	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-113-43	42-43	Investigate potential soil impacts
TMSB-115	40	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-115-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-115-05	4-5	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-115-10	9-10	Investigate potential soil impacts
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-115-15 Every 5 ft until 1st GW interface	14-15, 19-20, etc	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-115-35	34-35	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-115-40	39-43	Investigate potential soil impacts
TMSB-116	10	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-116-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-116-05	4-5	Investigate potential soil impacts
		Anions, VOCs, metals, and radionuclides Field screen VOCs	Soil	TMSB-116-10	9-10	Investigate potential soil impacts
TMSB-117	50	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-117-01	0-1	Investigate potential soil impacts
		VOCs, Field screen VOCs	Soil	TMSB-117-05	4-5	Investigate potential soil impacts
		VOCs, Field screen VOCs	Soil	TMSB-117-10	9-10	Investigate potential soil impacts
		VOCs, Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-117-15	14-15	Investigate potential soil impacts

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
		Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-117-20 Every 5 ft until 1st GW interface	19-20, etc	Investigate potential soil impacts
		VOCs, Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-117-45	44-45	Investigate potential soil impacts
TMSB-118	50	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-118-01	0-1	Investigate potential soil impacts
		VOCs, Field screen VOCs	Soil	TMSB-118-05	4-5	Investigate potential soil impacts
		Field screen VOCs	Soil	TMSB-118-10	9-10	Investigate potential soil impacts
		VOCs, Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-118-15	14-15	Investigate potential soil impacts
		Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-118-20 Every 5 ft until 1st GW interface	19-20, etc	Investigate potential soil impacts
		VOCs, Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-118-30	29-30	Investigate potential soil impacts
TMSB-119	10	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-119-01	0-1	Investigate potential soil impacts
		Field screen VOCs	Soil	TMSB-119-05	4-5	Investigate potential soil impacts
		VOCs, Field screen VOCs	Soil	TMSB-119-10	9-10	Investigate potential soil impacts
TMSB-120	47	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-120-01	0-1	Investigate potential soil impacts
		Field screen VOCs	Soil	TMSB-120-05	4-5	Investigate potential soil impacts
		Field screen VOCs	Soil	TMSB-12010	9-10	Investigate potential soil impacts
		VOCs, Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-120-15	14-15	Investigate potential soil impacts
		Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-120-20 Every 5 ft until 1st GW interface	19-20, etc	Investigate potential soil impacts
TMSB-121	50	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-121-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-121-05	4-5	Investigate potential soil impacts

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-121-10	9-10	Investigate potential soil impacts
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-121-15 Every 5 ft until 1st GW interface	14-15, 19-20, etc	Investigate potential soil impacts
TMSB-123	20	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-123-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-123-05	4-5	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-123-10	9-10	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-123-015 Every 5 ft until 1st GW interface	14-15 & 19-20	Investigate potential soil impacts
TMSB-124	20	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-124-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-124-05	4-5	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-124-10	9-10	Investigate potential soil impacts
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-124-15	14-15	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-124-20	19-20	Investigate potential soil impacts
TMSB-125	50	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-125-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-125-05	4-5	Investigate potential soil impacts
TMSB-125 (cont'd)		Anions, VOCs, metals, and radionuclides Field screen VOCs	Soil	TMSB-125-10	9-10	Investigate potential soil impacts
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-125-15	14-15	Investigate potential soil impacts

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-125-20	19-20	Investigate potential soil impacts
TMSB-126	25	Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-126-01	0-1	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-126-05	4-5	Investigate potential soil impacts
		Anions, metals, and radionuclides Field screen VOCs	Soil	TMSB-126-10	9-10	Investigate potential soil impacts
		Anions Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-126-15 Every 5 ft until 1st GW interface	14-15 & 19-20	Investigate potential soil impacts
		Anions, VOCs Field screen VOCs Hold Pending - metals, radionuclides	Soil	TMSB-126-25	24-25	Investigate potential soil impacts
BRW-R1	72	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level, stabilization parameters[1], and video log	GW	BRW-R1	40 – 60	Resolve screen interval discrepancies Characterize groundwater quality and horizontal groundwater gradient
CLD1-R	35	Anions, total metals, radionuclides, VOCs, TDS, alkalinity, perchlorate, persticides Water level, stabilization parameters[1], and hydraulic test	GW	CLD1-R	16 – 39	Characterize groundwater quality, horizontal groundwater gradient, and aquifer properties
CLD2-R	35	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	CLD2-R	10.5 – 30.5	Characterize groundwater quality and horizontal groundwater gradient
CLD3-R	43	Anions, total metals, radionuclides, VOCs, TDS, alkalinity, perchlorate, pesticides Water level, stabilization parameters[1], and hydraulic test	GW	CLD3-R	20 – 39	Characterize groundwater quality and horizontal groundwater gradient
CLD4-R	55	Anions, total metals, radionuclides, VOCs, TDS, alkalinity, perchlorate Water level and stabilization parameters[1]	GW	CLD4-R	27 – 47	Characterize groundwater quality and horizontal groundwater gradient
J2D1-R2	45.5	Anions, total metals, radionuclides, VOCs, TDS, alkalinity, perchlorate, persticides Water level and stabilization parameters[1]	GW	J2D1-R2	19 – 44	Characterize groundwater quality and horizontal groundwater gradient

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
J2D2-R2	50.5	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level, stabilization parameters[1], and hydraulic test	GW	J2D2-R2	23.5 – 48.5	Characterize groundwater quality, horizontal groundwater gradient, and aquifer properties
J2D3	45	Anions, total metals, radionuclides, VOCs, TDS, alkalinity, perchlorate, pesticides Water level and stabilization parameters[1]	GW	J2D3	33 – 38	Characterize groundwater quality and horizontal groundwater gradient
J2D4	46.5	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	J2D4	15 – 45	Characterize groundwater quality and horizontal groundwater gradient
J2U1	55	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	J2U1	42 – 47	Characterize groundwater quality and horizontal groundwater gradient
J2U2	70.5	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	J2U2	33.5 – 68.5	Characterize groundwater quality and horizontal groundwater gradient
TIMETMW-3	69	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	MW-3	37 – 67	Characterize groundwater quality and horizontal groundwater gradient
TIMETMW-4	67	Anions, total metals, radionuclides, VOCs, TDS, alkalinity, perchlorate Water level and stabilization parameters[1]	GW	MW-4	38 – 58	Characterize groundwater quality and horizontal groundwater gradient
TIMETMW-5	65	Anions, total metals, radionuclides, VOCs, TDS, alkalinity, perchlorate Water level and stabilization parameters[1]	GW	MW-5	40 – 60	Characterize groundwater quality and horizontal groundwater gradient
TIMETMW-6R	60	Anions, total metals, radionuclides, VOCs, TDS, alkalinity, perchlorate Water level and stabilization parameters[1]	GW	MW-6R	39.7 – 59.7	Characterize groundwater quality and horizontal groundwater gradient
CLD-RR CLU1 TIMETMW-1 TIMETMW-2 BRW	NA	Survey and video log	GW	NA	NA	Assess suitability for sampling and resolve data discrepancies. Inclusion in groundwater monitoring network will be assessed as part of the ECI process.
Off-Site Locations Downgradient of Plant Site						

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
PC21	35	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level, stabilization parameters[1], and hydraulic test	GW	PC21	14.2 – 34.2	Characterize groundwater quality, horizontal groundwater gradient, and aquifer
PC54	40	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level, stabilization parameters[1], and hydraulic test	GW	PC54	10 - 34.5	Characterize horizontal groundwater gradient and aquifer properties
M95	TBD	Water level and hydraulic test	GW	M95	TBD	Characterize horizontal groundwater gradient and aquifer properties
PC72	38	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	PC72	15 - 35	Characterize groundwater quality, horizontal groundwater gradient, and aquifer
PC73	48	Water level	GW	PC73	20 - 45	Characterize horizontal groundwater gradient
PC67	38	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level, stabilization parameters[1], and hydraulic test	GW	PC67	11 – 38	Characterize groundwater quality, horizontal groundwater gradient, and aquifer
PC66	27	Water level	GW	PC66	6.9 – 26.9	Characterize horizontal groundwater gradient
PC65	22	Water level and hydraulic test	GW	PC65	4.1 – 18.7	Characterize horizontal groundwater gradient and aquifer properties
PC64	20	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	PC64	4 – 19	Characterize groundwater quality and horizontal groundwater gradient
PC40	60	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	PC40	15 – 55	Characterize groundwater quality and horizontal groundwater gradient
PC28	20	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	PC28	10 – 19.5	Characterize groundwater quality and horizontal groundwater gradient
PC31	52	Water level	GW	PC31	15 – 49.5	Characterize horizontal groundwater gradient.

TABLE 1: SAMPLING LOCATIONS, ANALYSIS, AND RATIONALE
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Location Name	Total Depth (feet bgs)	Sample Analyses [a] Field Measurements	Matrix	Sample ID	Sample Depth (feet bgs)	Rationale
PC24	30	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	PC24	15 – 30	Characterize groundwater quality and horizontal groundwater gradient
PC50	44	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	PC50	11.8 – 41.8	Characterize groundwater quality and horizontal groundwater gradient
DM4	26.5	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	DM4	8.08 – 23.08	Characterize groundwater quality and horizontal groundwater gradient
PC10	35	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	PC10	13.8 – 33.8	Characterize groundwater quality and horizontal groundwater gradient
PC12	31	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	PC12	14.8 – 29.8	Characterize groundwater quality and horizontal groundwater gradient
PC17	55	Anions, total metals, radionuclides, VOCs, TDS, alkalinity Water level and stabilization parameters[1]	GW	PC17	10 – 50.5	Characterize groundwater quality and horizontal groundwater gradient

Notes:

1 Stabilization parameters include pH, specific conductance, turbidity, and temperature during micropurge sampling.

a Complete list of project target analytes is presented in Appendix D for anions, metals, radionuclides, and VOCs; geotechnical analyses will include grain size to 200 sieve, bulk density, and moisture content.

bgs below ground surface

VOC Volatile organic compounds

GW Groundwater

MCF Muddy Creek Formation

Qal Quaternary-age alluvium aquifer

TOC Total organic carbon

ECI Environmental Conditions Investigation

TDS Total dissolved solids

TABLE 2: SAMPLE CONTAINER, HOLDING TIME, AND PRESERVATIVE REQUIREMENTS
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Parameter	Chemical	Method	Sample Volume	Container	Preservation	Holding Time
Soil						
Anions	Major anions [a]	300.1 Mod [b]	8-ounce jar	Glass with Teflon lid	Cool to 4 ± 2 ºC	48 hours (nitrate and nitrite); 28 days others
	Perchlorate	314.0 Mod [c]				
Metals	ICP Metals [d]	6010B [e]	8-ounce jar	Glass with Teflon lid	Cool to 4 ± 2 ºC	6 months; mercury 28 days
	ICP/MS metals [d]	6020 [e]				
	Chromium VI	3060A/7196A [e]	From anion jar	See anions	See anions	24 hours
	Phosphorus (total phosphate-P)	365.2 Mod [e]	From anion jar	See anions	See anions	48 hours
	Total Metals[k]	Field portable XRF SW-846 6200	1 gallon resealable plastic bag	XRF sample cells	Not applicable	Immediate
Pesticides	DDT and derivatives [d]	8081A [e]	8-ounce jar	Glass with Teflon lid	Cool to 4 ± 2 ºC	14 days/40 days [j]
Radionuclides	Gross alpha and beta	Not applicable	8-ounce jar	Glass with Teflon lid	Cool to 4 ± 2 ºC	6 months
	Lead-210 (Pb-210)	LSC/SOP726 [h]				
	Other natural isotopes	Gamma/ 901.1 [g]				
	Isotopic uranium	ASTM D3972-90M [f]				
	Radium-226 (Ra-226)	Gamma/ 901.1 [g]				
	Radium-228 (Ra-228)	Gamma/ 901.1 [g]				
	Isotopic thorium	ASTM D3972-90M [f]				
VOCs	VOCs [d]	8260B [e]	Three air-tight plugs	Encore or similar device	Cool to 4 ± 2 ºC	7 days
Water Quality Indicators	Bicarbonate alkalinity	310.1 Mod [b]	From anion jar	See anions	See anions	14 days
	Total dissolved solids	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

TABLE 2: SAMPLE CONTAINER, HOLDING TIME, AND PRESERVATIVE REQUIREMENTS
Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Parameter	Chemical	Method	Sample Volume	Container	Preservation	Holding Time
Groundwater						
Anions	Major anions [a]	300.1 [b]	250 mL bottle	Polyethylene	Cool to 4 ± 2 ºC	48 hours (nitrate and nitrite); 28 days others
	Perchlorate	314.0 [c]	250 mL bottle	Polyethylene	None	28 days
Metals	ICP Metals [d]	6010B [e]	1-Liter bottle	Polyethylene	pH < 2 with HNO_3	6 months; mercury 28 days
	ICP/MS metals [d]	6020 [e]				
	Chromium VI	7196A [e]	250 mL bottle	Polyethylene	Cool to 4 ± 2 ºC	24 hours
Pesticides	DDT and derivatives [d]	8081A [e]	1-Liter bottle	Glass with Teflon lid	Cool to 4 ± 2 ºC	7 days/40 days [j]
Radionuclides	Gross alpha and beta	9310 [e]	4-Liter cube	Polyethylene cube	pH < 2 with HNO3	6 months
	Lead-210 (Pb-210)	LSC/SOP726 [h]				
	Other natural isotopes	Gamma/ 901.1 [g]				
	Isotopic uranium	ASTM D3972-90M [f]	4-Liter cube	Polyethylene cube	pH < 2 with HNO3	6 months
	Radium-226 (Ra-226)	903.1 [g]				
	Radium-228 (Ra-228)	904.0 [g]				
	Isotopic thorium	ASTM D3972-90M [f]				
	Radon-222 (Rn-222)	LSC/SOP799 [i]	Three 40-mL vials	Glass with Teflon septum	Cool to 4 ± 2 ºC	4 days
VOCs	VOCs [d]	8260B [e]	Three 40-mL vials	Glass with Teflon septum	pH < 2 with HCl;Cool to 4 ± 2 ºC	14 days
Water Quality Indicators	Bicarbonate alkalinity	310.1 [b]	From anion bottle	See anions	See anions	14 days
	Total dissolved solids	160.1 [b]	From anion bottle	See anions	See anions	14 days

TABLE 2: SAMPLE CONTAINER, HOLDING TIME, AND PRESERVATIVE REQUIREMENTS

Sampling and Analysis Plan, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Notes:

a	Major anions include chloride, fluoride, nitrate, nitrite, and sulfate.
b	EPA 1983
c	EPA 1999a
d	See Table D1 for list of chemicals
e	EPA 1998
f	ASTM 1990
g	EPA 1980
h	Paragon 2004
i	Paragon 2003
j	Time from sample collection to extraction/time from extraction to analysis
k	Analytes are those listed in Table D-2 with XRF detection limits

ASTM	American Society of Testing and Materials
EPA	U.S. Environmental Protection Agency
ICP	Inductively coupled plasma
MCAWW	Methods for Chemical Analysis of Water and Waste
Paragon	Paragon Analytics, Inc.

Sources:

ASTM. 1990.

EPA. 1980. "Prescribed Procedures for Measurement of Radioactivity in Drinking Water." August. EPA/600/4-80-032.

EPA. 1983. "Method for the Chemical Analysis of Water and Waste" March.

EPA 1998. "Test Method for Evaluating Solid Waste, Chemical/Physical Methods, SW-846"

EPA 1999a. "Method 314.0 - Determination of Perchlorate in Drinking Water using Ion Chromatrography." Revision 1. Office of Research and Development. Cincinnati, Ohio. November.

Paragon 2003. "Determination of Radon-222 in Water Samples by Liquid Scintillation Counting - SM Method 7500-Rn B and ASTM Method D5072-92." SOP No. 799. Revision 2. November 29.

Paragon 2004. "Determination of Lead-210 in Soils, Sediments, and Waters." SOP No. 726. Revision 4. December 15.

TABLE 3: PEIZOMETER AND MONITORING WELL COORDINATES

Sampling and Analysis Plan Procedures, Hydrogeologic Characterization, Titanium Metals Corporation Facility

Description	Northing	Easting	Elevation
TMMW-101	26715285.262	829462.760	1881.11
TMMW-102	26715433.078	830371.175	1882.34
TMMW-103	26715583.045	831325.820	1884.95
TMMW-104	26715722.705	832104.881	1885.51
TMPZ-105	26720557.269	828703.771	1736.68
TMPZ-106	26720359.145	829102.418	1742.25
TMPZ-107	26720209.585	829386.703	1745.60
TMPZ-108	26720032.086	829756.757	1750.46
TMPZ-109	26719874.252	830082.661	1756.59
TMPZ-110	26719668.758	830531.856	1764.00
TMPZ-111	26719015.173	831186.734	1783.93
TMPZ-112	26718652.393	831559.744	1795.94
TMSB-113	26718312.005	830979.209	1807.70
TMSB-114	26718157.303	830532.071	1811.44
TMSB-115	26718279.802	830467.972	1801.38
TMSB-116	26718085.078	830385.975	1812.15
TMSB-117	26718731.478	830423.798	1796.07
TMSB-118	26718966.092	830464.881	1795.31
TMSB-119	26718927.983	830052.866	1795.76
TMSB-120	26718631.471	830028.559	1797.38
TMSB-121	26718938.133	829266.455	1772.31
TMSB-123	26718881.704	829123.377	1772.45
TMSB-124	26719248.536	828959.073	1763.59
TMSB-125	26719855.001	829198.679	1747.51
TMSB-126	26719794.532	829790.780	1754.37

APPENDIX A
FIELD FORMS

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: ___Tuesday_____ Date: _____12/6/05_____

Time Onsite: From: _0630___ To: __1615__; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

0600 Loaded supplies out of Kristi's office, Bought gas, drove to Timet.

0627 Onsite, checked in at guard shack, had safety meeting at sample staging area. Drilling crew arrived way late.

0730 Moved to first drill location. Drill crew filling rig with water from hydrant, moving equipment, (requested forklift). Hung out waited on drill crew.

0928 Arrived at drill location for well TMPZ-105. Drill crew setting up to drill. Boring moved approximately 30 feet to the south due to overhead power lines.

0942 Started drilling pizometer TMPZ-105.

Sonic drilling is being used. Everything got very confusing as how to proceed with logging and Sampling using this method. Missed majority of drilling as was sent back to sample staging area To do the logging. Kirk and Ty from Timet left at drill rig to collect and transport the soil cores back To the sample staging area.

Only information obtained outside the information depicted on the attached drill forms is as follows:

1050 – Drilled to a depth of 17 feet bgs

1050 – 1106 – Drilled and recovered sample from 17 to 27 feet bgs.

1130 Approximate time for the completion of boring TMPZ105.

Continued logging soil cores, drill crew deconing augers and preparing to set well. Problem with Materials being used for well construction. Kirk of BAI dealt with it.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: ___Tuesday_____ Date: _____12/6/05_____

Time Onsite: From: _0630___ To: __1615__; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

Drill crew still anticipating that they will start another well. Waited for drill crew to complete decon And setting of TMPZ-105. Attached pages have well construction specs.

1615 Drill crew not going to start another well as they are only about to complete the work associated with this one.

1615 Offsite, Kirk of BAI stayed onsite. Meet time tomorrow set at 0600 in the Admin building.

1630 Estimated time TMPZ-105 was completed.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Wednesday____ Date: __12-7-05_____

Time Onsite: From: _0600___ To: _____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME:	WORK DESCRIPTION:
0600	Onsite, checked in at guard shack, attended daily safety meeting, setup on drill location.
0630	Drill crew warming up rig and preparing to drill pizometer TMPZ-106
0651	Began Drilling TMPZ-106
	0651 - 0655, Recovered core from 0 to 7 ft bls
	0702 - 0710, Recovered core from 7 to 17 ft bls
	0721 – 0724, Recovered core from 17 to 27 ft bls
	0735 – 0738, Recovered core from 27 to 37 ft bls
	0751 – 0752 Recovered core from 37 to 40 ft bls
0753	Drill crew cleaning auger and preparing to install pizometer. Back at sample staging area to continue logging the boring.
0915	Observed Driller's setting well. See attached sheet for specs.
1005	Driller's have completed setting the well and are cleaning up and preparing to set up at the next location. Driller estimated this would take approximately an hour. Called Kirk and notified him of time frame. Finished up lithologic log at this time and waited for next boring to begin.
1223	Began drilling TMPZ-107
	1223 - 1225, Recovered core from 0 to 7 ft bls
	1234 - 1237, Recovered core from 7 to 17 ft bls
	1247 – 1250, Recovered core from 17 to 27 ft bls.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Wednesday____ Date: __12-7-05_____

Time Onsite: From: _0600___ To: _____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

1303 – 1304, Recovered core from 27 to 37 ft bls.

1311 – 1312, Recovered core from 37to 41 ft bls.

1312 Driller complete for TMPZ-107, Drill crew deconning equipment and preparing to set well.

1420 Driller began setting TMPZ-107. Brought boring back up two feet with bentonite. Set well at 39 feet bls. See attached page for details. Kirk offsite a little earlier, escorting another member of Timet project team to various other Timet project sites. Kristi finishing up sampling and will also be leaving. I will observe well construction being done.

1456 TMPZ-107 has been installed. Drill crew breaking down area and preparing to move to next location. Showed driller where next boring was to be located, checked on start time for tommarrow. Will be Starting at 0600. All ready to go for next boring. Will notify Kirk.

1533 Offsite.

1545 Complete.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Thursday____ Date: __12-8-05_____

Time Onsite: From: _0600___ To: __1645__; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Cloudy, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

0600 Onsite, checked in at guard shack, attended daily safety meeting, setup on drill location.

0630 Drill crew warming up rig and preparing to drill pizometer TMPZ-108

0640 Began Drilling TMPZ-108

0640 - 0642, Recovered core from 0 to 7 ft bls

0643- 0646, Recovered core from 7 to 17 ft bls

0653 – 0658, Recovered core from 17 to 27 ft bls

0705 – 0718, Recovered core from 27 to 47 ft bls

Lithology at this depth does not indicate that the Muddy Creek contact has been reached. Silty clay observed and a caliche layer present at 45 ft bls. Based on lithology appears are very close to contact as the coarse sand lens observed at 47 ft. Called Kirk, and instructed to drill an additional 10 ft. Drillers had already started tripping out, instructed them to continue boring till 57 feet.

0730 – 0735 Recovered core from 47 to 57 ft bls.

Muddy Creek contact located at approximately 47.5 feet bls. Soil was only slightly wet until Muddy Creek was reached. Driller estimated water at 40 feet bls. As previous wells were set at 39 feet bls, called Kirk to see how deep I should set well. Ty of Timet provided me with a water level indicator. Could not get an accurate reading with it as the meter continued beeping in or out of water. Kirk arrived Onsite and said he would go to the office to pick up our meter. Ned of BAI dropped of meter and Supplies to decoy the meter. Same problem encountered with out meter as with Timets's. Best estimate

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Thursday____ Date: __12-8-05_____

Time Onsite: From: _0600___ To: _____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Cloudy, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

Could provide for depth to water appears to be 30 feet bls. Received call from Jay Snyder and described To him the soil encountered in the boring and what we did to ascertain the water level. After much talk we decided to set the well at 46 feet bls, just above the Muddy Creek contact.

Phone Number for Jay Snyder – (505) 821-3043

0945 Began constructed TMPZ-108. See attached page for specs.

1030 Completed setting TMPZ-108. Drill crew deconing equipment and moving to next drill location. Drove back up to sample staging area to finish logging of boring.

1120 Back down at rig, waited for drill crew to being the advancement of next boring.

1203 Began Drilling TMPZ-109

1203 - 1209, Recovered core from 0 to 7 ft bls

1210- 1215, Recovered core from 7 to 17 ft bls

1224 – 1226, Recovered core from 17 to 27 ft bls

1240 – 1245, Recovered core from 27 to 37 ft bls

1253 – 1257, Recovered core from 37 to 47 ft bls

Have not seen the nice clay layer that I have been drilling yet at this point, based on surface topography Expect to see in the next 10 feet of sample.

1307– 1310, Recovered core from 47 to 57 ft bls. Muddy Creek formation contact located at 48 feet bls. Verified with Kirk to set well same as last, 46 feet in depth, 20 feet of screen. Kirk approved.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Thursday____ Date: __12-8-05_____

Time Onsite: From: _0600___ To: _____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Cloudy, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

1326 Drill crew tripping out and preparing to set well. See attached page for specs. Logging hole, bounced bounced back and forth between drill location and sample staging area.

1437 Completed setting TMPZ-109, Set at 46 ft, sand at 22 feet, 2 feet bentonite chips and grout to surface. Drillers breaking down area, performing decon and moving to next location.

1515 Began Drilling TMPZ-110

1515 - 1517, Recovered core from 0 to 7 ft bls

1521 - 1523, Recovered core from 7 to 17 ft bls

1533 – 1535, Recovered core from 17 to 27 ft bls

1546– 1549, Recovered core from 27 to 37 ft bls

1555– 1558, Recovered core from 37 to 57 ft bls

Instructed drill crew to drill 20 feet from 37 to 57 feet without tripping out at the 10 foot interval as Surface topography indicates increase in elevation.

Muddy Creek formation contact located at 48 feet bls.

1600 Drill crew tripping out and have informed me they will set the well tomorrow as it is getting close to dark. Logged all cuttings that were left at drill area (below water table). Will log the rest of the cuttings at the sample staging area next. Start time tomorrow will be 0600 for the drill crew. Anticipate that everyone who is not involved in setting the well can start at 0700.

1630 Left TMPZ-110 drill location.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT
Page _____ of _____

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Thursday____ Date: __12-8-05_____

Time Onsite: From: _0600___ To: __1645__; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Cloudy, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME:	WORK DESCRIPTION:
1645	As fluorescent lighting located in sample staging area I will log the remaining boring in the daylight.
1646	Offsite.
1647	Called rest of project team members and notified them drill team will be setting the well first thing Tomorrow so they do not have to show up until around 0700, as it will take about an hour to set the well. Finished up paperwork, complete for the day 1730.
1700	Complete

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Friday____ Date: __12-9-05_____

Time Onsite: From: _0600___ To: ____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Cloudy, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME:	WORK DESCRIPTION:
0600	Onsite, checked in at guard shack, gave drillers daily safety lecture, rest of project ream arriving later as drillers are installing TMPZ-110 first thing this morning.
0610	Drill crew warming up rig and preparing to set pizometer TMPZ-110.
0620	Began constructing TMPZ-110, boring brought back up with bentonite to 45ft bgs.
	Logged the remaining soil from boring TMPZ-110 in the sample staging area.
	Driller informed me that the well rose 1 foot during installation. Well is set at 45 feet instead of 46 feet bls. Told driller that was fine but I wanted to double check with Kirk. Kirk o.k. with well depth.
0813	TMPZ-110 installed, set at 45 feet bls, sand to 17 feet bls, see attached sheet for further details.
0814	Drill crew breaking down equipment and preparing to move to the next drill location.
0923	Setting up rig at drill location for TMPZ-111.
0952	Began Drilling TMPZ-111 (outside fence line of plant)
	0952 - 0955, Recovered core from 0 to 7 ft bls
	0957 - 1000, Recovered core from 7 to 17 ft bls
	1010 – 1013 , Recovered core from 17 to 27 ft bls
	1030 – 1035, Recovered core from 27 to 37 ft bls
	1041 – 1045, Recovered core from 37 to 57 ft bls
	As Muddy Creek contact has been getter deeper due to increase in surface elevation, I allowed the Drillers to advance to 57 foot without tripping out at the 10 foot interval to retrieve the sample.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Friday____ Date: __12-9-05_____

Time Onsite: From: _0600___ To: ____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Cloudy, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

At 57 feet it does not appear that we have found the contact for the Muddy Creek formation. Called Kirk and let him know I was intending on drilling to 67 feet. Kirk was o.k. with it.

Drilled 57 ft to 67 feet bls. Muddy Creek contact located at approximately 58 feet bls. Uncertain as to The depth of groundwater. Cutting slightly moist at approximately 40 foot interval. Used M-scope to water level reading prior to setting well. Drill crew took lunch at this point as they are tired of waiting For me to tell them the depth at which the well was to be set. Left M-scope in drill pipe while drillers on lunch break to check for recharge. None observed. Called Kirk and told him my findings. Instucted to set well at 57 feet bls, just above the muddy creek contact. 20 feet of screen to be used.

1305 Informed drillers of well construction specs upon their return from lunch. Also informed drillers that we needed to collect rinseate samples from their equipment after next decon event.

Drillers are checking their well supplies to see if have enough materials to complete next pizometer. Driller informed me that he did not have enough to complete the next pizometer and could not tell me at This moment when he would as his supervisor told him all the well supply stores were already closed. Called Kristi and informed her of this and to see if we have clearance to start the monitoring wells. Krisiti will call me back when she has more info.

1326 Drill crew began setting TMPZ-111.

TMPZ-111 installed.

Drillers cleaning up area, performing decon of equipment, sample team was notified so they could

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Friday____ Date: __12-9-05_____

Time Onsite: From: _0600___ To: ____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Cloudy, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

Collect rinseate samples.

1447 Sample team arrived.

Unloaded core from truck into sample staging area, talked with Kirk regarding TMPZ-112.

1515 Offsite, Kirk remained onsite to cover my remaining duties for the day, as I had an additional job to perform.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Saturday____ Date: __12-10-05_____

Time Onsite: From: _0620___ To: ____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

0620 Onsite, checked in at guard shack, Arrived late since I had problems getting key to unlock Ranger and had to stop at the office to pick up additional FedEx slips for Kristi. Waited to have safety meeting until I got there. Had safety meeting and entered plant.

0640 Drill crew warming up rig and preparing to drill pizometer TMPZ-112. Set up yesterday. According to Kirk and Kristi we will we drilling the boring, leaving it open, and will ream it out again When project starts back up with the hollow stem auger rig. Told Kristi we should probably get cones out to boring location since we will have a 40-50 foot 8.5 inch hole in the ground.

0700 Began Drilling TMPZ-112.

0700 - 0702, Recovered core from 0 to 7 ft bls

0705 - 0707, Recovered core from 7 to 17 ft bls

0719 – 0722 , Recovered core from 17 to 27 ft bls

0739– 0742, Recovered core from 27 to 37 ft bls

0751– 0757, Recovered core from 37 to 47 ft bls

0809 – 0813, Recovered core from 47 to 57 ft bls

0825–0830, Recovered core from 57 to 67 ft bls

0830 Completed TMPZ-112. Boring left open, covered hole with drum lid and placed orange safety cone on top. Drillers are breaking down rig, deconning equipment, and preparing to move to the next location.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Saturday____ Date: __12-10-05_____

Time Onsite: From: _0620___ To: ____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

Based on soil moisture, depth to water appears to be at approximately 37 to 40 feet bls.

The Muddy Creek contact appears to be at 47 feet. Went from a silty fine sand with little medium to Coarse sand and trace fine to coarse gravel into a silty clay or possibly a clayey silt. A fining downward sequence was observed from 47 to 67 feet and a clay was definitely dominant by 67 feet. No major changes in lithology observed over this 20 foot interval.

Called Kirk to check and see how far into water we are to go on this wells. Referred me to workplan. According to workplan, the monitoring wells are to be installed 20 feet past the water table and are to be screened to 10 feet above the water table. Sand is to be placed 2 feet above screen, 2 foot bentonite seal, and finished with grout. Did not read surface completion for well at this time.

0929 Drill crew preparing to drill TMMW-104.

0959 Began Drilling TMMW-104

0959 - 1001, Recovered core from 0 to 7 ft bls

1007 – 1009, Recovered core from 7 to 17 ft bls

1021 -1025 , Recovered core from 17 to 27 ft bls

1045-1050, Recovered core from 27 to 37 ft bls

1112 - 1119, Recovered core from 37 to 47 ft bls

1140-1150 Recovered core from 47 to 57 ft bls

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Saturday____ Date: __12-10-05_____

Time Onsite: From: _0620___ To: ____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

1207-1212, Recovered core from 57 to 67 ft bls. Drillers took break at the end of this interval.

1320-1325, Recovered core from 67 to 77 ft bls.

1340-1350 & 1400-1415, Recovered core from 77 to 87 ft bls

Are using a Tetra Tech employee for sample runs, as drill location is so far from rig. Will miss to much of the drilling activities if I run them myself.

Located a 2" monitoring well approximately 15 feet from the drill rig, deconned water level indicator And took a depth to water reading as it seemed like the logical thing to do. Depth to water approximately 67 feet bls. This takes into account the well being set above grade. Called Kirk to Let him know the reading I got. Based on the information I got, well will be drilled to 87 feet bls. This will provide a 20 foot water column. Screen will go to 57 feet bls. Driller may not have enough material. Will check. Please note well lock was found broken.

1420 Sample team arrived at drill location. Have completed collected samples to 65 feet. Informed them I think we are in water and no more samples need to be collected. Sample team offsite. Kristi took Samples to Fedex. Will call her later with time they need to be onsite.

Drill crew tripping out and preparing to set well. Well supplies are back at drill staging area. Will take awhile to transport them to drill location as will be transporting some of them with a forklift.

Instructed driller we will be setting well at 87 feet, screen will go from 57 to 87 feet with sand two feet above screen.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Saturday____ Date: __12-10-05_____

Time Onsite: From: _0620___ To: ____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

1207-1212, Recovered core from 57 to 67 ft bls. Drillers took break at the end of this interval.

1320-1325, Recovered core from 67 to 77 ft bls.

1340-1350 & 1400-1415, Recovered core from 77 to 87 ft bls

Are using a Tetra Tech employee for sample runs, as drill location is so far from rig. Will miss to much of the drilling activities if I run them myself.

Located a 2" monitoring well approximately 15 feet from the drill rig, deconned water level indicator And took a depth to water reading as it seemed like the logical thing to do. Depth to water approximately 67 feet bls. This takes into account the well being set above grade. Called Kirk to Let him know the reading I got. Based on the information I got, well will be drilled to 87 feet bls. This will provide 20 a 20 foot water column. Screen will go to 57 feet bls. Driller may not have enough material. Will check. Please note well lock was found broken.

1420 Sample team arrived at drill location. Have completed collected samples to 65 feet. Informed them I think we are in water and no more samples need to be collected. Sample team offsite. Kristi took Samples to Fedex. Will call her later with time they need to be onsite.

Drill crew tripping out and preparing to set well. Well supplies are back at drill staging area. Will take awhile to transport them to drill location as will be transporting some of them with a forklift.

Instructed driller we will be setting well at 87 feet, screen will go from 57 to 87 feet with sand two feet above screen.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Saturday____ Date: __12-10-05_____

Time Onsite: From: _0620___ To: ____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

I left drill location to go back to sample area and previous drilled pizometer to log soil. Provided driller With my cell phone number and told him to call me if he had any questions or problems while setting The well.

Based on the harder drilling conditions observed in this well and the amount of time it took to \ drill the boring it is unlikely that we will be able to get more than one monitoring well in per day and still Get the samples to Fedex on time.

Called Kirk and notified him that boring was drilled and drill crew was in the progress of transporting Well materials to well location.

Logged all of TMPZ-112

Logged remaining soil from TMPZ-112.

Placed cones around monitoring well that was installed along the road edge. Instructed TY of Timet yesterday to do this as the well may get hit security during night time fence line checks.

1510 Drillers have completed installing TMMW-104. Depth of well 87 feet, screen to 57 feet, and sand placed to 55 feet, 2 foot bentonite seal, grout to land surface.

Driller's will be here at 0600 tomorrow. Will inform Krisit that sample team does not need to be here Until about 0730. I did suggest that Kristi come in a little early with a company truck so we could load Some of the soil sample bags that were no longer needed and transport them to the stockpile. She agreed.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Saturday____ Date: __12-10-05_____

Time Onsite: From: _0620___ To: ____; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME:	WORK DESCRIPTION:
	Cleaned up truck
1715	Offsite
1730	Complete

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Sunday____ Date: __12-11-05_____

Time Onsite: From: _0559___ To: ___1230_; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

0559 Arrived onsite, Checked in at guard shack. Gave driller's the safety meeting. Drillers are deconning equipment and mobbing to drill location. As the drill location is outside the plant and mobbing will take a little while, I went back onsite to collected grab samples of the material around what I believed was the Muddy Creek Formation.

Kristi called me on my way back to sample area and told me she was onsite with the F250 and we could start to load soil bags out of sample staging area and transport them to the drillers soil stockpile. Loaded up the F250 and Ranger with unneeded soil sample bags.

0728 Arrived back at monitoring well location. Driller's are still setting up. Estimated 0.5 hours till the drilling begins. Stayed around rig so as not to miss the beginning of the boring.

Was informed by the driller that they were sent wrong end caps for wells, schedule 80 not 40. Will not fit. Drillers requested to be allowed to drill boring and leave rig in place and set the well tomorrow as Well supplies stores are closed today. Did not see a problem with this, however I verified this with Kirk. Kirk is ok with this, however suggested I check our storage unit and field equipment office to see If we had any bottom caps left over from previous jobs. Will look once drillers reach depth that will slow the further advancement of the boring.

0855 Drill crew setup and ready to drill TMMW-103.

0855 - 0859, Recovered core from 0 to 7 ft bls

0903 – 0905, Recovered core from 7 to 17 ft bls.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Sunday____ Date: __12-11-05_____

Time Onsite: From: _0559___ To: __1230_; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

0920-0922, Recovered core from 17 to 27 ft bls

0927 Left site to check storage areas for end caps. Checked both the storage unit and the equipment office. I was unable to locate any end caps in my search. Will have to set well tomorrow.

1001 Arrived back onsite. While gone the 27-37 foot interval was drilled and sampled and the 37-47 foot interval was just being finished up.

Estimate between 0930-0940, Recovered core from 27 to 37 ft bls

Estimate between 0950-1000, Recovered core from 37 to 47 ft bls

1012-1018, Recovered core from 47 to 57 ft bls.

1036-1044, Recovered core from 57 to 67 ft bls.

1118-1127, Recovered core from 67 to 77 ft bls.

1150 Kristi stopped by and asked me about an anticipated starting time tomorrow. I told her I would call her later with a time, as I had not had the opportunity to speak with the driller. Kristi offsite.

1205-1214, Recovered core from 77 to 87 ft bls.

1215 Boring for well TMMW-103 complete.

Checked with driller for anticipated starting time. Feels pretty confident that they will have bottom caps and will be ready to set well by 0800. Told driller I would be onsite before 0800. Driller has my cell number in case plans significantly change.

1230 Cleaned up truck, checked out at guard shack, offsite and done for the day.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: ___Monday___ Date: __12-12-05_____

Time Onsite: From: __0745__ To: _1750_; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

Visitors: _____Rest of project team, see main report for details_____

TIME:	WORK DESCRIPTION:
0745	Arrived onsite, Drill crew is still waiting on the bottom cap to be delivered by well supply company. Expecting the cap to arrive between 0730 and 0800. Left site to buy gas.
0802	Back onsite, checked in at guard shack, Upon arrival back at the rig I was informed the bottom cap was delivered.
0805	Drill crew tripping out and began to set monitoring well TMPZ-103.
0946	Monitoring well TMPZ-103 is set, installed at 87 feet bls, 30 feet screen, depth to water estimated at mid to high 60's by driller. Soil cuttings only slightly wet from 65 to 87 feet.
	Drill crew breaking down area, deconning equipment, and preparing to mobizlize to next drill location.
	Setup and ready to drill boring for TMMW-102.
1055	Began drilling TMMW-102
	1055-1057, Recovered core from 0 to 7 ft bls
	1107-1110, Recovered core from 7 to 17 ft bls
	1115-1117 and 1121-1123, Recovered core from 17 to 27 ft bls
	1129-1133, Recovered core from 27 to 37 ft bls
	1146-1152, Recovered core from 37 to 47 ft bls
	1207-1213, Recovered core from 47 to 57 ft bls
	1230-1238, Recovered core from 57 to 67 ft bls
	1250-1301, Recovered core from 67 to 77 ft bls

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: ___Monday___ Date: __12-12-05_____

Time Onsite: From: __0745__ To: __1750_; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

Soil around 60 feet slightly moist, asked driller if he thinks he hit water. Indicated water was around 57 feet bgs. Drilled to 77 feet bgs and soil continues to be slightly wet. Will set well at 77f t. Believe we hit the Muddy Creek contact at 71 feet bls. Called Kirk to inform him I will be setting the well at 77 ft. Kirk approved but asked me to collect a water level reading prior to setting the well.

1320 Driller's taking lunch break. Started logging the boring at this time.

Kirk Stowers arrived onsite shortly after I called him. Had not yet collected depth to water as drill pipe was still in boring.

Depth to water appears to be around 50 feet but not getting a decent reading from meter. Went with Kirk to check water level on last boring drilled. Depth to water is at 67 feet. Not really sure I see a 10 foot change in elevation to account for the water level reading obtained from TMMW-102. Will try Collecting depth again to see if I can get a reading we are confident with.

Depth to water collected in TMMW-102 second try appears to be at 70 or so feet. Appears tape is wet for about 15 feet.

Instructed drill crew to go an additional 10 feet. While additional footage was being drilled I left the site to pick up our 1000 foot Solinist. Will hopefully be able to obtain an accurate reading with that.

Kirk offsite, left instructions to call him when I get a water level reading.

Back onsite, drill crew has completed boring to a depth of 87 feet bls.

Collected depth to water using the solinist – water only present at the very bottom. Boring has been

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: ___Monday___ Date: __12-12-05_____

Time Onsite: From: __0745__ To: __1740__; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

Drilled through the Muddy Creek at this depth and it appears the water is not being allowed to come up into the casing due to the high clay content.

As the surface elevation change has not increased (appears to decrease in this direction) I called Kirk And told him my findings and suggested we install the well at 87 feet and place 40 feet of screen in the boring instead of 30 as on the previous monitoring wells. This should ensure that the well is screened 10 feet above the ground water contact. Kirk ok with this.

Provided drill crew with the specs for setting the well. Driller will need to get more screen for last boring as they did not plan on screening the wells for 40 feet. Can get the supplies by tomorrow and the drilling operation will not delayed.

1536 Began setting TMMW-102. Depth 87 feet, screen will be to 47 feet.

While constructing the well the PVC pipe was observed to come up approximately 15 feet. Instructed drill crew that boring needs to be redone so that well is at 87 feet. Drill crew began pulling PVC pipe from boring. Observed steel casing actually being pulled up when the PVC was being pulled.

Recovered PVC pipe from the well. Drillers are going back down to clean out the boring.

Driller asked if he could add gel to the well (Mud, Wyoning untreated bentonite). Told the driller, I would have to call Kirk and verify that materials could be added to the boring.

While on the phone with Kirk driller told me he was going to use a flop bit and not add material to the boring. If it doesn't he will still need to add material to the hole.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: ___Monday___ Date: __12-12-05_____

Time Onsite: From: __0745__ To: __1745__; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Gold Ranger_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

Kirk told me that he would have to check with the hydrologist for the project if material is to be added to clean the boring. Would not be able to get an answer till tomorrow.

Kirk provided me with the well vault specs for the pizometers and monitoring wells. Told him that I had heard Ty of Timet discussing not being able to have the wells flush with grade for the pizometers.

Bid specs call for pizometers to be set flush at grade. I called TY to check and Kirk would try and get a hold of Craig with Timet to get a definite answer.

Ty called me back later and informed me that he really does not have any authority to approve what is being done. If the bid specs were approved by Timet than do what the specs say. He said he would follow up with Craig as well. Called Kirk and told him to verify with Craig also.

Drill crew was successful at cleaning out well with flopp bit. Work done past dark. Light being provided by lights from forklift. Called Kirk to verify work was authorized after dark by Timet just to be sure. Kirk didn't think there was a problem. Area seemed to be sufficiently lit for safe working conditions in the immediate vicinity of the rig.

1720 Drill crew offsite. Rig and box trailer were left in place. Will set well tomorrow. Will notify sample team not to show up at 0600. Should be alright if they don't show up till at least 7:30 or maybe even 0800.

1750 Cleaned up truck, finished up daily notes, signed out at guard shack, offsite.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: ___Tuesday___ Date: __12-13-05_____

Time Onsite: From: __0558 __ To: __; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

0558 Arrived onsite. Checked in at the guard shack. Drill crew arrived shortly after. Had a brief safety meeting. Drill crew preparing to install TMMW-102.

0628 Began installing TMMW-102. Logged remaining soil cuttings from TMMW-102 and TMMW-103.

0831 Finished installing monitoring well TMMW-102. Well set at 87 feet bls, screened 40 feet, sand place to to a depth of 44 feet bls (3 feet above screened interval).

Drillers are deconning their equipment and mobilizing to next drill location.

Bumped into Craig of Timet near guard shack. Asked him if he had heard from Kirk with regards to

Logged majority of boring for TMMW-102 before drillers were ready to go at next location. Will complete when I get the chance. Remaining soil to be logged from TMMW-103 also. Soil that has been logged is being placed on visqueen along with drillers waste soil cuttings. Temporary soil storage area approved by Timet.

Drillers are setup and are ready to drill the boring for TMMW-101.

0929 Began drilling TMMW-101.

0929-0931, Recovered core from 0 to 7 ft bls

0941-0945, Recovered core from 7 to 17 ft bls

0950-0953, Recovered core from 17 to 27 ft bls

1007-1018, Recovered core from 27 to 37 ft bls.

1025 Drillers are taking a lunch break, roughly 45 minutes. Dropped off soil from the 27-37 foot interval

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: ___Tuesday___ Date: __12-13-05_____

Time Onsite: From: __0558 __ To: __; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

At the sample staging area. Will log soil during this time and try and start to collect soil from the previous borings near the Muddy Creek contact as instructed by Kirk.

1140 Drillers back onsite and drilling operations resumed.

1149-1155, Recovered core from 37 to 47 ft bls

1217-1225, Recovered core from 47 to 57 ft bls.

1245-1252, Recovered core from 57 to 67 ft bls

1305-1311, Recovered core from 67 to 77 ft bls

1322-1330, Recovered core from 77 to 87 ft bls

1349-1358, Recovered core from 87 to 100 ft bls

Based on water level readings in this area of the property I informed the driller to place 5 feet of bentonite in the boring and set the well at 95 feet bls. Estimate that groundwater is at least at a depth of 75 bls. Also informed drillers to place screen from 95 to 65 feet bls. Drilling company only has 20 feet of screen left. Informed them that BAI had left over screen in our storage unit and that if it was compatible with the screen they are using they could have it. Please note that I previously discussed this with Kirk and he approved not billing the drilling company for the screen. We used to 5 foot sections of screen as the 10 foot sections did not match the drillers. Screen was still in the factory plastic wrapping.

1600 TMMW-101 set at 95 feet bls, 30 feet of screen, sand to 51 feet bls.

Drill Crew will begin constructing pads for pizometers and monitoring wells tomorrow.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: ___Tuesday___ Date: __12-13-05_____

Time Onsite: From: __0558 __ To: __; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Rest of project team, see main report for details_____

TIME: **WORK DESCRIPTION:**

Kirk provided me with the specs for the pizometers and monitoring well pads yesterday. Pizometers will be set flush with grade as stated in the specs. Kirk verified this with Craig of Timet. Gave the drill crew the specs. Drill crew will be back onsite tomorrow a 0600 to begin work. I will be back onsite tomorrow also to keep an eye on the pad construction. Will perform spot checks as I still have soil to log from last two or three borings. In addition, I will be collecting soil samples from around where we Think we identified the Muddy Creek formation.

1630 Offsite.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Wednesday_ Date: __12-14-05_____

Time Onsite: From: __0740 __ To: _1645_; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Prosonic Corporation only, sample team no longer required, see main report for details_____

TIME: **WORK DESCRIPTION:**

Called guard shack at approximately 0555 to leave a message for the drilling company. Provided 3 Phone numbers for concrete companies as requested yesterday by the drillers and left them instructions to start work without me. I would be onsite by 0800 to see how they are doing. Also left guard my cell # just in case the drillers lost my number. Received a call from the drilling company around 0630 With questions regarding the specs for the concrete pads. Main questions was did the concrete pad need be flush with grade. I told them I didn't think it had to be, as it would take quite a while to dig an 8 inch 4 feet by 4 feet, but I would check with Kirk a little later in morning to make sure. In a later conversation with Kirk I was informed the concrete pads should at least be a couple inches below grade but do not have to be 8.

0740 Arrived onsite. Drilling company is still working on putting together the wooden forms for the concrete pads at their staging area. Have not begun to work yet around the wells or pizometers. Gave them sheets with the specs for the pads with diagrams that I drew based on the phone conversation I had with Kirk a couple of days earlier.

Left drilling company to work on their own, checked to make sure they had my cell #, and informed them I would be onsite the rest of the day and would be by to check on their progress throughout the day.

Logging all remaining soil from this portion of the project, collected samples from the soil boring cores around the Muddy Creek contact.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: ___04-01-101-001_____

Field Representative(s): _Jeremy Holst_____ Day: __Wednesday_ Date: __12-14-05_____

Time Onsite: From: __0740 __ To: _1645_; From: _____ To: _____; From: _____ To: _____

_X_ Signed HASP _X_ Safety Glasses _X_ Hard Hat _X_ Steel Toe Boots ___ Safety Vest

NA_UST Emergency System Shut-off Switches Located _X_ Proper Gloves

_x_ Proper Level of Barricading _X_ Other PPE (describe)__Escape Respirator_____

Weather: _____Cold, Clear, Mostly Calm, Slight Breeze_____

Equipment In Use: _____Chevy Z71_____

Visitors: _____Prosonic Corporation only, sample team no longer required, see main report for details_____

TIME: **WORK DESCRIPTION:**

All of soil cores except for TMMW-101 to 103 were transported to the temporary storage area provided By Timet. Kristi will be onsite tomorrow to move these to the temporary disposal area as we will Know by then if the laboratory had any difficulties with the samples submitted for analyses. Ty of Timet was informed of our time frame for being finished with the sample staging area.

Checked on Drilling company progress throughout the day. By the end of the day had completed putting the forms around all of the pizometers and some of the wells. Will finish wells up tomorrow first thing and a concrete truck is scheduled to be onsite at 1000. Informed Kirk of the time the concrete Truck would be onsite so any red tape could be that would prohibit the truck from entering the Facility.

Called Kristi and gave her the specs for pads and wells as she would be onsite tomorrow. Completed logging the soil and collecting samples.

1645 Offsite.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Tuesday_____ Date: _____1/10/06_____

Time Onsite: From: _0657___ To: _1620___; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME: **WORK DESCRIPTION:**

0700 Onsite, Attended safety meeting.

Drill crew preparing to drill first boring, loading up rig with water, mobbing to drill location.

Setup at soil boring TMSB-118 location.

0831 Began drilling TMSB-118. Boring to be drilled until groundwater contact is encountered.

0930 Drill crew is having a problem with the sampler, stopped to fix.

0947 Resumed drilling TMSB-118 from approximately 20 feet bgs.

1050 Drilled to 50 feet bgs. Water contact was reached at approximately 49 bgs. Total depth of boring is 50 feet bgs. Boring was subsequently abandoned with cuttings from 5 feet bgs to 50 feet bgs. Bentonite slurry placed from 5 feet bgs to land surface. Boring location remarked with little pink flag for surveying purposes.

Methane LEL, H2S, CO never detected above meters detection limit. Oxygen remained at approximately 19.6 for the extent of the boring.

Drill crew setup at soil boring TMSB-119 location. Drill crew has enough auger and bits so that they do not have to decon in between each boring (115 feet total length I believe).

1209 Began drilling soil boring TMSB-119.

Prior to collecting the 15 foot sample gas concentrations were detected in the drill pipe at elevated levels. Methane – 12-20% LEL, H2S – 0.5 ppm, CO 38 ppm. Shut down rig immediately. Did not see smoke rising from the boring so I called Kirk to report the elevated readings prior to adding any

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT
Page _____ of _____

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Tuesday_____ Date: _____1/10/06_____

Time Onsite: From: _0657___ To: _1620___; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME: **WORK DESCRIPTION:**

dry ice to the boring. Kirk and rest of project team arrived at rig shortly after I made the phone call. Instructed to add dry ice to the boring to see if that would bring the readings down. After adding the dry ice gas readings dropped with in the drill pipe. Methane LEL – 1% of less, Oxygen – 2%, H2S – Non detect, CO - 184 ppm. The breathing space was always with appropriate safety limits.

Please note that a shiny metallic metal (actual fragments) were observed at approximately 10.5 feet bls. Instructed to resume drilling by Victoria based on the reading recorded. Upon resuming the drilling operation the drill crew is unable to progress any deeper. According to the driller he has encountered some kind of plastic or something that his bit will not go through. Just spins around on top.

1250 Boring called off at approximately 15 feet bgs due to auger refusal.

Abandoned boring with cuttings from 15 feet bgs to 5 feet bgs. Bentonite slurry placed from 5 feet bgs To land surface.

Boring location marked with pink flag for surveying purposes.

Drill crew setup at soil boring TMSB-120 location.

1324 Began drilling soil boring TMSB-120

Methane LEL, H2S, CO never detected above meters detection limit. Oxygen remained at approximately 19.7 for the extent of the boring.

Boring called at 47 feet bgs. Groundwater contact approximately 46 feet bgs.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: Timet Project No.: 04-01-101-001

Field Representative(s): Jeremy Holst Day: Tuesday Date: 1/10/06

Time Onsite: From: 0657 To: 1620; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator

Weather: Cool, calm, mostly clear

Equipment In Use: Chevy Z71

Visitors: Prosonic Corporation, Project Sample Team

TIME: **WORK DESCRIPTION:**

According to the driller a sample was not recovered at 45 feet due to a rock being in the way. Driller also thought may be right at the groundwater contact also. Based on this I had the driller extend the boring approximately 2 feet past the obstruction and collect a sample. Appeared groundwater interface was at approximately 46 feet bgs.

1456 Completed boring TMSB-120

Abandoned boring with drill cuttings from 47 feet bgs to 5 feet bgs. Bentonite slurry placed from 5 feet bgs to ground surface.

Dropped samples off at the sample staging area. Found next boring location and showed drill crew the decon area. Informed drill crew that TMSB-120 is the last boring for the day due to time constraints of sample collection.

Showed drill crew staging area and got Ty of Timet to approve the drill crew leaving their pressure washer trailer next to the decon area instead of the approved staging area.

Drill crew set to meet tomorrow at 0700. Informed project team of tomorrow's start time.

Helped out with sample shipment preparation.

1620 Offsite

Drove to Office, cleaned up truck, finished and finished daily reports.

1730 Complete.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Wednesday_____ Date: _____1/11/06_____

Time Onsite: From: _0658___ To: _1505___; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME:	WORK DESCRIPTION:
0658	Onsite, Attended safety meeting.
	Drill crew preparing to drill first boring, loading up rig with water, mobbing to drill location.
	Setup at soil boring TMSB-121 location.
0753	Began drilling TMSB-121. Borings to be drilled until groundwater contact is encountered.
0754	Collected sample at ground surface
0809	Collected sample at 5 feet bgs
0817	Collected sample at 10 feet bgs
0827	Collected sample at 15 feet bgs
0840	Collected sample at 20 feet bgs
0846	Collected sample at 25 feet bgs
	Groundwater contact encountered at approximately 23 feet bgs. Boring terminated at 25 feet bgs.
	Oxygen, methane, H2S, and CO not detected at elevated levels during drilling.
	Boring was abandoned with a bentonite slurry from total depth to land surface.
	Drill crew breaking down mobbing to next drill location. Soil cuttings being placed on visqueen in same Location as the sonic drilling cuttings were placed.
	Drill crew set up on soil boring TMSB-124.
0942	Began drilling soil boring TMSB-124.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Wednesday_____ Date: _____1/11/06_____

Time Onsite: From: _0658___ To: _1505___; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME:	WORK DESCRIPTION:
0943	Collected sample at ground surface
0952	Collected sample at 5 feet bgs
0958	Collected sample at 10 feet bgs
1005	Collected sample at 15 feet bgs
1015	Collected sample at 20 feet bgs
1025	Collected sample at 25 feet bgs
	Groundwater contact encountered at approximately 21 feet bgs. Boring terminated at 25 feet bgs.
	Oxygen, methane, H2S, and CO not detected at elevated levels during drilling.
	Boring was abandoned with a bentonite slurry from total depth to land surface.
	Drill crew breaking down mobbing to next drill location.
	Drill crew set up on soil boring TMSB-125.
1124	Began drilling soil boring TMSB-125.
1125	Collected sample at the ground surface
1136	Collected sample at 5 feet bgs
1142	Collected sample at 10 feet bgs
1147	Collected sample at 15 feet bgs
1154	Collected sample at 20 feet bgs
1159	Collected sample at 25 feet bgs

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Wednesday_____ Date: _____1/11/06_____

Time Onsite: From: _0658___ To: _1505___; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME:	WORK DESCRIPTION:
	Groundwater contact encountered at approximately 20.5 feet bgs. Boring terminated at 25 feet bgs.
	Oxygen, methane, H2S, and CO not detected at elevated levels during drilling.
	Boring was abandoned with a bentonite slurry from total depth to land surface.
	Drill crew breaking down mobbing to next drill location.
	Broke for lunch break prior to starting next boring.
	Drill crew set up on soil boring TMSB-126.
1322	Began drilling soil boring TMSB-126.
1323	Collected sample at the ground surface
1330	Collected sample at 5 feet bgs
1336	Collected sample at 10 feet bgs
1340	Collected sample at 15 feet bgs
1350	Collected sample at 20 feet bgs
1401	Collected sample at 25 feet bgs
1413	Collected sample at 30 feet bgs
	Groundwater contact encountered at approximately 28 feet bgs. Boring terminated at 30 feet bgs.
	Oxygen, methane, H2S, and CO not detected at elevated levels during drilling.
	Boring was abandoned with a bentonite slurry from total depth to land surface.
	Drilling stopped for the day to sample delivery constrictions.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Wednesday_____ Date: _____1/11/06_____

Time Onsite: From: _0658___ To: _1505___; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME: **WORK DESCRIPTION:**

Drillers making repairs to sampler. Will decon auger afterwards and be ready to drill first thing Tomorrow. Will leave rig in staging area and will setup at next boring location tomorrow.

Starting time tomorrow of 0700 confirmed with drillers. Will pass along starting time to rest of project team.

Ty's number – (702) 595-2881

Left drillers to finish work for the day. Checked in on sample team. Kristi had left already. Checked To see if rest of sample team needed anything else done. Informed everything else was in order.

1505 Offsite.

Drove to office finished up daily log.

1530 Complete.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Wednesday_____ Date: _____1/12/06_____

Time Onsite: From: _0655___ To: _1510_; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME:	WORK DESCRIPTION:
0655	Onsite, Attended safety meeting.
	Drill crew preparing to drill first boring, mobbing to drill location.
	Setup at soil boring TMSB-113 location.
0743	Began drilling TMSB-.113 Borings to be drilled until groundwater contact is encountered.
0744	Collected sample at ground surface
0752	Collected sample at 5 feet bgs
0758	Collected sample at 10 feet bgs
0805	Collected sample at 15 feet bgs
0814	Collected sample at 20 feet bgs
0824	Collected sample at 25 feet bgs
0833	Collected sample at 30 feet bgs
0840	Collected sample at 35 feet bgs
0855	Collected sample at 40 feet bgs
0925	Collected sample at 43 feet bgs (Collected approximately 1 foot above boulder)
	According to driller he encountered a large cobble or boulder at 44 feet bgs and is not able to proceed to To a greater depth. Called Kirk to verify that it was ok to call the boring and not drill another one. Kirk Informed me he wanted to check with Victoria to make sure we did not need to do another boring in this area. Upon return phone from Kirk I was informed that another soil boring was not needed.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Wednesday_____ Date: _____1/12/06_____

Time Onsite: From: _0655___ To: _1510_; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME: **WORK DESCRIPTION:**

Groundwater contact not encountered in boring TMSB-113. Boring terminated at 44 feet bgs.

Oxygen, methane, H2S, and CO not detected at elevated levels during drilling.

Boring was abandoned with a bentonite slurry from total depth to land surface.

Drill crew breaking down mobbing to next drill location.

Drill crew set up on soil boring TMSB-114.

1018 Began drilling soil boring TMSB-114.

Large cobble sized volcanic rocks, some green on the inside, waste rock (concrete fragments) Were encountered at a depth of 5 feet bgs. Unable to advance boring through this material. Boring hole keeps expanding and is getting to close to jacks of rig. Rig will loose stability if this occurs and Most likely hurt someone in the process. Called to Kirk and let him know the situation. Informed me Move around the area and see if I can find a location we can drill through. If upon trying several more Locations and we are unable to breakthrough call him back. Tried two more location at approximate 10 foot intervals to the north. Same conditions were observed in these borings as described above. Tried a location approximately 60 feet to the south east of the original boring location. Same conditions were observed. Please note the locations to drill in this area are currently greatly limited due to stored equipment in the area. Upon drilling the third boring called Kirk and left him a voicemail informing him that at this time we were unsuccessful in finding a drill location for boring TMSB-114. May have More luck if try closer to the railroad tracks but already pretty far from original location and I have no

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Wednesday_____ Date: _____1/12/06_____

Time Onsite: From: _0655___ To: 1510_; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME: **WORK DESCRIPTION:**

Have no idea where utility lines may be buried out here. Informed him that we were going to move On to boring TMMW-115 at this time and that we would come back to this one if necessary. I received a call from Kirk shortly after and he informed me he would contact the necessary Timet project team members to figure out what to do about the boring. I called Kirk back again shortly after and let him Know that based on the location of soil boring TMSB-116 we would probably run into the same problems while drilling that boring.

The four boring locations (no greater than 5 feet bgs) were backfilled with the cuttings.

Drill crew cleaning up and moving to the next boring location.

Flag for boring TMSB-115 was found lying on the ground without a pink circle around it. Appears May have just been blown or tracked over here. Based on the location provided on the map for boring TMSB-115 it appears that the boring should be located farther to the southeast. Moved boring' Approximately 50 feet to the southeast just out of alignment with boring TMSB-114 as indicated on the Map.

1126 Began drilling soil boring TMSB-115

1127 Collected sample at ground surface

1135 Collected sample at 5 feet bgs

1141 Collected sample at 10 feet bgs

1148 Collected sample at 15 feet bgs

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Wednesday_____ Date: _____1/12/06_____

Time Onsite: From: _0655___ To: __1510_; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME:	WORK DESCRIPTION:
1200	Collected sample at 20 feet bgs
1207	Collected sample at 25 feet bgs
1208	Drill crew took short break to go grab something to eat (Caught up on notes for the day).
1246	Began drilling TMSB-115 again
1303	Collected sample at 30 feet bgs
1317	Collected sample at 35 feet bgs
1335	Collected sample at 40 feet bgs
1405	Collected sample at 45 feet bgs

Groundwater contact encountered at approximately 44.5 feet bgs. Boring terminated at 45 feet bgs.

Oxygen, methane, H2S, and CO not detected at elevated levels during drilling.

Boring was abandoned with a bentonite slurry from total depth to land surface.

Called Kirk regarding status of project. Informed him that only have TMSB-116 (probably auger refusal Due to volcanic rock used for lifting the area), TMSB-117 (landfill last heard covered), TMSB-114 (auger refusal today due to volcanic fill), TMSB-122 (caustic pond need ramp built and rail cars are currently being loaded with the material from this location), TMSB-123 (need ramp built). Kirk will call Craig and work on getting everything squared away for tomorrow. I will see if TMSB-117 has been uncovered and take drillers to the pond area to see what he needs done to get his rig down there.

Located TMSB-117 and it has been uncovered.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Wednesday_____ Date: _____1/12/06_____

Time Onsite: From: _0655___ To: _1510_; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME: **WORK DESCRIPTION:**

Upon drillers finishing abandonment work at TMSB-115 I took him over to look at the ponds. Only request he made was a decent low grade ramp be put in and someone be around to pull his rig Out if it got stuck. Called Kirk and left him a voicemail about tomorrow's anticipated schedule. Will attempt to drill TMMW-116 first and then move over to TMSB-117. Rest of remaining Borings depend on Timet getting ramps put in and selection of replacement boring locations (i.e. TMSB-114 and probably TMSB-116).

Cleaned up truck. Meet time tomorrow scheduled for 0700 am. Will inform rest of project team.

1510 Offsite

Drove to office, cleaned up truck, finished daily, looked up volcanic rock encountered in TMSB-114. Appears to be Alkaline Feldspar Rhyolite.

1600 Complete

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Friday_____ Date: _____1/13/06_____

Time Onsite: From: _0655___ To: _1510_; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME:	WORK DESCRIPTION:
0706	Onsite, Attended safety meeting.
0715	Offsite to buy dry ice for last remaining landfill boring. Attempted to buy dry ice at Albertsons (Out) Food For Less (out), Walmart (doesn't carry), and Smiths (out). Called another Albertsons (out), Vons (doesn't carry), Smiths on Green Valley Parkway and 215 (yeah! They have some). Called Kristi and told her to go ahead and oversee drilling of TMSB-116. Will log cuttings when I get back. Most likely will have auger refusal anyway by 5 feet.
	Drove to Smith's, bought dry ice, stopped and bought gas on way back.
0900	Back onsite finally.
	Drilling of soil boring TMSB-116 complete by the time back onsite. Auger refusal at 10 feet due to Same conditions as TMSB-114.
	Drill times and sample interval times are as follows per Kristi.
0805	Started drilling boring TMSB-116
0806	Collected sample at ground surface
0812	Collected sample at 5 feet bgs
0817	Collected sample at 10 feet bgs
0818	Boring called off due to volcanic fill
	Drill crew moving to next boring location.
	Setup at soil boring TMSB-117 location.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Friday_____ Date: _____1/13/06_____

Time Onsite: From: _0655___ To: _1510_; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME:	WORK DESCRIPTION:
0912	Began drilling TMSB-117
0913	Collected sample at ground surface
0916	Collected sample at 5 feet bgs
0925	Collected sample at 10 feet bgs
0931	Collected sample at 15 feet bgs
0938	Collected sample at 20 feet bgs
0941	Collected sample at 25 feet bgs
1012	Collected sample at 30 feet bgs
1022	Collected sample at 35 feet bgs
1037	Collected sample at 40 feet bgs
1048	Collected sample at 45 feet bgs
1107	Collected sample at 50 feet bgs

Groundwater contact encountered at approximately 46-47 feet bgs. Boring terminated at 50 feet bgs. Oxygen (19.5), methane lel% (1%), H2S (ND), and CO (14 ppm) were the highest levels detected while drilling the boring. These levels were recorded in the landfill zone as indicated on the lithlog for the Boring.

Boring was abandoned with cuttings from total depth of boring to 5 feet bgs. Bentonite slurry placed on up to groundsurface.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Friday_____ Date: _____1/13/06_____

Time Onsite: From: _0655___ To: _1510_; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME: **WORK DESCRIPTION:**

During the drilling of TMSB-117 talked with Kirk, Craig, Ty, and operator loading the railroad cars

To try and coordinate the installation of the ramps necessary to drill soil boring TMSB-122 and 123.

After much talking have decided not to install boring TMSB-122 as we are unable dig the ramp due to lines and the current depth of the excavation is to deep to add fill to make a ramp.

Operator did construct a ramp into the pond for TMSB-123.

Drove to office to pick up sample coolers and bottles, picked up lunch, back onsite.

Driller's setup on soil boring TMSB-123

Began drilling TMSB-123

Collected sample at ground surface

Collected sample at 5 feet bgs

Collected sample at 10 feet bgs

Collected sample at 15 feet bgs

Collected sample at 20 feet bgs

Collected sample at 25 feet bgs

Collected sample at 30 feet bgs

Groundwater contact encountered at approximately 28 feet bgs. Boring terminated at 30 feet bgs.

No gas survey reading were detected at elevated levels while drilling the boring.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Friday_____ Date: _____1/13/06_____

Time Onsite: From: _0655___ To: _1510_; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

Visitors: _Prosonic Corporation, Project Sample Team_____

TIME: **WORK DESCRIPTION:**

Drillers cleaning up for the day and deconning augers. Rinseate sample collected at time Of decon.

Have been instructed by Ty of Timet that trash all needs to be removed (Timet providing dumpster) and All of the stockpiled soil now needs to be transferred to the landfill. Talked with Ty via cell phone and he described to me right where the to put it. In addition soil that is still in plastic sample bags needs to Removed from the bag. Will take care of this tomorrow. Have talked with Kirk already and he has Approved for me to bring Chris out tomorrow to help me unload sample bags. I have scheduled for Chris to arrive at 0800.

Drillers scheduled to be onsite at 0700 am.

Helped in sample area bagging ice and preparing coolers for shipment.

1635 Offsite.

Drove to Fedex to help Kristi unload 4 sample coolers as worried about making the shipping deadline.

1700 Complete for the day.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Saturday_____ Date: _____1/14/06_____

Time Onsite: From: _0659___ To: __; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

_____

Visitors: _Prosonic Corporation, Chris of BAI, Sample team (cleanup of sample area)_____

TIME: **WORK DESCRIPTION:**

0659 Onsite

Driller crew preparing to re-drill TMPZ-112, getting water for rig, mobbing to drill location.

Checked boring prior to drilling has been backfilled with bentonite back up to 57 feet and apprears to Have approximately 13 feet of water in the bottom.

Drill crew setup on TMPZ-112

0804 Began re-drilling TMPZ-112

Lithologic logging did not take place during the re-drill as it was previously logged during the sonic Drilling portion of the project. Other Timet drill forms were filled out.

Boring to re-drilled to a depth of 57 feet bgs. Screen will be from 57 to 37 feet bgs and blank rest of the way up. Sand will be from 57 to 35 feet bgs. 2 foot betonite chips from 35 to 33 feet bgs. Bentonite grout up to land surface.

Provided driller my cell number and the specs listed above and went up front to meet Chris so we could empty soil bags from the sonic drilling portion of the project.

1005 Completed emptying sample bags and discarded empty bags into big bluish green drop box provided by Timet. I think it's the right one. Showed Chris the way back offsite and drove back to rig.

1015 Arrived back at drill rig. Are currently constructing the TMPZ-112. Well was constructed to as described above.

1030 Finished constructing PZTM-112.

Signature: _____

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

DAILY REPORT

Project: _____Timet_____ Project No.: _____04-01-101-001_____

Field Representative(s): ___Jeremy Holst_____ Day: _Saturday_____ Date: _____1/14/06_____

Time Onsite: From: _0659___ To: __; From: _____ To: _____; From: _____ To: _____

_x_ Signed HASP _x_ Safety Glasses _x_ Hard Hat _x_ Steel Toe Boots _x_ Safety Vest

NA_UST Emergency System Shut-off Switches Located _x_ Proper Gloves

_x_ Proper Level of Barricading _x_ Other PPE (describe)_Escape Respirator_____

Weather: _Cool, calm, mostly clear_____

Equipment In Use: _____Chevy Z71_____

_____

Visitors: _Prosonic Corporation, Chris of BAI, Sample team (cleanup of sample area)_____

TIME: **WORK DESCRIPTION:**

Helped unload and dump left over smaller sample bags for the entire project.

Driller's helper has begun transferring soil over to landfill area.

Helped Driller with vault installation

Helped Driller with trash pickup. Please note filled green dumpster pretty full and then used orange Silver State compactable dumpster for remaining trash. I helped with all trash removed and did not observe any hazardous materials being disposed of in the dumpster.

Everything seems to be pretty well in order, minimal amount of soil to be transported still, driller is Deconning augers used for TMPZ-112.

Left driller responsible for finishing the soil removal.

1500 Offsite

1530 Drove to office unloaded rest of supplies and offsite.

Signature: _____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / TMMW-104 JOB NO. 04-1-101-001 DATE 3/7/06

PUMPING OR RECOVERY DATA Pumping TYPE OF AQUIFER TEST Step TEST NUMBER #1

PUMPING OR OBSERVATION WELL Pumping RADIAL DISTANCE FROM PUMPING WELL NA

METHOD OF DISCHARGE MEASUREMENT M-scope METHOD OF WATER LEVEL MEASUREMENT

DATA LOGGER: SN# XD-PSI REFERENCE SET DEPTH SCALE OFFSET

Pump at 83.6

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 71.41 (71.27 w/ pump)				SAND DATA			DISCHARGE DATA			COMMENTS			gpm
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	~~pH ML~~	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	pH	EC	temp	
3/7	12:25				71.27													
	12:27				71.63													
	12:28				71.94													<0.5 g
	12:29				72.16													
	12:30				72.46													
	12:32				73.00	~~73.33~~	72.89						<5 gal		~~22~~ 8.97	1772	22.3	
	12:35				73.81	~~74.2~~	73.8								9.03	1640	21.9	
	1240				74.30	74.44									9.03	1742	22.1	
	1245				74.81	74.93									9.05	1734	22.1	
	1250				75.16	75.23									9.02	1721	22.1	
	1255				75.43	75.49									—	—	—	
	1300				75.55	75.63									9.08	1735	22.1	
	1305				75.66	75.75									—	—	—	
	1310				75.68	75.75									9.13	1729	21.9	
	1315				75.74	75.82									—	—	—	
	1320				75.77	75.85									9.18	1721	21.9	
	1325				75.83	75.91									—	—	—	chan[illegible] water in meter cap
	1330				75.84	75.92									8.71	1709	21.9	
	1335				75.87	75.94									—	—	—	
	1340				75.84	75.92									8.75	1713	21.9	
	1345				75.93	76.00									—	—	—	
	1350				75.95	76.03									8.76	1717	22.0	
	1355				75.96	76.04									—	—	—	
	1400				75.92	76.00									8.82	1738	21.9	
	1405																	
	1407				77.48	77.77												vari
	1410				78.56	78.66												
	1412				79.43	79.65												1 gp
	1415				80.73	81.10												
	1419				80.97	81.09												~.75 gp
	1420				81.06	81.20												
	1421				81.13	81.25												
	1422				81.20	81.32												
	1423				81.29	81.41												
	1424				81.37	81.49												
	1425				81.46	81.57												
	1430				81.74	81.86												
	1435				81.93	82.15												

Aquifer Test Data Sheet

RECORDED BY:

... 100 gal removed

stop test @ 1446

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / TMMW-103 JOB NO. 04-01-161-061 DATE 3-7-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER #1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL N/A

METHOD OF DISCHARGE MEASUREMENT M-Scope METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 73.57				SAND DATA			DISCHARGE DATA			COMMENTS		
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	pH	EC	temp.
3/7	1527														—	—	—
	1536					76.29									—	—	—
	1537					76.65									—	—	—
	1538					76.89									—	—	—
	1539					77.03									—	—	—
	1540					77.20									8.00	2.75m	24.9
	1545					77.64									8.24	2.69	24.8
	1550					77.99									8.37	2.69	24.3
	1555					78.24									8.46	2.66	24.5
	1600					78.40									~~8.51~~	~~2.63~~	~~24.5~~
	1605					78.52									8.54	2.63	24.5
	1610					78.58									—	—	—

N.59' (might be a little mo

RECORDED BY: ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / TMMW-103 JOB NO. 04-01-101-001 DATE 3-8-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER #2

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL

METHOD OF DISCHARGE MEASUREMENT M-Scope METHOD OF WATER LEVEL MEASUREMENT

DATA LOGGER: SN# XD-PSI REFERENCE SET DEPTH SCALE OFFSET

no deeper than 8ft

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 73.65				SAND DATA			DISCHARGE DATA			COMMENTS			
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	pH	EC	temp	
3/8	745				75.82	75.92									-			
	746				76.16	76.21												
	747				76.24	76.37												
	748				76.48	76.51												
	749				76.75	76.81												
	750				76.91	76.95									7.27	2.62m	23.5	~.5 gpm
	755				77.27	77.30									7.56	2.58	23.8	
	800				77.49	77.52									7.72	2.61	23.3	
	805				77.67	77.70									7.87	2.58	23.7	
	810				77.80	77.83									—	—	—	
	815				77.87	77.91									8.02	2.57	23.2	
	820				77.93	77.96									—	—	—	
	825				77.95	77.98									8.15	2.56	23.7	
	830				77.99	78.01									—	—	—	
	835				78.02	78.05									8.23	2.54	23.9	
	840				78.07	78.09									—	—	—	
	845				78.09	78.12									8.31	2.53	24.0	
	850				78.11	78.14									—	—	—	
	855				78.13	78.15									8.20	2.53	23.7	
	900				78.13	78.15									—	—	—	
	905				78.12	78.15									8.22	2.54	24.1	
	910				78.09	78.12									—	—	—	
	915				78.06	78.08									8.29	2.53	23.7	
	920				78.01	78.03									—	—	—	
	925				77.96	77.99									8.34	2.54	23.8	↑
	930				78.52	78.58									—	—	—	↓ 1gpm
	931				78.80	78.85												
	932				79.04	79.09												
	933				79.29	79.32												
	934				79.51	79.55												
	935				79.73	79.77												
	940				80.56	80.57												
	945				81.14	81.16												
	950				81.35	81.33												
	955				81.53	81.50												
	1000				81.67	81.63												
	1005				81.71	81.69												
	1010				81.76	81.73												

RECORDED BY:

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET/TMMW-103 JOB NO. _____ DATE 3-8-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST step TEST NUMBER #2

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT _____ METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL =				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/8	1015				81.79	81.77									-1 gpm
	1020				81.81	81.79									
	1025				81.83	81.80									
	1030				81.84	81.81									
	1035				81.81	81.78									
	1040				81.78	81.75									
	1045				81.75	81.72									
	1050				83.97	83.96									1.5 gpm
	1051				83.27	83.26									
	1052				Stop test										

RECORDED BY: _____

PAGE ____ OF ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TMET / TMMW-102 JOB NO. 04-01-101-001 DATE 3-8-06

PUMPING OR RECOVERY DATA pumping + recovery TYPE OF AQUIFER TEST step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL NA

METHOD OF DISCHARGE MEASUREMENT M-scope METHOD OF WATER LEVEL MEASUREMENT

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

stop @ 83'

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 71.81				SAND DATA			DISCHARGE DATA			COMMENTS			
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	pH	EC	temp	
3/8	1116				Start Pumping													
	1120				74.42	74.23												4gpm
	1121				75.16	74.95												
	1122				75.69	75.50												
	1123				76.21	76.05												
	1124				76.69	76.52												
	1125				77.26	77.12									8.26	1460u	24.1	
	1130				79.79	79.60												.5gpm
	1134				81.30													
	1135				81.46	81.30												
	1136				81.58	81.42												
	1137				81.79	81.60												
	1138				81.95	81.76												
	1139				82.13	81.94												
	1140				82.30	82.14												
	1141				Stop pumping													
	1145				81.44													0gp
	1150				81.01													
	1155				80.61													
	1200				80.32													
	1205				79.97													
	1210				79.69													
	1215				79.36													

RECORDED BY: ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / TMMW-101 JOB NO. 04-01-101 DATE 3-8-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL NA

METHOD OF DISCHARGE MEASUREMENT M-Scope METHOD OF WATER LEVEL MEASUREMENT

DATA LOGGER: SN# XD-PSI REFERENCE SET DEPTH SCALE OFFSET

Stay about 92'

TIME (To =)			LINE PRESSURE		WATER LEVEL DATA (INITIAL SWL = 70.62)				SAND DATA			DISCHARGE DATA			COMMENTS		
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	pH	EC	temp
3/8	1240				Start pumping												
	1245				71.72	71.36											
	1246				71.78	71.42											
	1247				71.83	71.45											
	1248				71.85	71.48											
	1249				71.87	71.50											
	1250				71.91	71.54									7.88	2.01 m	24.6
	1255				71.97	71.61									8.10	1.93	24.4
	1300				72.01	71.65									8.23	1.91	24.0
	1305				72.04	71.67									8.32	1.87	24.4
	1310				72.05	71.69									—	—	—
	1315				72.06	71.70									8.27	1.94	23.9
	1320				72.09	71.72									—	—	—
	1325				72.10	71.74									8.39	2.00	23.8
	1330				72.11	71.74									—	—	—
	1335				72.12	71.75									8.42	2.03	24.2
	1340				72.12	71.75									—	—	—
	1345				72.10	71.74									8.39	2.05	24.5
	1350				72.09	71.73									—	—	—
	1355				72.07	71.70									8.33	2.07	24.7
	1400				73.23	72.79									—	—	—
	1402				73.44	73.04									—	—	—
	1403				73.65	73.24									—	—	—
	1404				73.80	73.38									—	—	—
	1405				73.99	73.58									8.43	2.08	24.6
	1410				74.36	73.96									—	—	—
	1415				74.50	74.10									8.48	2.01	24.4
	1420				74.54	74.14									—	—	—
	1425				74.57	74.18									8.40	2.07	24.8
	1430				74.60	74.20									—	—	—
	1435				74.63	74.23									8.43	2.11	24.8
	1440				74.63	74.23									—	—	—
	1445				74.66	74.26									8.45	2.11	24.6
	1450				74.68	74.28									—	—	—
	1455				74.70	74.30									8.45	2.10	24.5
	1500				74.71	74.33											
	1503				75.60	75.26											
	1504				76.00	75.61											

.5 gpm

1 gpm

1.5

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AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TMET / TMMW-101 JOB NO. 09-01-101 DATE 3-8-06

PUMPING OR RECOVERY DATA Pumping TYPE OF AQUIFER TEST Step TEST NUMBER 1

PUMPING OR OBSERVATION WELL Pumping RADIAL DISTANCE FROM PUMPING WELL —

METHOD OF DISCHARGE MEASUREMENT M-Scope METHOD OF WATER LEVEL MEASUREMENT

DATA LOGGER: SN# XD-PSI REFERENCE SET DEPTH SCALE OFFSET

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL =				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/8	1505				76.29	75.87									1.5 gpm
	1510				76.00	76.61									
	1515				77.16	76.75									
	1520				77.24	76.85									
	1525				77.29	76.89									
	1530				77.34	76.93									
	1535				77.35	76.95									
	1540				77.33	76.95									
	1543				78.17	77.85									2 gpm
	1544				78.51	78.12									
	1545				78.78	78.46									
	1546				78.99	78.65									
	1547				79.14	78.75									
	1548				79.25	78.90									
	1549				79.42	79.02									
	1550				79.50	79.10									
	1555				79.54	79.54									
	1600				80.05	79.70									
	1605				80.20	79.84									
	1610				80.31	79.95									
	1615				80.35	80.00									
	1620				80.39	80.05									
	1621				Stop pumping										

RECORDED BY:

PAGE ____ OF ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET/ TMMW-102 JOB NO. _____ DATE 3-8-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST step TEST NUMBER 2

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT M-Scope METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

stop @ 83'

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 71.75				SAND DATA			DISCHARGE DATA			COMMENTS		
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	pH	EC	temp
3/8	744				Start	pumping											
	745				72.37	71.80											
	746				72.96	72.40											
	747				73.39	72.84											
	749				74.05	73.48									—	—	—
	750				74.43	73.86									8.41	1727	21.8
	755				75.68	75.09									8.31	1707	22.2
	800				76.66	76.08									8.33	1693	22.6
	805				77.41	76.84									8.47	1476	22.6
	810				78.87	77.80									8.56	1693	22.4
	815				79.19	78.62									8.65	1640	22.4
	820				79.77	79.21									—	—	—
	825				80.28	79.70									8.73	1621	22.6
	830				80.93	80.35									—	—	—
	835				81.28	80.71									8.86	1672	22.3
	840				81.81	81.23									—	—	—
	845				82.05	81.49									8.93	1734	22.5
	850				82.32	81.77									—	—	—
	855				82.58	82.02									8.60	1730	22.5
	900				82.78	82.23									—	—	—
	905				82.93	82.36									8.67	1616	22.3
	906				82.98	82.42									—	—	—
	907				83.01	82.45		stop pumping							—	—	—

Aquifer Test Data Sheet

RECORDED BY: _____

PAGE ____ OF ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET/TMPZ-110 JOB NO. 04-01-110 DATE 3-9-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL —

METHOD OF DISCHARGE MEASUREMENT M-scope METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

stop @ 41'

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 37.44				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	gpm
	1012				begin pumping										>.5
	1014				38.34										.5
	1015				38.40	38.39									.5
	1016				38.41	38.40									
	1017				38.42	38.41									
	1018				38.43	38.42									
	1019				38.44	38.43									
	1020				38.44	38.43									
	1025				38.48	38.47									
	1030				38.51	38.50									
	1035				38.54	38.53									
	1040				38.56	38.55									
	1045				38.58	38.57									
	1050				38.59	38.58									
	1055				38.59	38.58									
	1100				38.57	38.56									
	1105				38.58	38.56									
	1110				38.57	38.56									
	1115				38.57	38.56									
	1120				38.57	38.56									
	1125				38.55	38.54									
	1126														1 gpm
	1127				39.06	39.05									
	1128				39.23	39.23									
	1129				39.36	39.34									
	1130				39.53	39.52									
	1135				40.33	40.34									
	1140				40.76	40.77									
	1144				41.00	40.99			Stop pumping						

RECORDED BY: ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / J2D2-R2 JOB NO. ____ DATE 3-9-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT M-Scope METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 40.98				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/9	1212					Start pumping									
	1215				41.17	41.15									.5 gpm
	1216				41.14	41.17									
	1217				41.13	41.16									
	1218				41.14	41.16									
	1219				41.14	41.17									
	1220				41.14	41.17									
	1225				41.15	41.18									
	1230				41.16	41.18									
	1235				41.15	41.18									
	1240				41.31	41.34									1 gpm
	1241				41.30	41.33									
	1242				41.30	41.33									
	1243				41.30	41.33									
	1244				41.30	41.33									
	1245				41.30	41.33									
	1250				41.31	41.33									
	1255				41.31	41.34									
	1300				41.31	41.34									
	1304				41.51	41.54									1.5 gpm
	1305				41.51	41.54									
	1306				41.51	41.54									
	1307				41.51	41.54									
	1308				41.51	41.54									
	1309				41.52	41.55									
	1310				41.52	41.55									
	1315				41.53	41.56									
	1320				41.53	41.56									
	1325				41.53	41.56									
	1329				41.77	41.80									2 gpm
	1330				41.77	41.80									
	1331				41.78	41.80									
	1332				41.77	41.80									
	1333				41.77	41.80									
	1334				41.77	41.80									
	1335				41.78	41.80									
	1340				41.78	41.82									
	1345				41.79	41.82									

RECORDED BY: ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. J2D2-R2 JOB NO. ____ DATE 3-9-06

PUMPING OR RECOVERY DATA ____ TYPE OF AQUIFER TEST ____ TEST NUMBER 1

PUMPING OR OBSERVATION WELL ____ RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT ____ METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = ____				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/9	1350				41.80	41.83									2 gpm
	1354				41.96	41.99									~2.5 gpm
	1355				41.95	41.98									
	1356				41.95	41.98									
	1400				41.96	41.99									
	1405				41.96	41.99									
	1410				41.97	42.00									
	1412				41.99	42.02									~2.5 pump at full speed
	1413				Stop pumping										

RECORDED BY: ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. MET / CLD3-R JOB NO. _____ DATE 3-9-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pump RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT MSCope METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

no lower than 40'

TIME To = _____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 32.59				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/6	1448				start pumping										
	1453				33.41	33.20									.5gpm
	1454				33.44	33.22									
	1455				33.46	33.25									
	1500				33.54	33.32									
	1505				33.56	33.36									
	1510				33.59	33.38									
	1515				33.59	33.38									
	1520				33.59	33.38									
	1525				33.58	33.37									
	1529				34.28	34.08									1 gpm
	1530				34.34	34.14									
	1535				34.50	34.30									
	1540				34.53	34.34									
	1545				34.57	34.36									
	1550				34.60	34.39									
	1555				34.60	34.40									
	1600				34.62	34.41									
	1605				34.62	34.41									
	1610				34.62	34.41									
	1616				35.56	35.36									1.5gpm.
	1617				35.65	35.45									
	1618				35.72	35.52									
	1619				35.79	35.58									
	1620				35.85	35.67									
	1625				35.96	35.76									
	1630				36.02	35.82									
	1635				36.05	35.85									
	1640				36.08	35.87									
	1645				36.11	35.90									
	1650				36.13	35.92									
	1655				36.15	35.94									
	1659				36.86	36.65									2gpm
	1700				36.92	36.71									
	1701				36.99	36.78									
	1702				37.06	36.83									
	1703				37.09	36.87									
	1704				37.14	36.93									

RECORDED BY: _____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. CLD3 R JOB NO. _____ DATE 3-9-06

PUMPING OR RECOVERY DATA _____ TYPE OF AQUIFER TEST step TEST NUMBER 1

PUMPING OR OBSERVATION WELL _____ RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT _____ METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL =				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/9	1705				37.16	36.94									2 gpm
	1710				37.30	37.07									
	1715				37.34	37.13									
	1720				37.38	37.16									
	1725				37.40	37.17									
	1730				37.45	37.23									
	1736				38.50	38.25									2.5 gpm
	1737				38.63	38.40									
	1738				38.76	38.53									
	1739				38.94	38.69									
	1740				39.06	38.82									
	1745				39.74	39.51									
	1747				40.03	39.81			stop pumping						
	~~1755~~														
	~~1800~~														

RECORDED BY: _____

PAGE____ OF ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TMET / CLD1-R JOB NO. 04-01-101 DATE 3-10-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL

METHOD OF DISCHARGE MEASUREMENT M-Scope METHOD OF WATER LEVEL MEASUREMENT

DATA LOGGER: SN# XD-PSI REFERENCE SET DEPTH SCALE OFFSET

not below 30'

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 27.35				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/6	749				begin pumping										
	752				27.61	27.63									~5gpm
	753				27.60	27.62									
	754				27.59	27.61									
	755				27.59	27.61									
	800				27.59	27.60									
	805				27.59	27.61									
	810				27.59	27.61									
	815				27.59	27.61									
	820				27.87	27.88									~1gpm
	821				27.86	27.88									
	822				27.86	27.88									
	823				27.85	27.88									
	824				27.86	27.89									
	825				27.86	27.89									
	830				27.87	27.90									
	835				27.88	27.91									
	840				27.88	27.91									
	845				27.89	27.92									
	849				28.11	28.14									1.5gpm
	850				28.11	28.14									
	851				28.11	28.14									
	852				28.12	28.14									
	853				28.12	28.14									
	854				28.12	28.15									
	855				28.12	28.15									
	857														pump full speed 2.5gpm
	900				28.66	28.68									
	901				28.66	28.72									
	902				28.68	28.71									
	903				28.69	28.72									
	904				28.69	28.72									
	905				28.70	28.73									
	910				28.70	28.73									
	915				28.71	28.74									
	920				28.73	28.75									
	925				28.73	28.76									
	930				28.73	28.76									

stop pump @ 9:31

RECORDED BY: _____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / PC67 JOB NO. ____ DATE 3-10-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL —

METHOD OF DISCHARGE MEASUREMENT In-Scope METHOD OF WATER LEVEL MEASUREMENT —

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 10.52				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1033				Aux A pumping										
	1037				10.74	10.71									.5 gpm
	1038				10.71	10.68									
	1039				10.70	10.67									
	1040				10.71	10.67									
	1045				10.72	10.67									
	1050				10.73	10.67									
	1055				10.73	10.66									
	1059				10.98	10.91									~1 gpm
	1100				10.98	10.90									
	1105				11.01	10.92									
	1110				11.01	10.92									
	1115				11.01	10.92									
	1117				11.31	11.25									2 gpm
	1118				11.32	11.26									
	1119				11.33	11.26									
	1120				11.33	11.26									
	1125				11.37	11.29									
	1130				11.38	11.30									
	1135				11.38	11.31									
	1139				11.62	11.56									2.5 gpm
	1140				11.63	11.57									
	1145				11.64	11.57									
	1150				11.65	11.58									
	1155				11.66	11.59									
	1200				11.67	11.60			Stop pumping						

RECORDED BY: ____

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AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / PC65 JOB NO. _____ DATE 3-10-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL —

METHOD OF DISCHARGE MEASUREMENT M-slope METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

13

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL =				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/10	1224				6.12	6.45									.5gpm
	1225				6.06	6.40									
	1230				6.05	6.38									
	1235				6.06	6.40									
	1240				6.06	6.40									1gpm
	1245				6.88	7.16									
	1246				6.81	7.14									
	1250				6.70	7.02									
	1254				8.77	9.07									2gpm
	1255				9.04	9.35									
	1300				9.20	9.46									
	1305				9.18	9.48									
	1310				9.16	9.47									
	1315				9.21	9.52									
	1320				9.25	9.56									
	1325				9.30	9.60									
	1330				9.33	9.64									
	1335				9.35	9.66									
	1340				9.43	9.73									
	1345				9.48	9.78									
	1350				9.51	9.80									
	1355				9.53	9.83									
	1400				9.53	9.83									
	1405				9.60	9.90									
	1410				9.57	9.86									
	1415				9.56	9.86									
	1417				—										pump full speed
	1418				11.95	blocked									2.6gpm
	1419				11.98										
	1420				12.02										
	1425				11.94										
	1430				11.97										
	1435				11.94			stop	pumping						

Aquifer Test Data Sheet

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AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / M95 JOB NO. _____ DATE 3-13-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT MSCope METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

no lower than 15'

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 9.98				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/13	912						Start		pumping						
	915				9.98	10.07									~.5 gpm
	916				9.98	10.06									
	917				9.98	10.05									
	920				9.96	10.05									
	925				9.96	10.05									
	9:29				10.02	10.12									~1 gpm
	930				10.01	10.11									
	935				10.01	10.12									
	940				10.01	10.11									
	944				10.13	10.23									2 gpm
	945				10.12	10.23									
	950				10.13	10.23									
	955				10.12	10.23									
	1000				10.11	10.23									
	1002				10.21	10.33								pump	all the way up ~2.5 gpm
	1003				10.21	10.33									
	1005				10.21	10.33									
	1010				10.21	10.33									
	1015				10.21	10.33									
	1020				10.22	10.33									
	1025				10.21	10.33									
	1030				10.23	10.34									
	1035				10.22	10.34									Stop pumping

RECORDED BY: _____

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AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / PC54 JOB NO. _____ DATE 3-13-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT MSlope METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 15.09				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/13	1054										turn pump on				-
	1054				15.18	15.19									0.5gpm
	1100				15.18	15.18									
	1105				15.18	15.18									
	1110				15.19	15.18									
	1115				15.19	15.18									
	1120				15.20	15.18									
	1125				15.18	15.18									
	1129				15.30	15.29									1gpm
	1130				15.29	15.27									
	1135				15.29	15.27									
	1140				15.29	15.27									
	1145				15.29	15.27									
	1149				15.47	15.45									2gpm
	1150				15.47	15.45									
	1155				15.47	15.44									
	1200				15.47	15.45									
	1205				15.48	15.45									
	1210				15.48	15.45									
	1212				15.57	15.53									2.5gpm (all the way up)
	1213				15.58	15.54									
	1215				15.57	15.54									
	1220				15.57	15.54									
	1225				15.57	15.55									
	1230				15.58	15.55			Stop pumping						

RECORDED BY: _____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. I-MET / TMMW-101 JOB NO. 04-01-101-007 DATE 3-13-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST Step TEST NUMBER 2

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL

METHOD OF DISCHARGE MEASUREMENT mscope METHOD OF WATER LEVEL MEASUREMENT

DATA LOGGER: SN# XD-PSI REFERENCE SET DEPTH SCALE OFFSET

not below 92'

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 70.25				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1340				begin pumping										
	1340				71.72										? gpm
	1343				72.97										? gpm
	1346				76.36										? gpm
	1348				79.03										2.5 gpm
	1351				77.06	77.76									~1gpm
	1352				76.03	75.89									
	1353				75.34	75.22									
	1354				75.00	74.74									
	1355				74.61	74.41									
	1400				74.46	73.72									
	1405				73.48	73.17									
	1410				73.33	73.09									
	1415				73.28	73.05									
	1420				73.26	73.05									
	1425				73.24	73.04									
	1430				73.37	73.04									
	1435				73.27	73.04									
	1440				73.29	73.04									
	1444				75.89	75.60									~2gpm
	1445				76.75	~~76.49~~	7643								
	1450				78.51	78.26									
	1455				79.04	78.86									
	1500				79.32	79.04									
	1505				79.34	79.13									
	1510				79.43	79.22									
	1515				79.51	79.26									
	1520				79.49	79.30									
	1525				79.58	79.32									
	1530				79.55	79.35									
	1535				79.63	79.39									
	1540				79.61	79.42									
	1545				79.63	79.44									
	1550				79.70	79.46									
	1555				79.71	79.47									
	1600				79.74	79.49									
	1605				79.79	79.52									
	1610				79.72	79.48									

RECORDED BY:

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. 7MET / 7MMW-101 JOB NO. _____ DATE 3-13-06

PUMPING OR RECOVERY DATA pumping TYPE OF AQUIFER TEST step TEST NUMBER 2

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT MSCope METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL =				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1614				82.86	82.51									3gpm
	1615				84.14	83.85									
	1620				87.24	87.16									
	1625				89.79	89.41									
	1630				90.51	90.20									
	1634				90.94	90.20									stop pumping - suspect water in pump

Aquifer Test Data Sheet

RECORDED BY: _____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TMET / TMMW-103 JOB NO. ____ DATE 3-14-06

PUMPING OR RECOVERY DATA pumping & recovery TYPE OF AQUIFER TEST ~~[illegible]~~ Const. TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT M-Scope METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

Stay above 83'

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 73.69				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/14	1005				begin pumping										
	1010				75.00										<1.0 gpm
	1011				75.95										1gpm
	1015				77.56	77.33									
	1020				78.78	78.58									
	1025				79.70	79.53									
	1030				80.22	80.04									
	1035				80.61	80.42									
	1040				80.77	80.57									
	1045				80.84	80.64									
	1050				80.86	80.66									
	1055				80.86	80.66									
	1100				80.83	80.63									
	1105				80.80	80.60									
	1110				80.72	80.52									
	1115				80.71	80.52									
	1120				80.74	80.54									
	1125				80.70	80.52									
	1130				80.68	80.49									
	1140				80.87	80.67									
	1145				81.09	80.89									
	1150				81.22	81.02									
	1155				81.27	81.07									
	1200				81.29	81.09									
	1205				81.35	81.15									
	1210				81.41	81.21									
	1215				81.47	81.27									
	1220				81.54	81.34									
	1225				81.53	81.33									
	1230				81.53	81.33									
	1235				81.55	81.35									
	1240				81.55	81.35									
	1245				81.52	81.32									
	1250				81.53	81.33									
	1255				81.50	81.30									
	1300				81.59	81.29									
	1305				80.94	80.71									
	1306				80.14										stop pumping

RECORDED BY: ____

7.25
6.89
.36

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TMMW-103 JOB NO. ____ DATE 3-14-06

PUMPING OR RECOVERY DATA recovery TYPE OF AQUIFER TEST cond. TEST NUMBER 1

PUMPING OR OBSERVATION WELL ____ RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT ____ METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = ____				SAND DATA			DISCHARGE DATA			COMMENTS 95% → 74.05
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
3/14	1310				78.54	78.33									
	1315				77.08	76.88									
	1320				75.87	75.67									
	1325				75.18	74.97									
	1330				74.73	74.51									
	1335				74.42	74.20									
	1340				74.25	74.03									
	1345				74.13	73.91									
	1350				74.06	73.84									
	1351				74.05	73.82									

RECORDED BY: ____

11.02
10.47
0.55

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TMMW-102 JOB NO. ____ DATE 3-14-06

PUMPING OR RECOVERY DATA pumping + recovery TYPE OF AQUIFER TEST cond. TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT in-scope METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

Stay above 82'

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 71.78				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1456				73.12	72.98					begin pumping				~~[illegible]~~ ~2 gpm
	1457				74.65	74.39									
	1500				78.14	77.86									
	1504				82.80	82.?									stop pumping
	1505				82.74	82.48									
	1510				82.19	81.96									recover to
	1515				81.68	81.49									72.33
	1520				81.29	81.06									
	1525				80.87	80.64									
	1530				80.53	80.30									
	1535				80.10	79.85									
	1540				79.87	79.63									
	1545				79.60	79.35									
	1550				79.3	79.08									
	1600				78.57	78.52									
	1610				78.23	78.00									
	1620				77.72	77.48									
	1630				77.23	76.98									
	1640				76.82	76.58									
	1650				76.51	76.25									
	1700				76.15	75.91									
	1710				75.86	75.58									
	1720				75.54	75.28									
	1730				75.22	74.95									
	1740				74.91	74.62									
	1750				74.63	74.36									
	1800				74.37	74.09									
	1810				74.14	73.85									
	1820				73.92	73.63									
	1830				73.74	73.45									
	1840				73.56	73.28									
	1850				73.41	73.12									
	1900				73.27	73.03									
	1910				73.15	72.90									
	1920				73.04	72.80									
	1930				72.92	72.64									
	1940				72.84	72.55									
	1950				72.75	72.48									

~~2002~~ Aquifer Test Data Sheet ~~2010~~

RECORDED BY: ____

b.14
2.98

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / CLD3-R JOB NO. ____ DATE 3-15-06

PUMPING OR RECOVERY DATA pumping + recovery TYPE OF AQUIFER TEST continuous TEST NUMBER 1 + 2

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT Microcope METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

stay below 39'

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA 32.50 INITIAL SWL =				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1258														begin pumping
						32.60									
	1305					~~32.60~~							~ 2gpm		begin pumping
	1306				32.21										
	1307				34.67										<2gpm (>1.5)
	1309				35.01	34.99									1.5gpm
	1310				35.13	35.10									
	1315				35.41	35.40									
	1320				35.46	35.45									
	1325				35.38	35.38									
	1330				35.40	35.40									
	1335				35.43	35.44									
	1340				35.64	35.61									
	1345				35.70	35.66									
	1350				35.65	35.62									
	1355				35.70	35.66									
	1400				35.73	35.69									
	1405				35.74	35.74									
	1406				~~35~~										Stop pumping
	1407				35.19	35.19									
	1410				33.71	33.68									
	1415				33.03	33.01									
	1420				32.84	32.83									recharge to
	1425				32.76	32.75									32.76

RECORDED BY: ____

2.63
2.50
0.13

PAGE 1 OF ____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / TMPZ-110 JOB NO. ____ DATE 3-15-06

PUMPING OR RECOVERY DATA pump + recover TYPE OF AQUIFER TEST cond. TEST NUMBER ____

PUMPING OR OBSERVATION WELL ____ RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT ____ METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

Stay above 41'

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 37.50 37.37				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1449														
	1452				38.33	38.39									.75 gpm
	1455				38.71	38.76									
	1500				39.13	39.21									
	1505				39.40	39.46									
	1510				39.61	39.68									
	1515				39.70	39.76									
	1520				39.81	39.87									
	1525				39.83	39.89									~ 25 gal
	1530				39.93	39.98									
	1535				39.92	39.97									
	1540				39.93	39.98									
	1545				39.94	40.00									~ 35 gal
	1550				39.95	40.01									
	1555				—	—									
	1600				39.94	40.00									
	1605				39.96	40.02									
	1610				39.97	40.03									
	1615				40.00	40.06									
	~~1620~~				—	—									
	~~1625~~				—	—									
	1619				—	—									stop pumping
	1621				39.51	39.55									
	1625				38.75	38.82									
	1630				38.13	38.20									recharge to 37.50
	1635				37.85	37.93									
	1640				37.72	37.79									
	1645				37.66	37.72									
	1650				37.60	37.68									
	1655				37.58	37.65									
	1700				37.55	37.63									
	1705				37.55	37.63									
	1710				37.54	37.61									
	1715				37.53	37.61									
	1720				37.52	37.60									
	1725				37.52	37.58									
	1730				37.51	37.58									
	1735				37.50	37.58									

to 16:19

RECORDED BY: ____

2.79
2.65 .14

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / JZD2-R2 JOB NO. _____ DATE 3-16-06

PUMPING OR RECOVERY DATA both TYPE OF AQUIFER TEST cont. TEST NUMBER 1

PUMPING OR OBSERVATION WELL _____ RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT _____ METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

Stay above 48'

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 41.10				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	819				41.72										start pumping
	822				43.51	43.37									5gpm (@ 4.75)
	825				43.64	43.51									
	830				43.69	43.55									
	835				43.74	43.67									
	840				43.86	43.75									
	845				43.89	43.80									
	849				43.89										stop pumping
	850				41.59	41.55									
	855				41.29	41.25									recharge to
	900				41.25	41.21									41.24
	902				41.24	41.20									

Aquifer Test Data Sheet

RECORDED BY: _____

1.70
1.62
0.08

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / OLDI-R JOB NO. _____ DATE 3-16-06

PUMPING OR RECOVERY DATA both TYPE OF AQUIFER TEST cont TEST NUMBER 1 + 2

PUMPING OR OBSERVATION WELL _____ RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT _____ METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

Stay above 30'

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 27.43				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	941				28.46										start pumping
	942				29.34										5 gpm
	945				31.00	30.81									
est	946				29.29										Stop pump
	948				27.96	27.95									
#1	950				27.53	27.52									
	955				27.47	27.46									
	1000				27.46	27.45									
	1005				27.45	27.44									
	1010				27.45	27.44									
	1015				27.45	27.44									
	1020				27.72				use 27.44 @ water level						start
	1022				28.60										3 gpm
	1025				29.00	29.00									
	1030				29.06	29.05									
est	1035				29.08	29.08									
#2	1040				29.06	29.10									
	1045				29.16	29.10									
→	1050				29.14	29.10									
	1051				28.66										Stop pump
	1055				27.58	27.59									
	1100				27.50	27.51									recharge to
															27.52

RECORDED BY: _____

8.07
7.67
0.40

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / TMMW-101 JOB NO. ____ DATE 3-16-06

PUMPING OR RECOVERY DATA both TYPE OF AQUIFER TEST cont TEST NUMBER 1

PUMPING OR OBSERVATION WELL ____ RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT ____ METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 70.23				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1159				70.50										begin pumping
	1202				7300										~1.5 gpm
	1206				76.06	75.75									2 gpm
	1210				77.64	77.33									
	1215				78.04	77.74									
	1220				78.24	77.94									
	1225				78.35	78.06									
	1230				78.44	78.15									
	1235				78.44	78.15									
	1240				78.47	78.17									
	1245				78.48	78.17									
	1250				78.45	78.15									
	1255				78.44	78.14									
	1300				78.46	78.17									
	1305				78.32	78.03									
	1310				78.23	77.94									
	1315				78.28	77.97									
	1320				78.28	77.98									
	1325				78.29	77.99									
	1329				78.30										stop
	1330				76.77	76.34									
	1335				72.36	72.06									
	1340				71.23	70.93									recharge to
	1345				70.97	70.65									70.63
	1350				70.78	70.47									
	1355				70.67	70.37									
	1400				70.61	70.30									

1329

RECORDED BY: ____

5.87
5.58

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TMMW-10 JOB NO. _____ DATE 3-15-06

PUMPING OR RECOVERY DATA recovery TYPE OF AQUIFER TEST Cont TEST NUMBER 1

PUMPING OR OBSERVATION WELL _____ RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT _____ METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL =				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1043				76.21	76.41									pump off @ 1041
	1045				75.77	75.87									
	1050				74.65	74.75									
	1055				73.76	73.88									recharge to
	1100				73.18	73.28									71.57
	1105				72.72	72.78									
	1110				72.44	72.56									
	1115				72.24	72.36									
	1120				72.09	72.21									
	1125				71.97	72.10									
	1130				71.88	72.01									
	1135				71.81	71.92									
	1140				71.76	71.88									
	1145				71.71	71.83									
	1150				71.67	71.79									
	1155				71.64	71.76									
	1200				71.62	71.74									
	1205				71.60	71.71									
	1210				71.58	71.68									
	1215				71.56	71.66									

RECORDED BY: _____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TMET / TMMW-104 JOB NO. _____ DATE 3-15-06

PUMPING OR RECOVERY DATA pumping + recovery TYPE OF AQUIFER TEST continuous TEST NUMBER 1

PUMPING OR OBSERVATION WELL pumping RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT msrpe METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 71.28				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	740														begin pumping
	742				71.13										? gpm
	744				72.35										~1 gpm
	748				73.24	73.3									0.5 gpm *
	750				74.08	74.17									
	755				75.33	75.42									
	800				76.33	76.43									
	805				77.06	77.15									
	810				77.68	77.76									
	815				78.03	78.10									
	820				78.28	78.40									
	825				78.50	78.62									
	830				78.75	78.88									
	835				78.84	78.98									
	840				78.83	78.96									
	845				78.90	79.04									
	850				79.07	79.14									
	855				79.09	79.21									
	900				79.17	79.28									
	905				79.17	79.3									
	915				79.20	79.33									
	920				79.34	79.46									
	925				79.23	79.35									
	930				79.26	79.38									~110 gal pumped so far
	935				79.25	79.38									
	940				79.24	79.37									
	945				79.23	79.36									
	950				79.23	79.34									~120 gal
	955				78.61	78.44									
	1000				77.88	77.98									
	1005				77.47	77.54									
	1010				77.22	77.30									
	1015				77.10	77.18									
	1020				77.05	77.12									~130-135 gal
	1025				77.04	77.11									
	1030				77.11	77.19									
	1035				77.16	77.23									
	1040				77.15	77.22									

RECORDED BY: _____

1.07
1.02
0.05

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / PC67 JOB NO. ____ DATE 3-16-06

PUMPING OR RECOVERY DATA both TYPE OF AQUIFER TEST cont TEST NUMBER ____

PUMPING OR OBSERVATION WELL ____ RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT ____ METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 10.54				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1428														pumping
	1430				11.43	11.34									~2.5gpm (2.75)
	1435				11.54	11.43									
	1440				11.58	11.44									
	1445				11.60	11.45									
	1450				11.62	11.46									
	1455				11.62	11.49									
	1458				11.61										stop pumping
	1459				11.02										
	1500				10.79	10.69									
	1505				10.73	10.62									
	1510				10.70	10.60									
	1515				10.69	10.58									recharge to
	1520				10.69	10.58									10.59
	1525				10.69	10.58									

RECORDED BY: ____

2.15
2.04
0.11

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. PC65 JOB NO. ____ DATE 3-16-05

PUMPING OR RECOVERY DATA both TYPE OF AQUIFER TEST cont. TEST NUMBER 1

PUMPING OR OBSERVATION WELL ____ RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT ____ METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 5.98				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1540				6.60										pumping
	1545				7.95	7.94									1.5gpm
	1550				8.02	8.00									
	1555				8.08	8.08									
	1600				8.09	8.08									
	1603				8.11	8.09									
	1610				8.13	8.13									
	1611				—	—									stop
	16.12				6.84	6.85									
	1615				6.13	6.11									
	1620				6.05	6.03									
															recharge to
															6.09

RECORDED BY: ____

0.49
0.41
0.02

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. 1IMET / ~~MMMM~~ PC54 JOB NO. ____ DATE 3-17-05

PUMPING OR RECOVERY DATA both TYPE OF AQUIFER TEST cont TEST NUMBER ____

PUMPING OR OBSERVATION WELL ____ RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT ____ METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 15.12				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	739				15.51										start
	740				15.58	15.55									~2.5gpm
	745				15.60	15.57									
	750				15.58	15.55									
	755				15.60	15.57									
	800				15.61	15.57									
	805				15.61	15.58									
	809				15.61										stop
	810				15.21	15.19									
	815				15.17	15.15									recharge to
	820				15.16	15.14									15.14
	825				15.15	15.13									
	830				15.13	15.13									

RECORDED BY: ____

0.34
0.32
.02

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET / M95 JOB NO. ____ DATE 3-17-06

PUMPING OR RECOVERY DATA both TYPE OF AQUIFER TEST cont TEST NUMBER 1

PUMPING OR OBSERVATION WELL ____ RADIAL DISTANCE FROM PUMPING WELL ____

METHOD OF DISCHARGE MEASUREMENT ____ METHOD OF WATER LEVEL MEASUREMENT ____

DATA LOGGER: SN# ____ XD-PSI ____ REFERENCE ____ SET DEPTH ____ SCALE ____ OFFSET ____

TIME To = ____			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 9.96				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	852				10.26										start
	855				10.28	10.31									
	900				10.29	10.32									
	905				10.30	10.32									
	910				10.30	10.32									
	915				10.29	10.32									
	920				10.30	10.33									
	922				10.30										stop
	923				10.01										
	925				9.99	10.02									
	930				9.98	10.00									recharge to 9.98

RECORDED BY: ____

5.34
5.07
0.27

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TIMET TMMW-104 JOB NO. _____ DATE 3-17-06

PUMPING OR RECOVERY DATA both TYPE OF AQUIFER TEST cont TEST NUMBER 2

PUMPING OR OBSERVATION WELL _____ RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT _____ METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

above 81'

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL = 71.49				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1949				72.05										Start
	1950				72.60	72.37									~0.5 gpm
	1955				73.88	73.67									
	1000				74.75	74.54									
	1005				75.39	75.17									
	1010				75.83	75.61									
	1015				76.13	75.92									
	1020				76.25	76.04									
	1025				76.36	76.15									
	1030				76.52	76.30									
	1035				76.57	76.35									
	1040				76.52	76.31									
	1045				76.54	76.32									
	1050				76.59	76.36									
	1055				76.54	76.32									
	1100				76.53	76.31									
	1105				76.47	76.26									
	1110				76.47	76.26									
	1115				76.45	76.24									
	1120				76.31	76.09									~40 gal
	1125				76.22	75.99									
	1130				76.14	75.92									
	1135				76.17	75.95									
	1140				76.25	76.02									
	1145				76.22	76.00									
	1150				76.25	76.03									
	1155				76.26	76.04									
	1200				76.28	76.06									
	1205				76.34	76.12									
	1210				76.37	76.15									
	1215				76.38	76.17									
	1220				76.38	76.17									
	1225				76.5	76.30									
	1230				76.67	76.45									
	1235				76.74	76.51									
	1240				76.80	76.58									
	1245				76.83	76.62									
	1249				76.83	—									stop

RECORDED BY: _____

AQUIFER TEST DATA SHEET

PROJECT NAME/WELL NO. TMMW-104 JOB NO. _____ DATE 3-17-06

PUMPING OR RECOVERY DATA _____ TYPE OF AQUIFER TEST Cont TEST NUMBER 2

PUMPING OR OBSERVATION WELL _____ RADIAL DISTANCE FROM PUMPING WELL _____

METHOD OF DISCHARGE MEASUREMENT _____ METHOD OF WATER LEVEL MEASUREMENT _____

DATA LOGGER: SN# _____ XD-PSI _____ REFERENCE _____ SET DEPTH _____ SCALE _____ OFFSET _____

TIME To =			LINE PRESSURE		WATER LEVEL DATA INITIAL SWL =				SAND DATA			DISCHARGE DATA			COMMENTS
Day	Clock Time	t'	1 PSI	2 PSI	Hermit XDCR	Physical W.L.	XD S'	Physical S'	ML	PPM	COLOR	ORIFICE	FLOW METER	TOTALIZER	
	1250				76.4	76.15									recharge to
	1255				75.05	74.83									71.76
	1300				74.13	73.92									
	1305				73.50	73.27									(71.75 w/ m-scope)
	1310				73.02	72.81									
	1315				72.75	72.51									
	1320				72.51	72.27									
	1325				72.36	72.12									
	1330				72.23	72.01									
	1335				72.13	71.90									
	1340				72.05	71.83									
	1345				72.01	71.78									
	1350				71.96	71.74									
	1355				71.93	71.70									
	1400				71.90	71.68									
	1405														
	1410														
	1415														

5.13
4.87

RECORDED BY: _____

APPENDIX B
BOREHOLE LITHOLOGIC LOGS AND CONSTRUCTION DIAGRAMS

BOREHOLE LOG

Boring ID:	TMSB-101		
Well ID:	TMMW-101		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	South of facility along Lake Mead Boulevard		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (well):	8.5 inches from 0 to 95 feet bgs		
Drill Start Date:	12/13/2005	**Drill Start Time:**	0929
Drill Finish Date:	12/13/2005	**Drill Finish Time:**	1400
Total Borehole Depth (feet bgs):	100		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):			
Well Completion Date:	12/13/2005	Well Completion Time:	1600
Screen Interval (feet bgs):	65 to 95 feet bgs	Total Well Depth (feet bgs):	95
Well Diameter:	4 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

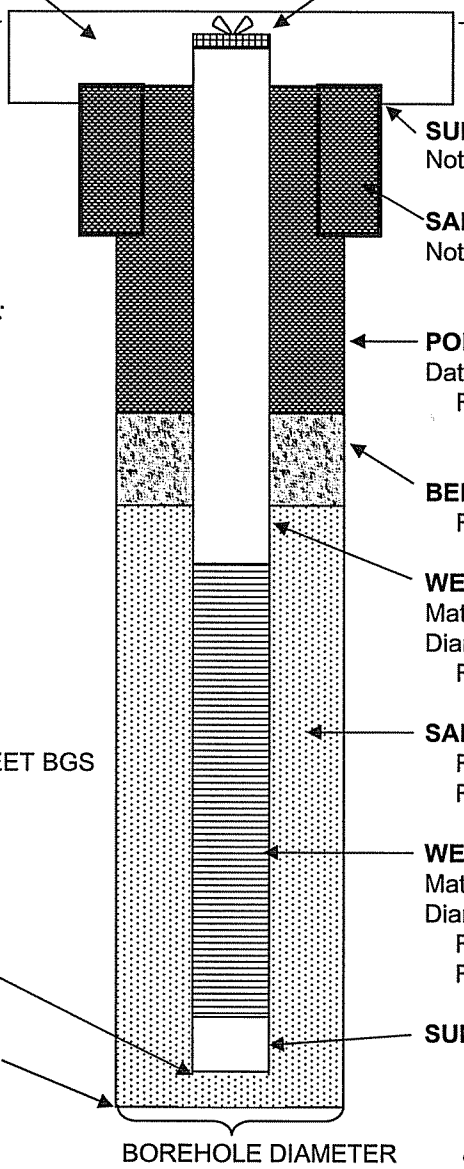
NOTES/REMARKS

COMPLETION DIAGRAM

SURFACE COMPLETION:
Above Grade

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD



WELL DATA
WELL NO: **TMMW-101**

WATER-BEARING ZONE:
75 FT BGS

DATES
DRILLING DATE(S):
12/13/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/13/2005
PAD COMPLETION DATE(S):
12/14/05 & 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 100 FEET BGS

SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/13/2005
FROM: 0 TO: 49 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 49 TO: 51 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.0 inches
FROM: 0 TO: 65 FEET BGS

SAND PACK Silica Sand:
FROM: 51 TO: 95 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.0 inches Slot size:
FROM: 65 TO: 95 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
95 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
100 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Well ID: TMMW-101
Date Drilled: 12/13/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-1	Alluvium	SM	None	Poorly	None	0.0	5 YR 7/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel, trace coarse gravel and trace cobbles.
1-4	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel. Cobbles no longer observed.
4-5	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 1.0 foot thick. 7.5 YR 6/4 , Light brown.
5-15	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
15-19	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel.
19-19.5	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
19.5-24	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with little clay and trace fine to coarse gravel.
24-36	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with little clay and trace fine gravel.
36-59	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with little clay and trace fine to coarse gravel.
59-75	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with little clay, trace to little fine gravel, and trace coarse gravel.
75-79	Alluvium	SM	Slightly	Poorly	None	NM	7.5 YR 5/6, Strong brown silty sand (dominantly medium sand with some fine sand and little coarse sand) with some clay and trace fine to coarse gravel.

TIMET
Well ID: TMMW-101
Date Drilled: 12/13/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
79-91	Alluvium	SM	Moist	Poorly	None	NM	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) and trace fine gravel.
91-93	Alluvium	SM	Moist	Poorly	Slight	NM	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with some clay and trace fine gravel.
93-96	Alluvium	ML	Moist	Moderately	Moderate	NM	7.5 YR 5/6, Strong brown clayey silt with little sand (dominantly fine sand with trace medium to coarse sand) and trace fine gravel.
96-100	Alluvium	SM	Very Moist	Poorly	None	NM	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) little clay and trace fine gravel.

Groundwater contact located at approximately 75 feet below land surface based on soil moisture.
NM - Not Measured

BOREHOLE LOG

Boring ID:	TMSB-102		
Well ID:	TMMW-102		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	South of facility along Lake Mead Boulevard		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (well):	8.5 inches from 0 to 87 feet bgs		
Drill Start Date:	12/12/2005	**Drill Start Time:**	1055
Drill Finish Date:	12/12/2005	**Drill Finish Time:**	1536
Total Borehole Depth (feet bgs):	87		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):			
Well Completion Date:	12/12/05 & 12/13/05	Well Completion Time:	0831
Screen Interval (feet bgs):	47 to 87 feet bgs	Total Well Depth (feet bgs):	87
Well Diameter:	4 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

COMPLETION DIAGRAM

SURFACE COMPLETION:
Above Grade

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD

WELL DATA
WELL NO: **TMMW-102**

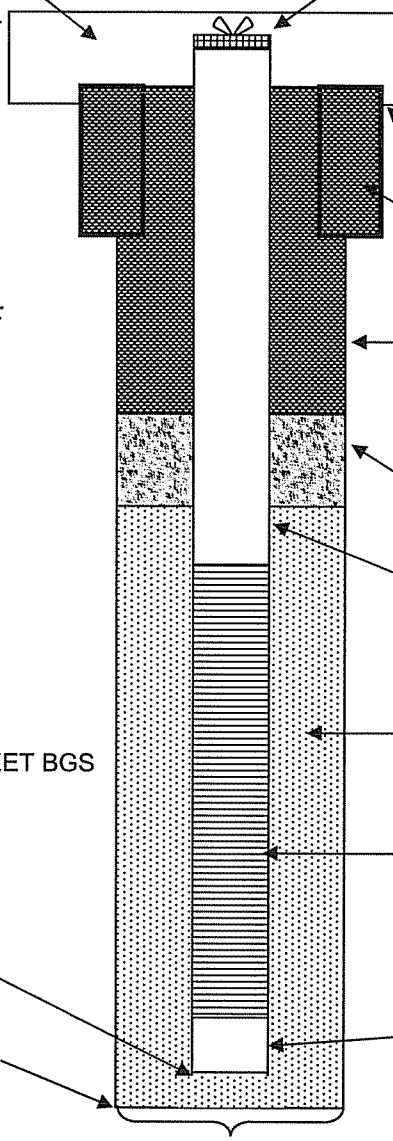
WATER-BEARING ZONE:
70 FT BGS

DATES
DRILLING DATE(S):
12/12/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/12/05 & 12/13/05
PAD COMPLETION DATE(S):
12/14/05 & 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 87 FEET BGS



SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/13/2005
FROM: 0 TO: 42 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 42 TO: 44 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.0 inches
FROM: 0 TO: 47 FEET BGS

SAND PACK Silica Sand:
FROM: 44 TO: 87 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.0 inches Slot size:
FROM: 47 TO: 87 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
87 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
87 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Well ID: TMMW-102
Date Drilled: 12/12/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-9.5	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/3, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine to coarse gravel and trace cobbles. Gravel and cobbles are subangular to subrounded
9.5-10	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
10-13	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Cobbles no longer observed.
13-13.5	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
13.5-30	Alluvium	SM	None	Poorly	None	0.8	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel.
30-37	Alluvium	SM	None	Poorly	None	0.8	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with trace medium to coarse sand) with little clay and trace fine gravel.
37-39	Alluvium	SM	None	Poorly	None	0.0	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with trace clay and trace fine to coarse gravel.
39-45	Alluvium	ML	None	Poorly	None	0.2	5 YR 5/6, Yellowish red silty clay with little sand (dominantly fine sand with trace medium to coarse sand) with trace fine gravel.
45-46	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
46-52	Alluvium	ML	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty clay with little sand (dominantly fine sand with trace medium to coarse sand).
52-55	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with trace medium to coarse sand) with trace clay and trace fine gravel.

TIMET
Well ID: TMMW-102
Date Drilled: 12/12/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
55-58	Alluvium	ML	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty clay with little sand (dominantly fine sand with trace medium to coarse sand).
58-73	Alluvium	SM	Slight	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little clay and trace fine to coarse gravel.
73-79	Alluvium	ML	Slight	Poorly	Slight	NM	7.5 YR 5/4, Brown silty clay with little sand (dominantly fine sand with trace medium to coarse sand) and trace fine gravel.
79-87	MC		Slight to Moderate	Well	Slight to Moderate	NM	7.5 YR 5/4, Brown clayey silt with moderate plasticity.

MC - Muddy Creek Formation. Contact located at approximately 79 feet below land surface.
Groundwater contact located at approximately 70 feet below land surface based on soil moisture.
NM - Not Measured

BOREHOLE LOG

Boring ID:	TMSB-103		
Well ID:	TMMW-103		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	South of facility along Lake Mead Boulevard		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (well):	8.5 inches from 0 to 87 feet bgs		
Drill Start Date:	12/11/2005	**Drill Start Time:**	0855
Drill Finish Date:	12/11/2005	**Drill Finish Time:**	1215
Total Borehole Depth (feet bgs):	87		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):			
Well Completion Date:	12/12/2005	Well Completion Time:	946
Screen Interval (feet bgs):	57 to 87 feet bgs	Total Well Depth (feet bgs):	87
Well Diameter:	4 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

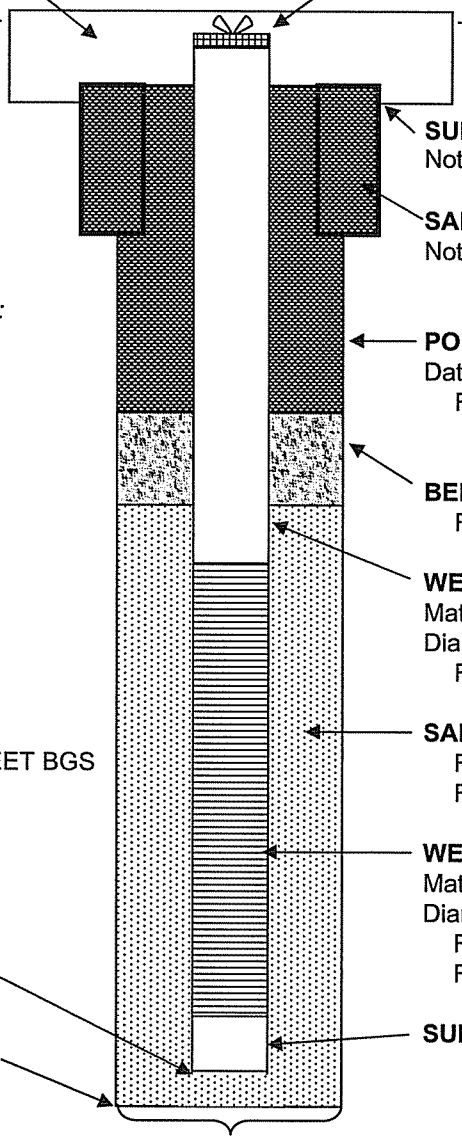
NOTES/REMARKS

COMPLETION DIAGRAM

SURFACE COMPLETION:
Above Grade

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD



WELL DATA
WELL NO: **TMMW-103**

WATER-BEARING ZONE:
68 FT BGS

DATES
DRILLING DATE(S):
12/11/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/12/2005
PAD COMPLETION DATE(S):
12/14/05 & 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 87 FEET BGS

SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/12/2005
FROM: 0 TO: 53 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 53 TO: 55 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.0 inches
FROM: 0 TO: 57 FEET BGS

SAND PACK Silica Sand:
FROM: 55 TO: 87 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.0 inches Slot size:
FROM: 57 TO: 87 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
87 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
87 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Well ID: TMMW-103
Date Drilled: 12/11/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-4.5	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded.
4.5-5	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
5-10	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel, trace coarse gravel and trace cobbles. Gravel and cobbles are subangular to subrounded.
10-13	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little fine to coarse sand) with trace fine to coarse gravel. Cobbles no longer observed.
13-17	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little fine to coarse sand) with trace fine to coarse gravel and trace cobbles.
17-24	Alluvium	SM	None	Poorly	None	0.4	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little fine to coarse sand) with trace fine to coarse gravel. Cobbles no longer observed.
24-37	Alluvium	SM	None	Poorly	None	1.8	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little fine to coarse sand) with trace fine to coarse gravel and trace cobbles.
37-42	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/3, Brown silty sand (dominantly fine sand with some medium to coarse sand) with little fine gravel, trace coarse gravel and trace clay.
42-43	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 1.0 foot thick. 7.5 YR 6/4 , Light brown.
43-48	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/3, Brown silty sand (dominantly fine sand with some medium to coarse sand) with little fine gravel, trace coarse gravel and trace clay.
48-48.5	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
48.5-58	Alluvium	SM	None	Poorly	None	0.0	5 YR 4/4, Reddish brown silty sand (dominantly fine sand with little fine to coarse sand) with little clay and trace fine to coarse gravel.

TIMET
Well ID: TMMW-103
Date Drilled: 12/11/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
58-61	Alluvium	ML	Trace	Poorly	None	0.0	7.5 YR 4/4, Brown silty clay with little sand (fine to coarse sand) and trace fine gravel.
61-73	Alluvium	SM	Trace	Poorly	None	0.0	7.5 YR 4/4, Brown silty sand (dominantly fine sand with some medium to coarse sand) with trace fine to coarse gravel and trace clay.
73-77	Alluvium	ML	Slight	Moderately	Slight	NM	7.5 YR 5/4, Brown clayey silt with trace sand (fine to coarse sand) and trace gravel.
77-79	Alluvium	SP	Slight	Poorly	None	NM	2.5 YR 4/4, Dusky red sand (dominantly fine to medium sand with trace coarse sand) with little silt, trace clay and trace fine gravel.
79-83	Alluvium	SM	Slight	Poorly	Slight	NM	2.5 YR 4/4, Dusky red silty sand (dominantly fine sand with little medium to coarse sand) with little clay and trace fine gravel.
83-87	Alluvium	SP	Slight	Poorly	None	NM	2.5 YR 4/4, Dusky red sand (dominantly fine sand with little medium to coarse sand) with little silt, trace clay and trace fine gravel.

Groundwater contact located at approximately 70 feet below land surface based on soil moisture.
NM - Not Measured

BOREHOLE LOG

Boring ID:	TMSB-104		
Well ID:	TMMW-104		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Park on the corner of Water Street and Lake Mead Drive		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (well):	8.5 inches from 0 to 87 feet bgs		
Drill Start Date:	12/10/2005	**Drill Start Time:**	0959
Drill Finish Date:	12/10/2005	**Drill Finish Time:**	1415
Total Borehole Depth (feet bgs):	87		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Approximately 86 feet bgs to the Muddy Creek contact		
Well Completion Date:	12/10/2005	Well Completion Time:	1510
Screen Interval (feet bgs):	57 to 87 feet bgs	Total Well Depth (feet bgs):	87
Well Diameter:	4 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

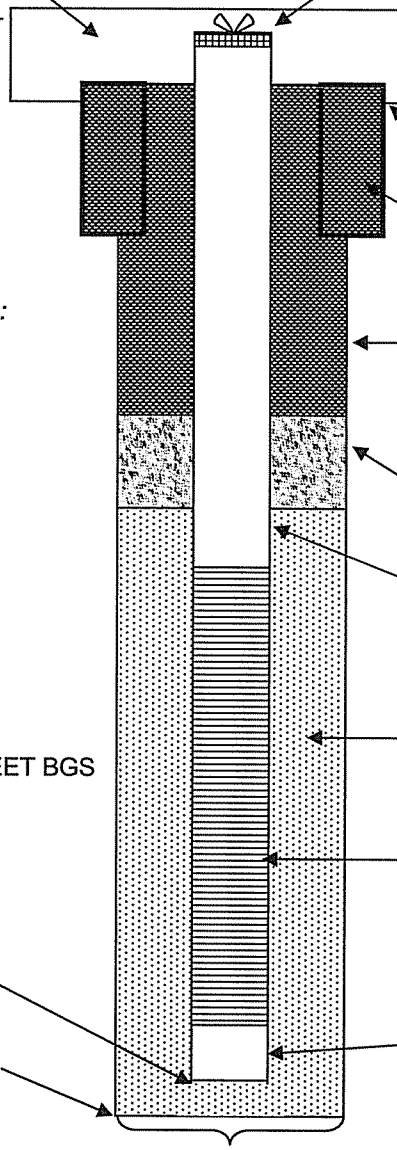
NOTES/REMARKS

COMPLETION DIAGRAM

SURFACE COMPLETION:
Above Grade

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD



WELL DATA
WELL NO: **TMMW-104**

WATER-BEARING ZONE:
67 FT BGS

DATES
DRILLING DATE(S):
12/10/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/10/2005
PAD COMPLETION DATE(S):
12/14/05 & 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 87 FEET BGS

SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/10/2005
FROM: 0 TO: 53 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 53 TO: 55 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.0 inches
FROM: 0 TO: 57 FEET BGS

SAND PACK Silica Sand:
FROM: 55 TO: 87 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.0 inches Slot size:
FROM: 57 TO: 87 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
87 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
87 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Well ID: TMMW-104
Date Drilled: 12/10/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-0.3	Alluvium	SM	None	Poorly	None	0.0	7.5YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with organics.
0.3-2	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded.
2-5	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with some fine gravel and trace coarse gravel. Gravel is subangular to subrounded.
5-11	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded.
11-16	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel, trace coarse gravel and trace cobbles. Gravel and cobbles are subangular to subrounded.
16-24.5	Alluvium	SM	None	Poorly	None	0.4	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded. Cobbles no longer observed.
24.5-34.5	Alluvium	ML	None	Poorly	None	0.9	7.5 YR 5/4, Brown silty sand (dominantly fine sand with some medium to coarse sand) with some clay and little fine gravel.
34.5-35	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
35-44	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/3, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little clay and trace fine to coarse gravel.
44-46	Alluvium	ML	None	Poorly	None	0.0	7.5 YR 5/3, Brown silty sand (dominantly fine sand with little medium to coarse sand) with some clay and trace fine gravel.
46-47	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 1 foot thick. 7.5 YR 6/4 , Light brown.

TIMET
Well ID: TMMW-104
Date Drilled: 12/10/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
47-57	Alluvium	ML	None	Poorly	None	0.0	7.5 YR 5/3, Brown silty sand (dominantly fine sand with little medium to coarse sand) with some clay and trace fine to coarse gravel.
57-67	Alluvium	ML	Slight	Poorly	None	0.6	7.5 YR 5/4, Brown silty clay with little sand (dominantly fine sand with trace medium to coarse sand) and trace fine gravel.
67-80	Alluvium	ML	Slight	Poorly	None	NM	7.5 YR 5/4, Brown silty clay with little sand (dominantly fine sand with little medium to coarse sand) and trace fine gravel.
80-87	MC		Slight	Well	Slight	NM	7.5 YR 5/4, Brown silty clay with trace sands (fine to coarse sand) and trace fine gravel.

MC - Muddy Creek Formation. Contact located at approximately 80 feet below land surface.
Groundwater contact located at approximately 67 feet below land surface based on soil moisture.
NM - Not Measured

BOREHOLE LOG

Boring ID:	TMSB-105		
Piezometer ID:	TMPZ-105		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	NW corner of the property		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (Piezometer):	8.5 inches from 0 to 39 feet bgs		
Drill Start Date:	12/6/2005	**Drill Start Time:**	1019
Drill Finish Date:	12/6/2005	**Drill Finish Time:**	1130
Total Borehole Depth (feet bgs):	47		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Approximately 36 feet bgs to the Muddy Creek contact		
Well Completion Date:	12/6/2005	Well Completion Time:	1630
Screen Interval (feet bgs):	19 to 39 feet bgs	Total Well Depth (feet bgs):	39
Well Diameter:	4.5 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring backfilled with bentonite chips from 47 feet bgs to 39 feet bgs.

COMPLETION DIAGRAM

SURFACE COMPLETION:
FLUSH MOUNT WITH
WELL VAULT

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD

WELL DATA
WELL NO: **TMPZ-105**

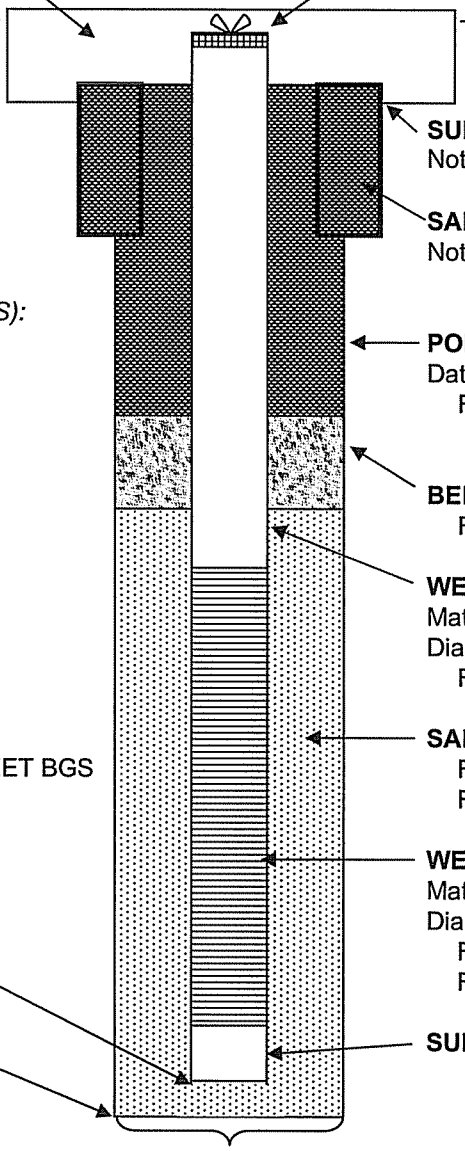
WATER-BEARING ZONE:
25 FT BGS

DATES
DRILLING DATE(S):
12/6/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/6/2005
PAD COMPLETION DATE(S):
12/14/05 - 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 47 FEET BGS



SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/6/2005
FROM: 0 TO: 15 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 15 TO: 17 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.5 inches
FROM: 0 TO: 19 FEET BGS

SAND PACK Silica Sand:
FROM: 17 TO: 39 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.5 inches Slot size:
FROM: 19 TO: 39 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
39 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
47 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:
Boring backfilled with bentonite chips
from 47 feet bgs to 39 feet bgs.

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Piezometer ID: TMPZ-105
Date Drilled: 12/6/05
Logged By: Jeremy Holst

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-20	Alluvium	SM	None	Moderately	None	0.2	7.5 YR 4/4, Brown silty sand (dominately fine sand with little to some medium to coarse sand) with little fine gravel and trace coarse gravel.
20-27	Alluvium	SM	Slight	Poorly	None	0.5	7.5 YR 4/4, Brown silty sand (dominately fine sand with little to some medium to coarse sand) with trace fine to coarse gravel. Gravel observed as large as 2.5 inches in diameter. Gravel is subangular to subrounded.
27-28	Alluvium	SW	Slight	Well	None	0	7.5 YR 4/4, Brown silty sand (dominately fine sand with little medium to coarse sand). Gravel is subrounded to subangular.
28-30	Alluvium	SP	Moderate	Poorly	None	0	7.5 YR 4/4, Brown sand (dominantly medium to coarse sand) with little silt and trace fine to coarse gravel. Gravel is subrounded to subangular.
30-33	Alluvium	SC	Wet	Poorly	Slight	NM	7.5 YR 4/4, Brown silty sand (dominantly fine sand with trace medium to coarse sand) with little clay and trace fine gravel. Gravel is subangular to subrounded.
33-36	Alluvium	SP	Wet	Poorly	None	NM	7.5 YR 4/4, Brown sand (dominantly medium to coarse sand with little fine sand) with some silt and little fine to coarse gravel. Largest gravel fragment observed 6" in diameter. Gravel is subrounded to subangular.

TIMET
Piezometer ID: TMPZ-105
Date Drilled: 12/6/05
Logged By: Jeremy Holst

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
36-47	MC		Wet	Well	Slight to Moderate	NM	7.5 YR 5/4, Brown clayey silt with moderate plasticity.

MC - Muddy Creek Formation. Contact located at approximately 36 feet below land surface.
Groundwater contact located at approximately 25 feet below land surface based on soil mositure.
NM = Not Measured

BOREHOLE LOG

Boring ID:	TMSB-106		
Piezometer ID:	TMPZ-106		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Near NW corner of the property		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (Piezometer):	8.5 inches from 0 to 39 feet bgs		
Drill Start Date:	12/7/2005	**Drill Start Time:**	0651
Drill Finish Date:	12/7/2005	**Drill Finish Time:**	0752
Total Borehole Depth (feet bgs):	47		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Approximately 40.5 feet bgs to the Muddy Creek contact		
Well Completion Date:	12/7/2005	Well Completion Time:	1005
Screen Interval (feet bgs):	19 to 39 feet bgs	Total Well Depth (feet bgs):	39
Well Diameter:	4.5 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

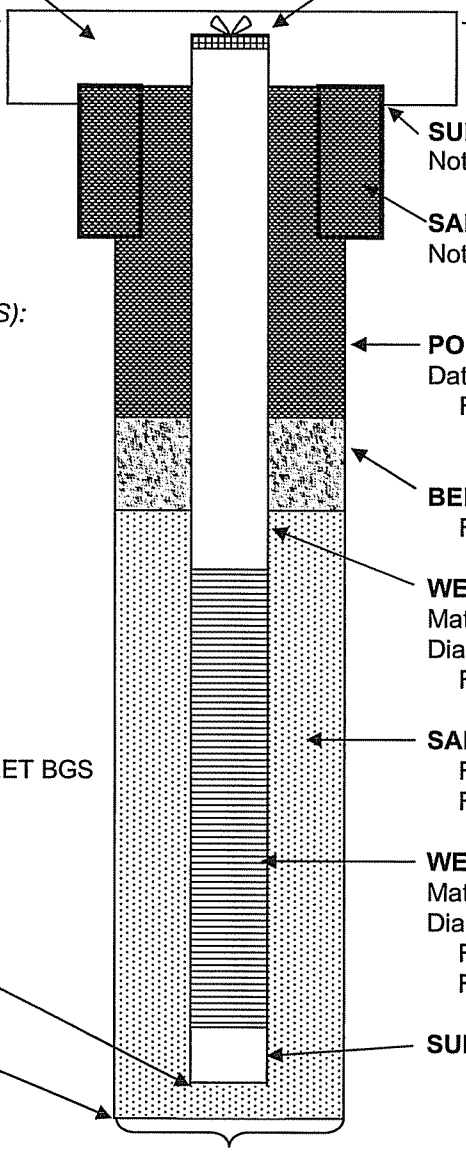
Boring backfilled with bentonite chips from 47 feet bgs to 39 feet bgs.

COMPLETION DIAGRAM

SURFACE COMPLETION:
FLUSH MOUNT WITH
WELL VAULT

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD



WELL DATA
WELL NO: **TMPZ-106**

WATER-BEARING ZONE:
29 FT BGS

DATES
DRILLING DATE(S):
12/7/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/7/2005
PAD COMPLETION DATE(S):
12/14/05 - 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic [x]
FROM: 0 TO: 47 FEET BGS

SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/7/2005
FROM: 0 TO: 15 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 15 TO: 17 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.5 inches
FROM: 0 TO: 19 FEET BGS

SAND PACK Silica Sand:
FROM: 17 TO: 39 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.5 inches Slot size:
FROM: 19 TO: 39 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
39 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
47 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:
Boring backfilled with bentonite chips
from 47 feet bgs to 39 feet bgs.

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Piezometer ID: TMPZ-106
Date Drilled: 12/7/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-11	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded. Largest gravel fragment observed is 1.5 inches in diameter.
11-15	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded. Largest cobble observed 3" in diameter.
15-26	Alluvium	SM	Slight	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel. Gravel is subangular to subrounded. Cobbles no longer observed at 16 feet bgs. Fining downward sequence observed, slightly less gravel and coarse sand observed as boring was advanced to greater depths.
26-29	Alluvium	SC	None	Poorly	None	0.0	7.5 YR 5/4, Brown sand (dominantly fine sand with little medium to coarse sand) with little clay and trace fine to coarse gravel. Gravel is subangular to subrounded.
29-31	Alluvium	ML	Slight	Poorly	Slight	0.0	7.5 YR 5/4, Brown silty clay with little fine to coarse sand and trace fine to coarse gravel.
31-32	Alluvium	SP	Slight	Poorly	None	0.0	7.5 YR 5/4, Brown sand (dominantly fine to medium sand with little coarse sand) with little clay and trace fine gravel.
32-36	Alluvium	ML	Moderate	Poorly	Slight	NM	7.5 YR 5/4, Brown clayey silt with little fine to coarse sand and trace fine gravel. Gravel is subangular to subrounded.
36-38	Alluvium	SP	Moderate	Poorly	None	NM	7.5 YR 4/4, Brown sand (dominantly medium to coarse sand) with little silt and trace fine to coarse gravel. Gravel is subrounded to subangular.

TIMET
Piezometer ID: TMPZ-106
Date Drilled: 12/7/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
38-39	Alluvium	SW	Slight	Well	Slight	NM	7.5 YR 4/4, Brown sand (dominantly fine sand with trace medium to coarse sand) with trace clay.
39-40.5	Alluvium	SP	Moderate	Poorly	None	NM	7.5 YR 4/4, Brown (dominantly medium to coarse sand) with little silt and trace fine to coarse gravel. Gravel is subrounded to subangular.
40.5-47	MC		Wet	Well	Slight to Moderate	NM	7.5 YR 5/4, Brown clayey silt with moderate plasticity.

MC - Muddy Creek Formation. Contact located at approximately 40.5 feet below land surface.
Groundwater contact located at approximately 29 feet below land surface based on soil moisture.
NM = Not Measured

BOREHOLE LOG

Boring ID:	TMSB-107		
Piezometer ID:	TMPZ-107		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Along the north fence line of the property		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (Piezometer):	8.5 inches from 0 to 39 feet bgs		
Drill Start Date:	12/7/2005	**Drill Start Time:**	1223
Drill Finish Date:	12/7/2005	**Drill Finish Time:**	1312
Total Borehole Depth (feet bgs):	41		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Approximately 41 feet bgs to the Muddy Creek contact		
Well Completion Date:	12/7/2005	Well Completion Time:	1456
Screen Interval (feet bgs):	19 to 39 feet bgs	Total Well Depth (feet bgs):	39
Well Diameter:	4.5 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring backfilled with bentonite chips from 41 feet bgs to 39 feet bgs.

COMPLETION DIAGRAM

SURFACE COMPLETION:
FLUSH MOUNT WITH
WELL VAULT

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD

WELL DATA
WELL NO: **TMPZ-107**

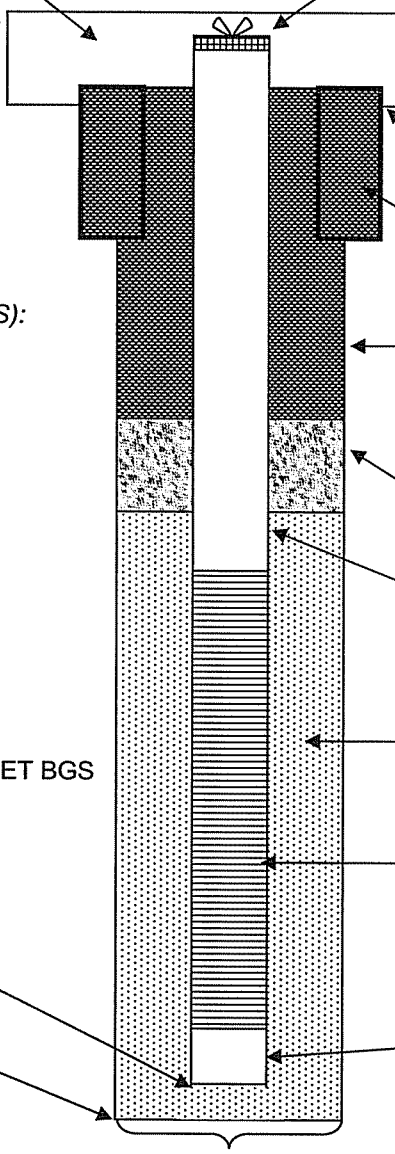
WATER-BEARING ZONE:
30 FT BGS

DATES
DRILLING DATE(S):
12/7/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/7/2005
PAD COMPLETION DATE(S):
12/14/05 - 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 41 FEET BGS



SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/7/2005
FROM: 0 TO: 15 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 15 TO: 17 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.5 inches
FROM: 0 TO: 19 FEET BGS

SAND PACK Silica Sand:
FROM: 17 TO: 39 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.5 inches Slot size:
FROM: 19 TO: 39 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
39 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
41 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:
Boring backfilled with bentonite chips
from 41 feet bgs to 39 feet bgs.

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Piezometer ID: TMPZ-107
Date Drilled: 12/7/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-15	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded. Largest gravel fragment observed is 2.0 inches in diameter.
15-18	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded. Largest cobble observed is 3.0 inches in diameter.
18-24	Alluvium	SM	None	Poorly	None	2.8	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) and little fine gravel. Gravel is subangular to subrounded. Cobbles no longer observed.
24-25	Alluvium	Caliche	None		None	85.9	Broken caliche fragments observed. Layer of caliche approximately one foot thick. 7.5 YR 6/4 , Light brown
25-26	Alluvium	SM	None	Poorly	None	NM	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) and trace fine gravel. Gravel is subangular to subrounded.
26-32	Alluvium	SP	Moderate	Poorly	None	NM	7.5 YR 4/4, Brown sand (dominantly medium to coarse sand) with little silt and trace fine to coarse gravel. Gravel is subrounded to subangular.

TIMET
Piezometer ID: TMPZ-107
Date Drilled: 12/7/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
32-39	Alluvium	CL	Moderate	Well	Slight	NM	7.5 YR 4/4, Brown clayey silt with trace fine to coarse sand.
39-40	Alluvium	SP	Wet	Poorly	None	NM	7.5 YR 4/4, Brown medium to coarse sand with little silt and trace fine to coarse gravel. Gravel is subrounded to subangular.
40-41	MC		Wet	Well	Slight to Moderate	NM	7.5 YR 5/4, Brown clayey silt with moderate plasticity.

MC - Muddy Creek Formation. Contact located at approximately 41 feet below land surface.
Groundwater contact located at approximately 30 feet below land surface based on soil moisture.

Please note that core samples from the 2-4, 6-7, 11-13, 21-23, and 25-27 were not logged as samples needed to be submitted in sealed bags for geotechnical analysis.
NM = Not Measured

BOREHOLE LOG

Boring ID:	TMSB-108		
Piezometer ID:	TMPZ-108		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Along the north fence line of the property		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (Piezometer):	8.5 inches from 0 to 46 feet bgs		
Drill Start Date:	12/8/2005	**Drill Start Time:**	0642
Drill Finish Date:	12/8/2005	**Drill Finish Time:**	0735
Total Borehole Depth (feet bgs):	57		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Approximately 47.5 feet bgs to the Muddy Creek contact		
Well Completion Date:	12/8/2005	Well Completion Time:	1030
Screen Interval (feet bgs):	26 to 46 feet bgs	Total Well Depth (feet bgs):	46
Well Diameter:	4.5 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring backfilled with bentonite chips from 57 feet bgs to 46 feet bgs.

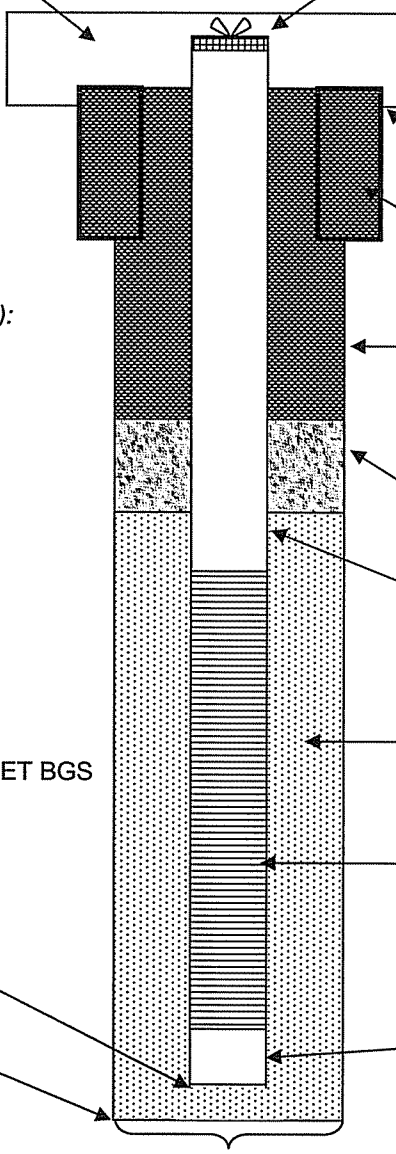
Depth of boring approved by Jay Snyder

COMPLETION DIAGRAM

SURFACE COMPLETION:
FLUSH MOUNT WITH
WELL VAULT

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD



WELL DATA
WELL NO: **TMPZ-108**

WATER-BEARING ZONE:
33 FT BGS

DATES
DRILLING DATE(S):
12/8/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/8/2005
PAD COMPLETION DATE(S):
12/14/05 - 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 57 FEET BGS

SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/8/2005
FROM: 0 TO: 22 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 22 TO: 24 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.5 inches
FROM: 0 TO: 24 FEET BGS

SAND PACK Silica Sand:
FROM: 24 TO: 46 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.5 inches Slot size:
FROM: 26 TO: 46 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
46 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
57 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:
Boring backfilled with bentonite chips
from 57 feet bgs to 46 feet bgs.

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Piezometer ID: TMPZ-108
Date Drilled: 12/8/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-13	Alluvium	SM	None	Poorly	None	1.6	7.5 YR 5/4, Brown fine sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded.
13-15	Alluvium	SM	None	Poorly	None	103.5	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded.
15-19	Alluvium	SM	None	Poorly	None	103.5	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel. Gravel is subangular to subrounded. Cobbles no longer observed.
19-25	Alluvium	SM	None	Poorly	None	32.5	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded.
25-27	Alluvium	SM	None	Poorly	None	32.5	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine gravel. Gravel is subangular to subrounded.
27-33	Alluvium	SM	Slight	Poorly	None	3.5	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace clay.
33-44	Alluvium	ML	Slight	Moderate	None	NM	7.5 YR 5/4, Brown silty clay with trace fine to coarse sand and trace fine to coarse gravel.
44-45	Alluvium	Caliche	None		None	NM	Broken caliche fragments observed. Layer of caliche approximately one foot thick. 7.5 YR 6/4 , Light brown.
45-46	Alluvium	ML	Slight	Moderate	None	NM	7.5 YR 5/4 Silty clay with little fine to coarse sand and trace fine gravel.
46-47.5	Alluvium	SP	Moderate	Poorly	None	NM	7.5 YR 5/4, Brown sand (dominantly medium to coarse sand) with little silt and trace fine to coarse gravel. Gravel is subrounded to subangular.

TIMET
Piezometer ID: TMPZ-108
Date Drilled: 12/8/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
47.5-57	MC		Wet	Well	Slight to Moderate	NM	7.5 YR 5/4, Brown clayey silt with moderate plasticity.

MC - Muddy Creek Formation. Contact located at approximately 47.5 feet below land surface.
Groundwater contact located at approximately 33 feet below land surface based on soil moisture.
NM - Not Measured

BOREHOLE LOG

Boring ID:	TMSB-109		
Piezometer ID:	TMPZ-109		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Along the north fence line of the property		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (Piezometer):	8.5 inches from 0 to 46 feet bgs		
Drill Start Date:	12/8/2005	**Drill Start Time:**	1203
Drill Finish Date:	12/8/2005	**Drill Finish Time:**	1310
Total Borehole Depth (feet bgs):	57		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Approximately 48 feet bgs to the Muddy Creek contact		
Well Completion Date:	12/8/2005	Well Completion Time:	1437
Screen Interval (feet bgs):	26 to 46 feet bgs	Total Well Depth (feet bgs):	46
Well Diameter:	4.5 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring backfilled with bentonite chips from 57 feet bgs to 46 feet bgs.

COMPLETION DIAGRAM

SURFACE COMPLETION:
FLUSH MOUNT WITH
WELL VAULT

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD

WELL DATA
WELL NO: **TMPZ-109**

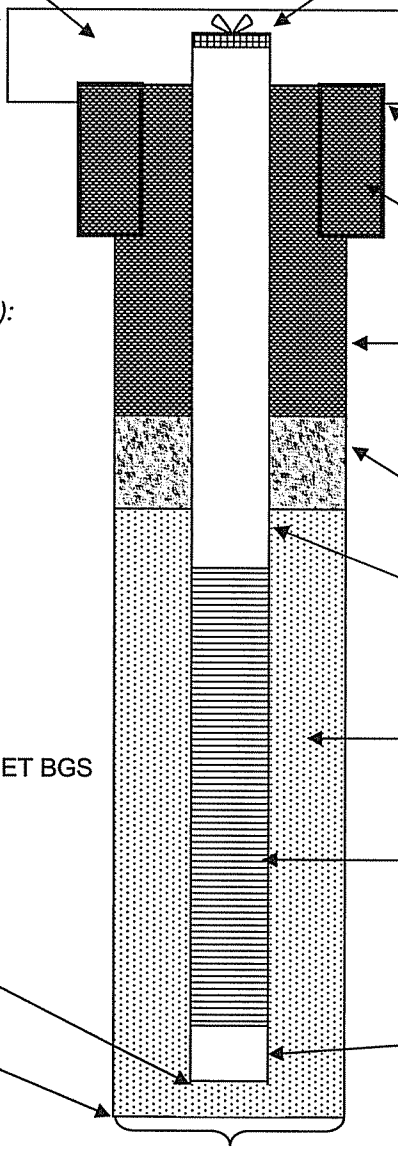
WATER-BEARING ZONE:
33 FT BGS

DATES
DRILLING DATE(S):
12/8/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/8/2005
PAD COMPLETION DATE(S):
12/14/05 - 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 57 FEET BGS



SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/8/2005
FROM: 0 TO: 22 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 22 TO: 24 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.5 inches
FROM: 0 TO: 24 FEET BGS

SAND PACK Silica Sand:
FROM: 24 TO: 46 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.5 inches Slot size:
FROM: 26 TO: 46 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
46 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
57 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:
Boring backfilled with bentonite chips
from 57 feet bgs to 46 feet bgs.

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Piezometer ID: TMPZ-109
Date Drilled: 12/8/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-1	Alluvium	SM	Wet	Poorly	None	1.2	10B 2.5/1, Bluish Black silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded. Color is not naturally occurring.
1-4	Alluvium	SM	None	Poorly	None	1.2	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded.
4-7	Alluvium	SM	None	Poorly	None	1.3	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded.
7-9	Alluvium	SM	None	Poorly	N one	1.3	7.5 YR 5/4 Brown silty sand (dominantly fine sand with trace medium to coarse sand) and trace fine gravel. Cobbles are no longer present.
9-19	Alluvium	SM	None	Poorly	None	2.3	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded.
19-20	Alluvium	Caliche	None		None	5.7	Broken caliche fragments observed. Layer of caliche approximately one foot thick. 7.5 YR 6/4 , Light brown.
20-32	Alluvium	SM	None	Poorly	None	5.7	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded.
32-35	Alluvium	ML	slight	Poorly	None	NM	7.5 YR 5/4, Brown silty clay with trace fine to coarse sand and trace fine to coarse gravel.
35-41	Alluvium	SM	slight	Poorly	None	NM	7.5 YR 5/4, Brown silty sand (dominantly fine sand with some medium to coarse sand) with trace fine to coarse gravel.
41-44	Alluvium	SP	Wet	Poorly	None	NM	7.5 YR 5/4, Brown sand (dominantly medium to coarse sand) with little silt, trace clay and trace fine to coarse gravel.

TIMET
Piezometer ID: TMPZ-109
Date Drilled: 12/8/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
44-48	Alluvium	ML	Wet	Poorly	None	NM	7.5 YR 5/4, Brown silty clay with trace fine to coarse sand and trace fine gravel.
48-57	MC		Wet	Well	Slight to Moderate	NM	7.5 YR 5/4, Brown clayey silt with moderate plasticity.

MC - Muddy Creek Formation. Contact located at approximately 48 feet below land surface.
Groundwater contact located at approximately 33 feet below land surface based on soil moisture.
NM = Not Measured

BOREHOLE LOG

Boring ID:	TMSB-110		
Piezometer ID:	TMPZ-110		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Along the north fence line of the property		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (Piezometer):	8.5 inches from 0 to 46 feet bgs		
Drill Start Date:	12/8/2005	**Drill Start Time:**	1515
Drill Finish Date:	12/8/2005	**Drill Finish Time:**	1558
Total Borehole Depth (feet bgs):	57		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Approximately 48 feet bgs to the Muddy Creek contact		
Well Completion Date:	12/9/2005	Well Completion Time:	813
Screen Interval (feet bgs):	25 to 45 feet bgs	Total Well Depth (feet bgs):	45
Well Diameter:	4.5 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring backfilled with bentonite chips from 57 feet bgs to 46 feet bgs.

PVC casing rose 1 foot during construction. Piezometer was set at 45 feet bgs instead of the anticipated 46 foot target depth.

COMPLETION DIAGRAM

SURFACE COMPLETION:
FLUSH MOUNT WITH
WELL VAULT

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD

WELL DATA
WELL NO: **TMPZ-110**

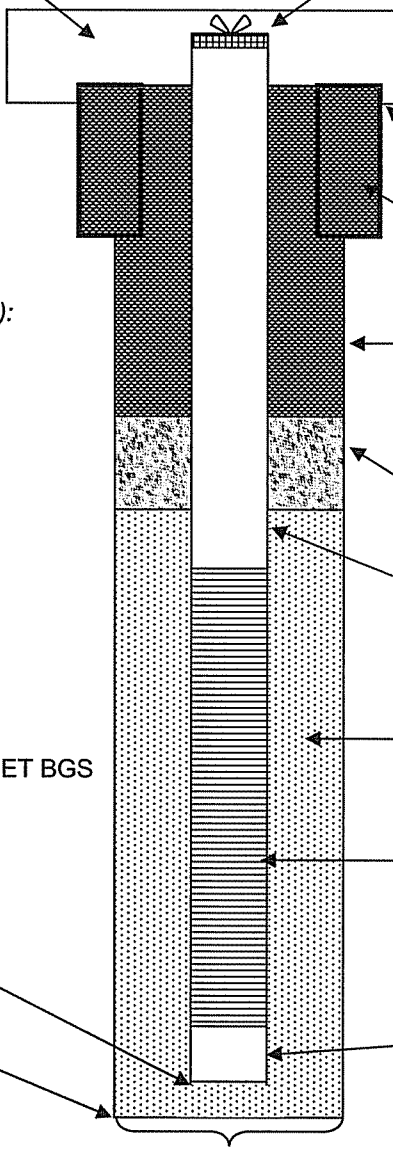
WATER-BEARING ZONE:
34 FT BGS

DATES
DRILLING DATE(S):
12/8/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/9/2005
PAD COMPLETION DATE(S):
12/14/05 - 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 57 FEET BGS



SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/9/2005
FROM: 0 TO: 15 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 15 TO: 17 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.5 inches
FROM: 0 TO: 25 FEET BGS

SAND PACK Silica Sand:
FROM: 17 TO: 45 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.5 inches Slot size:
FROM: 25 TO: 45 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
45 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
57 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:
Boring backfilled with bentonite chips from 57 feet bgs to 46 feet bgs.
PVC casing rose 1 foot during construction which resulted in the well being set at 45 feet bgs.

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Piezometer ID: TMPZ-110
Date Drilled: 12/8/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-9	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded.
9-11	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and Cobbles are subangular to subrounded.
11-17	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded. Cobbles no longer present.
17-19	Alluvium	SM	None	Poorly	None	0.9	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and Cobbles are subangular to subrounded.
19-27	Alluvium	SM	None	None	None	1.3	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded. Cobbles no longer present.
27-38	Alluvium	SM	Slight	Poorly	None	3.1	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine gravel. Gravel is subangular to subrounded.
38-42	Alluvium	SP	Wet	Poorly	None	NM	7.5 YR 5/4, Brown sand (dominantly medium to coarse sand) with little silt and trace fine to coarse gravel. Gravel is subrounded to subangular.
42-44	Alluvium	ML	Moderate	Moderate	Slight	NM	7.5 YR 5/4 Brown silty clay with trace fine to coarse sand and trace fine to coarse gravel.
44-45	Alluvium	Caliche	None		None	NM	Broken caliche fragments observed. Layer of caliche approximately one foot thick. 7.5 YR 6/4 , Light brown
45-48	Alluvium	ML	Wet	Moderate	Slight	NM	7.5 YR 5/4, Brown silty clay with trace fine to coarse sand and trace fine to coarse gravel.

TIMET
Piezometer ID: TMPZ-110
Date Drilled: 12/8/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
48-57	MC		Wet	Well	Slight to Moderate	NM	7.5 YR 5/4, Brown clayey silt with moderate plasticity.

MC - Muddy Creek Formation. Contact located at approximately 48 feet below land surface.
Groundwater contact located at approximately 34 feet below land surface based on soil moisture.
NM = Not Measured

BOREHOLE LOG

Boring ID:	TMSB-111		
Piezometer ID:	TMPZ-111		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	North of fence line near billboard, outside of fence		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (Piezometer):	8.5 inches from 0 to 57 feet bgs		
Drill Start Date:	12/9/2005	**Drill Start Time:**	0952
Drill Finish Date:	12/9/2005	**Drill Finish Time:**	1115
Total Borehole Depth (feet bgs):	67		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Approximately 58 feet bgs to the Muddy Creek contact		
Well Completion Date:	12/9/2005	Well Completion Time:	813
Screen Interval (feet bgs):	37 to 57 feet bgs	Total Well Depth (feet bgs):	57
Well Diameter:	4.5 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring backfilled with bentonite chips from 67 feet bgs to 57 feet bgs.

COMPLETION DIAGRAM

SURFACE COMPLETION:
FLUSH MOUNT WITH
WELL VAULT

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD

WELL DATA
WELL NO: **TMPZ-111**

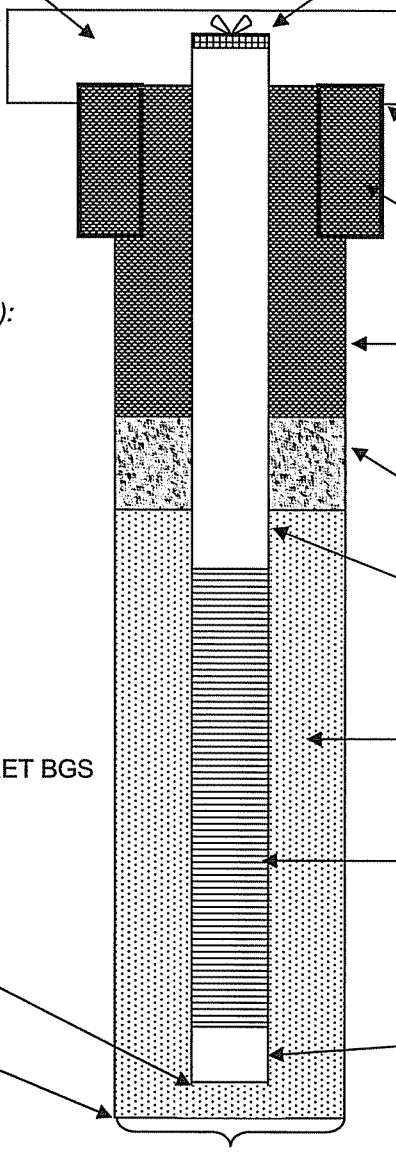
WATER-BEARING ZONE:
38 FT BGS

DATES
DRILLING DATE(S):
12/9/2005
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
12/9/2005
PAD COMPLETION DATE(S):
12/14/05 - 12/15/05

DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 67 FEET BGS



SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 12/9/2005
FROM: 0 TO: 30 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 30 TO: 32 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.5 inches
FROM: 0 TO: 37 FEET BGS

SAND PACK Silica Sand:
FROM: 32 TO: 57 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.5 inches Slot size:
FROM: 37 TO: 57 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

TOTAL DEPTH OF WELL
57 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
67 FEET BGS
FEET NGVD

BOREHOLE DIAMETER 8.5 inches

Note:
Boring backfilled with bentonite chips
from 67 feet bgs to 57 feet bgs.

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Piezometer ID: TMPZ-111
Date Drilled: 12/9/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-4	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel is subangular to subrounded.
4-6	Alluvium	SM	None	Poorly	None	0.2	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded.
6-19.5	Alluvium	SM	None	Poorly	N one	0.0	7.5 YR 5/4 Brown silty sand (dominantly find sand with trace medium to coarse sand) with trace fine gravel. Cobbles are no longer present.
9-19.5	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded.
19.5-20	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
20-25	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded.
25-27	Alluvium	SM	None	Moderate	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with trace medium to coarse sand) with little fine gravel. Cobbles no longer observed.
27-37	Alluvium	SM	None	Poorly	None	2.1	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded.
37-49	Alluvium	SM	Slight	Poorly	None	NM	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel. Cobbles no longer present.
49-49.5	Alluvium	Caliche	None		None	NM	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.

TIMET
Piezometer ID: TMPZ-111
Date Drilled: 12/9/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
49.5-53	Alluvium	SM	Slight	Poorly	None	NM	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
53-58	Alluvium	ML	Moderate	Well	Slight	NM	7.5 YR 5/4, Brown silty clay with trace fine to coarse sand and trace fine gravel. Did not observe coarse sand lens as was observed in other piezometer borings.
58-67	MC		Wet	Well	Slight to Moderate	NM	7.5 YR 5/4, Brown clayey silt with moderate plasticity.

MC - Muddy Creek Formation. Contact located at approximately 58 feet below land surface.
Groundwater contact located at approximately 38 feet below land surface based on soil moisture.
NM - Not Measured

BOREHOLE LOG

Boring ID:	TMSB-112		
Piezometer ID:	TMPZ-112		
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Northeast corner of the property		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	SR-102 / Sonic Drilling		
Sampler Type:	Continuous Core		
Borehole Diameter (Piezometer):	8.5 inches from 0 to 57 feet bgs		
Drill Start Date:	12/10/2005	**Drill Start Time:**	0700
Drill Finish Date:	12/10/2005	**Drill Finish Time:**	0830
Total Borehole Depth (feet bgs):	67		
Soil Boring Backfill Date:	Not Applicable	**Soil Boring Backfill Time:**	Not Applicable
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Approximately 48 feet bgs to the Muddy Creek contact		
Well Completion Date:	1/14/2006	Well Completion Time:	1030
Screen Interval (feet bgs):	37 to 57 feet bgs	Total Well Depth (feet bgs):	57
Well Diameter:	4.5 inches	Well Casing Material:	PVC

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring backfilled with bentonite chips from 67 feet bgs to 57 feet bgs.

Boring left open on 12/10/05 as drill crew did not have enough supplies to complete the construction of the well during this visit. Boring cleaned up to a depth of 57 feet bgs on 1/14/06 using a hollow stem auger drill rig.

COMPLETION DIAGRAM

SURFACE COMPLETION:
FLUSH MOUNT WITH
WELL VAULT

ELEVATION TOC: FEET NGVD

GROUND SURFACE
ELEVATION: FEET NGVD

WELL DATA
WELL NO: **TMPZ-112**

WATER-BEARING ZONE:
39 FT BGS

DATES
DRILLING DATE(S):
12/10/2005 & 1/14/06
CASING INSTALLATION DATE(S):
Not Applicable
WELL INSTALLATION DATE(S):
1/14/2006
PAD COMPLETION DATE(S):
1/14/2006

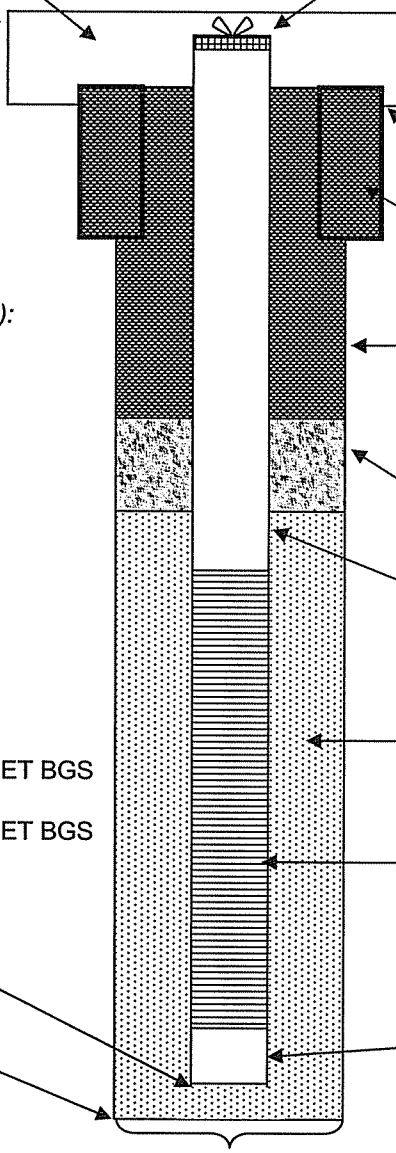
DRILLING INFORMATION

DRILLING COMPANY:
Prosonic Corporation
DRILLERS LICENSE NO:

DRILLING METHOD:
Sonic
FROM: 0 TO: 67 FEET BGS
Hollow Stem Auger
FROM: 0 TO: 57 FEET BGS

TOTAL DEPTH OF WELL
57 FEET BGS
FEET NGVD

TOTAL DEPTH OF BOREHOLE
67 FEET BGS
FEET NGVD



SURFACE CASING
Not Applicable

SAND/CEMENT
Not Applicable

PORTLAND/BENTONITE GROUT
Date: 1/14/2006
FROM: 0 TO: 33 FEET BGS
Borehole diameter: 8.5 inches

BENTONITE PELLETS
FROM: 33 TO: 35 FEET BGS

WELL RISER CASING
Material: PVC
Diameter: 4.5 inches
FROM: 0 TO: 37 FEET BGS

SAND PACK Silica Sand:
FROM: 35 TO: 57 FEET BGS
FROM: TO: FEET NGVD

WELL SCREEN
Material: PVC
Diameter: 4.5 inches Slot size:
FROM: 37 TO: 57 FEET BGS
FROM: TO: FT NGVD

SUMP LENGTH 3.5 inches

BOREHOLE DIAMETER 8.5 inches

Note:
Boring backfilled with bentonite chips
from 67 feet bgs to 57 feet bgs.
Boring cleaned out using a hollow stem auger
drill rig on 1/14/06 to a depth of 57 feet bgs.

BGS = BELOW GROUND SURFACE
IN = INCH
NGVD = NATIONAL GEODETIC VERTICAL DATUM
PVC = POLYVINYL CHLORIDE
TOC = TOP OF CASING

TIMET
Piezometer ID: TMPZ-112
Date Drilled: 12/10/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-9	Alluvium	SM	None	Poorly	None	0.9	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace coarse gravel. Gravel and cobbles are subangular to subrounded.
9-11	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace coarse gravel and cobbles. Gravel and cobbles are subangular to subrounded.
11-14.5	Alluvium	SM	None	Poorly	N one	0.0	7.5 YR 5/3, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel. Cobbles no longer observed.
14.5-15	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
15-19.5	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace coarse gravel.
19.5-20	Alluvium	Caliche	None		None	66.0	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
20-24	Alluvium	SM	None	Poorly	None	66.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace coarse gravel and trace cobbles. Gravel and cobbles are subangular to subrounded.
24-25	Alluvium	Caliche	None	Well	None	0.0	Broken caliche fragments observed. Layer of caliche approximately 1.0 foot thick. 7.5 YR 6/4 , Light brown.
25-35	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace coarse gravel and trace cobbles.
35-36	Alluvium	Caliche	None		None	0.0	Broken caliche fragments observed. Layer of caliche approximately 1.0 foot thick. 7.5 YR 6/4 , Light brown.

TIMET
Piezometer ID: TMPZ-112
Date Drilled: 12/10/05
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
36-44	Alluvium	SM	Slight	Poorly	None	NM	7.5 YR 4/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace clay and coarse gravel. Cobbles no longer observed.
44-44.5	Alluvium	Caliche	None		None	NM	Broken caliche fragments observed. Layer of caliche approximately 0.5 feet thick. 7.5 YR 6/4 , Light brown.
44.5-48	Alluvium	SM	Slight	Poorly	None	NM	7.5 YR 5/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little fine gravel and trace clay and coarse gravel.
48-67	MC		Slight to Wet	Well	Slight to Moderate	NM	7.5 YR 5/4, Brown clayey silt with moderate plasticity.

MC - Muddy Creek Formation. Contact located at approximately 48 feet below land surface.
Groundwater contact located at approximately 39 feet below land surface based on soil moisture.
NM - Not Measured

BOREHOLE LOG

Boring ID:	TMSB-113		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Next to building in the eastern portion of the facility		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 44 feet bgs		
Drill Start Date:	1/12/2006	**Drill Start Time:**	0743
Drill Finish Date:	1/12/2006	**Drill Finish Time:**	0925
Total Borehole Depth (feet bgs):	44		
Soil Boring Backfill Date:	1/12/2006	**Soil Boring Backfill Time:**	0926
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Not reached due to auger refusal (i.e. boulder at 44 feet)		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned from total depth to land surface with a bentonite slurry.

Auger refusal at 44 feet bgs. Per the driller, auger refusal was due to a boulder.

TIMET
Soil Boring ID: TMSB-113
Date Drilled: 1/12/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-15	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 7/6, Reddish yellow silty sand (dominantly fine sand with little to some medium to coarse sand) with trace fine to coarse gravel.
15-25	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little to some medium to coarse sand) with trace clays and trace fine to coarse gravel.
25-29	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 7/6, Reddish yellow silty sand (dominantly fine sand with little to some medium to coarse sand) with trace clays, trace fine to coarse gravel and trace cobbles.
29-40	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 7/6, Reddish yellow silty sand (dominantly fine sand with little to some medium to coarse sand) with trace fine to coarse gravel. Trace clays and cobbles no longer observed.
40-44	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 7/6, Reddish yellow silty sand (dominantly fine sand with little to some medium to coarse sand) with trace clays and trace fine to coarse gravel.

Groundwater contact not encountered due to auger refusal at 44 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-114		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Upper level in the equipment storage area		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 5 feet bgs		
Drill Start Date:	1/12/2006	**Drill Start Time:**	1018
Drill Finish Date:	1/12/2006	**Drill Finish Time:**	1036
Total Borehole Depth (feet bgs):	5		
Soil Boring Backfill Date:	1/12/2006	**Soil Boring Backfill Time:**	1406
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Not reached due to auger refusal		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Encountered volcanic rocks which appear to have been used as fill to lift this portion of the facility. Volcanic rock appears to be Alkaline Feldspar Rhyolite. Attempted drilling several additional borings and encountered the same material. Borings abandoned with cuttings and bentonite.

TIMET
Soil Boring ID: TMSB-114
Date Drilled: 1/12/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	Soil Description
0-5	Fill	NA	None	NA	None	7.5 YR 6/2, Pinkish gray silty sand (dominantly fine sand with little medium to coarse sand) with some cobbles and little fine to coarse gravel. Area appears to have been lifted using largely volcanic rock (i.e. Alkaline Feldspar Rhyolite) as fill material.

Groundwater contact not encountered due to auger refusal at 5 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-115		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Lower level of facility by the landfill		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 45 feet bgs		
Drill Start Date:	1/12/2006	**Drill Start Time:**	1126
Drill Finish Date:	1/12/2006	**Drill Finish Time:**	1405
Total Borehole Depth (feet bgs):	45		
Soil Boring Backfill Date:	1/12/2006	**Soil Boring Backfill Time:**	1406
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	44.5 feet to the groundwater table		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with a bentonite slurry from total depth to land surface.

TIMET
Soil Boring ID: TMSB-115
Date Drilled: 1/12/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-3	Alluvium	SM	None	Poorly	None	0.0	5 YR 7/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
3-8	Alluvium	SP	None	Poorly	None	0.0	5 YR 7/6, Reddish yellow sand (dominantly fine sand with little to some medium to coarse sand) with little silt and trace fine to coarse gravel.
8-30	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
30-37	Alluvium	SM	None	Poorly	None	1.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace clays and trace fine to coarse gravel.
37-43	Alluvium	ML	None	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium and trace coarse sand) with some clays and trace fine to coarse gravel.
43-45	Alluvium	ML	Moderate	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow sand (dominantly fine sand with little medium and trace coarse sand) with some silt and clay and trace fine to coarse gravel.

Groundwater contact encountered at approximately 44.5 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-116		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Upper level of facility in equipment storage area		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 10 feet bgs		
Drill Start Date:	1/13/2006	**Drill Start Time:**	0805
Drill Finish Date:	1/13/2006	**Drill Finish Time:**	0817
Total Borehole Depth (feet bgs):	10		
Soil Boring Backfill Date:	1/13/2006	**Soil Boring Backfill Time:**	0818
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Not reached due to auger refusal.		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with drill cuttings. and bentonite.

Encountered same volcanic rock that was encountered in boring TMSB-114

TIMET
Soil Boring ID: TMSB-116
Date Drilled: 1/13/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-3	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/4, Light brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
3-9	Alluvium	SM	None	Poorly	None	0.0	5 YR 6/6, Reddish yellow sand (dominantly fine sand with little medium to coarse sand) and trace fine to coarse gravel.
9-10	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/4, Brown sand (dominantly fine sand with little medium to coarse sand) with some silt, little fine gravel, and trace coarse gravel.

Groundwater contact not encountered due to auger refusal at 10 feet below land surface. Although not visually observed auger refusal appeared to be due to the same conditions observed in soil boring TMSB-114.

BOREHOLE LOG

Boring ID:	TMSB-117		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Landfill		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 50 feet bgs		
Drill Start Date:	1/13/2006	**Drill Start Time:**	0912
Drill Finish Date:	1/13/2006	**Drill Finish Time:**	1107
Total Borehole Depth (feet bgs):	50		
Soil Boring Backfill Date:	1/13/2006	**Soil Boring Backfill Time:**	1108
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Groundwater encountered at approximately 46 feet bgs		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with drill cuttings.

TIMET
Soil Boring ID: TMSB-117
Date Drilled: 1/13/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-6	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
6-10	NA	NA	None	NA	NA	10.9	N 7/1 Light gray and N 8/1 white (mixed) fine grained, soft, and light weight waste material. Not native lithology.
10-14	NA	NA	None	NA	NA	0.0	10Y 2.5/1, Greenish black fine grained waste material. 1% LEL for methane observed while drilling through this material. Not native lithology.
14-35	Alluvium	SM	None	Poorly	None	1.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
35-40	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 7/6, Reddish yellow silty sand (dominantly fine sand with little to some medium to coarse sand) with trace clays and trace fine to coarse gravel.
40-44	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 5/6, Strong brown silty sand (dominantly fine sand with little to some medium to coarse sand) with trace clays and trace fine to coarse gravel.
44-47	Alluvium	ML	None	Poorly	None	0.0	7.5 YR 4/4, Brown silty sand (dominantly fine sand with little to some medium to coarse sand) with little clay and trace fine to coarse gravel.
47-50	Alluvium	SP	Moderate	Poorly	None	0.0	7.5 YR 4/4, Brown sand (dominantly medium to coarse sand with little fine sand) with little silt, little fine gravel, trace coarse gravel and trace clay.

Groundwater contact encountered at approximately 46.5 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-118		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Landfill		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 50 feet bgs		
Drill Start Date:	1/10/2006	**Drill Start Time:**	0831
Drill Finish Date:	1/10/2006	**Drill Finish Time:**	1050
Total Borehole Depth (feet bgs):	50		
Soil Boring Backfill Date:	1/10/2006	**Soil Boring Backfill Time:**	1051
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Groundwater encountered at approximately 49 feet bgs		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with drill cuttings

TIMET
Soil Boring ID: TMSB-118
Date Drilled: 1/10/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-5	Alluvium	SM	None	Poorly	None	0.9	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with trace medium to coarse sand) with trace fine to coarse gravel and trace cobbles.
5-14	NA	NA	None	NA	NA	0.9	10B 6/1 Bluish gray fine grained waste material. Not native lithology.
14-20	NA	NA	None	NA	NA	0.9	10 Y 2.5/1, Greenish black fine grained waste material. Not native lithology.
20-24	Alluvium	SM	None	Poorly	None	0.9	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
24-30	Alluvium	SM	None	Poorly	None	0.9	5 YR 7/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
30-44	Alluvium	SM	None	Poorly	None	0.0	5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
44-49	Alluvium	SM	None	Poorly	None	0.0	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine to coarse gravel and trace clays.
49-50	Alluvium	SP	Moderate	Poorly	None	0.0	5 YR 5/4, Reddish brown sand (dominantly fine to medium sand with little coarse sand) with little fine gravel, trace coarse gravel and trace silts and clays.

Groundwater contact encountered at approximately 49 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-119		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Landfill		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 15 feet bgs		
Drill Start Date:	1/10/2006	**Drill Start Time:**	1209
Drill Finish Date:	1/10/2006	**Drill Finish Time:**	1250
Total Borehole Depth (feet bgs):	15		
Soil Boring Backfill Date:	1/10/2006	**Soil Boring Backfill Time:**	1251
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Not reached. Methane LEL over 5%.		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with drill cuttings

Methane LEL of >5% reached. Advancement of boring stopped at approximately 15 feet bgs.

TIMET
Soil Boring ID: TMSB-119
Date Drilled: 1/10/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-10.5	Alluvium	SM	None	Poorly	None	0.9	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine gravel.
10.5-15	NA	NA	None	NA	NA	0.9	Metallic gray waste fragments. Methane LEL observed as high as 19% and carbon monoxide as high as 154 ppm. Dry ice added to boring and boring was abandoned with cuttings.

Groundwater contact not encountered.

BOREHOLE LOG

Boring ID:	TMSB-120		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Landfill		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 47 feet bgs		
Drill Start Date:	1/10/2006	**Drill Start Time:**	1324
Drill Finish Date:	1/10/2006	**Drill Finish Time:**	1456
Total Borehole Depth (feet bgs):	47		
Soil Boring Backfill Date:	1/10/2006	**Soil Boring Backfill Time:**	1457
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	46 feet to the groundwater table		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with drill cuttings

TIMET
Soil Boring ID: TMSB-120
Date Drilled: 1/10/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-4	Alluvium	SM	None	Poorly	None	0.0	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
4-12	NA	NA	None	NA	None	0.0	10 Y 5/1, Greenish gray dominantly fine grained material with little coarse grained material. Coarse grained material as large as cobble size classification. Landfill material.
12-25	Alluvium	SM	None	Poorly	None	0.0	5 YR 6/6, Light reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
25-30	Alluvium	SM	None	Poorly	None	0.0	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
30-40	Alluvium	SM	None	Poorly	None	0.0	5 YR 5/6, Reddish yellow silty sand (dominantly fine sand with trace medium to coarse sand) with trace fine to coarse gravel.
40-47	Alluvium	SP	Slight	Poorly	None	0.0	5 YR 4/4, Reddish brown sand (dominantly fine sand with little medium to coarse sand) with little silt and trace fine to coarse gravel.

Groundwater contact encountered at approximately 46 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-121		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Near new Waste Water Neutralization Plant		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 25 feet bgs		
Drill Start Date:	1/11/2006	**Drill Start Time:**	0753
Drill Finish Date:	1/11/2006	**Drill Finish Time:**	0852
Total Borehole Depth (feet bgs):	25		
Soil Boring Backfill Date:	1/11/2006	**Soil Boring Backfill Time:**	0853
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	23 feet to the groundwater table		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with a bentonite slurry from total depth to land surface.

TIMET
Soil Boring ID: TMSB-121
Date Drilled: 1/11/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-0.5	NA	NA	NA	NA	NA	0.0	Fill material
0.5-9	Alluvium	SM	None	Poorly	None	0.0	5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
9-15	Alluvium	SM	None	Poorly	None	0.0	5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel and trace cobbles.
15-19	Alluvium	SM	None	Poorly	None	0.0	5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel. Cobbles no longer observed.
19-23	Alluvium	SM	None	Poorly	None	0.4	5 YR 5/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with little fine to coarse gravel.
23-25	Alluvium	SP	Moderate	Poorly	None	0.4	5 YR 6/3, Light Reddish brown sand (dominantly fine sand with some medium to coarse sand) with little fine gravel, trace coarse gravel, and trace silt.

Groundwater contact encountered at approximately 23 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-123		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	North pond (i.e. one not loading rail cars from)		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 25 feet bgs		
Drill Start Date:	1/13/2006	**Drill Start Time:**	1325
Drill Finish Date:	1/13/2006	**Drill Finish Time:**	1415
Total Borehole Depth (feet bgs):	50		
Soil Boring Backfill Date:	1/13/2006	**Soil Boring Backfill Time:**	1416
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	Groundwater encountered at approximately 25 feet bgs		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with a bentonite slurry from total depth drilled to land surface.

TIMET
Soil Boring ID: TMSB-123
Date Drilled: 1/13/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-5	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/3, Light brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine to coarse gravel.
5-10	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/8, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel. Orangish fine grained oxidized material also observed.
10-14	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/4, Light brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel.
14-19	Alluvium	SP	None	Poorly	None	2.1	7.5 YR 6/4, Light brown sand (dominantly fine sand with little medium to coarse sand) with some silt and trace fine to coarse gravel.
19-24	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
24-25	Alluvium	ML	Slight	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow partially cemented silty clay with some fine to coarse sand and trace fine to coarse gravel.

Groundwater contact encountered at approximately 25 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-124		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Along west fence line of facility		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 25 feet bgs		
Drill Start Date:	1/11/2006	**Drill Start Time:**	0942
Drill Finish Date:	1/11/2006	**Drill Finish Time:**	1025
Total Borehole Depth (feet bgs):	25		
Soil Boring Backfill Date:	1/11/2006	**Soil Boring Backfill Time:**	1026
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	21 feet to the groundwater table		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with a bentonite slurry from total depth to land surface.

TIMET
Soil Boring ID: TMSB-124
Date Drilled: 1/11/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-14	Alluvium	SM	None	Poorly	None	0.0	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine to coarse gravel.
14-20	Alluvium	SM	None	Poorly	None	0.0	5 YR 5/4, Reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with little fine to coarse gravel and trace clays.
20-24	Alluvium	SM	None	Poorly	None	0.0	5 YR 5/4, Reddish brown sand (dominantly fine sand with little medium to coarse sand) with some silt, little fine gravel and trace coarse gravel.
24-25	Alluvium	SP	Moderate	Poorly	None	0.0	5 YR 4/4, Reddish brown sand (dominantly fine to medium sand with some coarse sand) with little silt, little fine gravel and trace coarse gravel.

Groundwater contact encountered at approximately 21 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-125		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Along slope of pond in the northern portion of the facility		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 25 feet bgs		
Drill Start Date:	1/11/2006	**Drill Start Time:**	1124
Drill Finish Date:	1/11/2006	**Drill Finish Time:**	1159
Total Borehole Depth (feet bgs):	25		
Soil Boring Backfill Date:	1/11/2006	**Soil Boring Backfill Time:**	1200
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	20.5 feet to the groundwater table		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned with a bentonite slurry from total depth to land surface.

TIMET
Soil Boring ID: TMSB-125
Date Drilled: 1/11/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-5	Alluvium	SM	None	Poorly	None	0.0	5 YR 5/6, Yellowish red silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
5-15	Alluvium	SM	None	Poorly	None	0.4	5 YR 6/4, Light reddish brown silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
15-20	Alluvium	SM	None	Poorly	None	0.0	5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
20-25	Alluvium	SP	Moderate	Poorly	None	0.0	5 YR 4/4, Reddish brown sand (dominantly fine to medium sand with some coarse sand) with little silt and little fine to coarse gravel.

Groundwater contact encountered at approximately 20.5 feet below land surface.

BOREHOLE LOG

Boring ID:	TMSB-126		
Well ID:			
Project Number:	P0655	**Project Name:**	Hydrogeologic Characterization
Client:	Titanium Metals Corporation		
Site:	Timet Plant Site		
Borehole Location:	Near the drillers staging area		
Northing:		Easting:	
Logged By:	Jeremy Holst of BAI		
Reviewed By:	Kirk Stowers of BAI	**Review Date:**	1/30/2006
Drilling Contractor:	Prosonic Corporation		
Drill Rig Type/Method:	Hollow Stem Auger		
Sampler Type:	Brass tubes		
Borehole Diameter (well):	8.0 inches from 0 to 30 feet bgs		
Drill Start Date:	1/11/2006	**Drill Start Time:**	1322
Drill Finish Date:	1/11/2006	**Drill Finish Time:**	1413
Total Borehole Depth (feet bgs):	30		
Soil Boring Backfill Date:	1/11/2006	**Soil Boring Backfill Time:**	1414
Ground Surface Reference Elevation (feet NGVD):			
Depth to Target Zone (feet bgs):	28 feet to groundwater		
Well Completion Date:	Not Applicable	Well Completion Time:	
Screen Interval (feet bgs):		Total Well Depth (feet bgs):	
Well Diameter:		Well Casing Material:	

BOREHOLE LOCATION MAP

N

Refer to Figure 3 in the Tetra Tech EM Inc. report entitled "Draft Final Sampling and Analysis Plan Hydrogeologic Characterization, Titanium Metals Corporation, Henderson, Nevada

NOTES/REMARKS

Boring abandoned from total depth to land surface with a bentonite slurry.

TIMET
Soil Boring ID: TMSB-126
Date Drilled: 1/11/06
Logged By: Jeremy Holst of BAI

Depth (Feet)	Lithologic Unit	USCS	Moisture	Sorting	Plasticity	PID (ppm)	Soil Description
0-4	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/3, Light brown silty sand (dominantly fine sand with little medium and trace coarse sand) with trace fine gravel.
4-10	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel.
10-14	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel and trace clays.
14-20	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with trace fine to coarse gravel. Clays no longer observed.
20-28	Alluvium	SM	None	Poorly	None	0.0	7.5 YR 6/6, Reddish yellow silty sand (dominantly fine sand with little medium to coarse sand) with little fine gravel and trace coarse gravel.
28-30	Alluvium	SP	Moderate	Poorly	None	0.0	5 YR 5/4, Reddish brown sand (dominantly fine to medium sand with little coarse sand) with little silt and little fine to coarse gravel.

Groundwater contact encountered at approximately 28 feet below land surface.

APPENDIX B
DATA VALIDATION SUMMARY REPORT FOR HYDROGEOLOGICAL CHARACTERIZATION

APPENDIX B
DATA VALIDATION SUMMARY REPORT
FOR
HYDROGEOLOGIC CHARACTERIZATION

Titanium Metals Corporation Facility
Henderson, Nevada

Submitted to

Nevada Division of Environmental Protection

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April 25, 2007

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Appendix

B1 XRF SUMMARY AND FINDINGS

B2 TIMET HYDROGEOLOGIC CHARACTERIZATION DATABASE (CONTAINED ON CD)

TABLES

B-1 Summary of Soil and Groundwater Sample Analysis

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B-15 Other Radiochemistry Qualifications

B-16 Rejected Data Points in Groundwater Database

ACRONYMS AND ABBREVIATIONS

BMI	Basic Management, Inc. Common Areas and Complex
DDT	Dichlorodiphenyltrichloroethane
DER	Duplicate error ratio
DOE	U.S. Department of Energy
DVSR	Data validation summary report
EDD	Electronic data deliverable
EML	Environmental Monitoring Laboratory
EPA	U.S. Environmental Protection Agency
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
ICP	Inductively coupled plasma
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
MD	Matrix duplicate
MDC	Maximum detectable concentration
MDL	Method detection limit
MS	Matrix spike
MSD	Matrix spike duplicate
NDEP	Nevada Division of Environmental Protection
Paragon	Paragon Analytics, Inc.
PARCCS	Precision, accuracy, representativeness, completeness, comparability, and sensitivity
PDF	Portable document format
PQL	Practical quantitation limit
QA	Quality assurance
QC	Quality control
RPD	Relative percent difference
SDG	Sample delivery group
SQL	Sample quantitation limit
TDS	Total dissolved solids
Tetra Tech	Tetra Tech EM Inc.
TIMET	Titanium Metals Corporation, Inc.
VOC	Volatile organic compound
XRF	X-ray fluorescence

B1.0 INTRODUCTION

Tetra Tech EM Inc. (Tetra Tech) prepared this data validation summary report (DVSR) to assess the validity (based on data validation) and usability (based on project objectives) of groundwater and soil analytical data for hydrogeologic characterization collected from December 6, 2005, through May 3, 2006, at the Titanium Metals Corporation, Inc. (TIMET) facility in Henderson, Nevada. The groundwater and soil sampling program for hydrogeologic characterization includes collection of samples and data from monitoring wells and soil borings located in the vicinity of the northern Plant Site boundary areas and corresponding with the proposed sampling locations shown on Figure 4-1 of the conceptual site model (to which this DVSR is appended). Specifications for sampling and analysis and the required quality control and quality assurance (QA/QC) measures are detailed in the "Hydrogeologic Characterization Sampling and Analysis Plan" (Tetra Tech EM Inc. [Tetra Tech] 2005). In total, 195 soil and 28 groundwater field samples were collected; plus 2 field duplicate groundwater samples, two equipment rinsate blanks, one source water blank, and 13 trip blanks. Table B-1 lists all samples collected at the monitoring well and boring locations and the chemical analysis conducted on each sample. A sample consists of all fractions of a medium (such as groundwater or soil) from a given location and depth interval (for soil samples) during a single event (hydrogeologic characterization sampling event). The validated analytical database for hydrogeologic characterization results is included as Appendix G of the TIMET conceptual site model (to which this DVSR is appended).

In addition to the laboratory data collected during the hydrogeologic characterization event, field-based analysis for metals was conducted on soil samples using field-portable x-ray fluorescence (XRF) technology. The purpose of the XRF analysis was to screen soil samples for metals to reduce the total number of laboratory samples submitted for metals analysis. The description of the XRF field data collection event and a summary of the findings are included as Appendix B1 to this DVSR.

B1.1 PURPOSE AND OBJECTIVES

The purpose of the hydrogeologic characterization is to obtain additional soil, groundwater, and hydrogeologic characterization data needed to evaluate potential source areas, as well as evaluate the fate and transport of potential contaminants in groundwater present at the northern Plant Site boundary. The purpose of this DVSR is to summarize the validation and usability of groundwater and soil data collected during this sampling event for recommending remedial alternatives, if warranted.

The following objectives were identified for collection of hydrogeologic characterization data:

- Produce validated data to resolve monitoring well location and construction inconsistencies
- Produce validated data to generate potentiometric surface maps of the Quaternary Alluvium
- Produce validated data to generate structure maps of the top of the Muddy Creek Formation
- Produce validated data to delineate off-site migration of targeted potential site-related chemicals
- Produce validated data to obtain additional aquifer properties and assess the hydraulic effect of local groundwater treatment systems
- Produce validated data to obtain chemical and physical data to support assessment of remedial alternatives
- Produce validated data to obtain soil chemical data to assess subsurface soils in targeted potential source areas

Paragon Analytics, Inc. (Paragon) in Fort Collins, Colorado, conducted the analyses for groundwater and soil samples collected during this sampling event. Each data deliverable constitutes a sample delivery group (SDG). All SDGs from Paragon were delivered as full data packages (in portable document format [PDF]) and were accompanied by electronic data deliverables (EDD). Hardcopy data deliverables were full data packages, including sample results, QC sample summary tables, and all supporting sample preparation and analytical raw data. EDDs received from the laboratory for each SDG were loaded into a Microsoft Access® database and used for reporting. Paragon reported sample results in the EDD, along with applicable laboratory qualifiers.

The following types of analyses were conducted on groundwater and soil samples collected during this event and analyzed by Paragon:

- Volatile organic compounds (VOC) by gas chromatography/mass spectrometry (GC/MS) by U.S. Environmental Protection Agency (EPA) Method 8260B and revisions (EPA 1996)
- Organochlorine pesticides (pesticides) by gas chromatography (GC) by EPA Method 8081A and revisions (EPA 1996)
- Total metals by inductively coupled plasma (ICP) using EPA Method 6010B, ICP/mass spectrometer by EPA Method 6020, and colorimetric analysis of hexavalent chromium by EPA Method 7196A (EPA 1996).

- Inorganic analytes including anions by ion chromatography using EPA Method 300.1 (EPA 1983), perchlorate by ion chromatography using EPA Method 314.0 (EPA 1999b), and colorimetric analysis of phosphorus by EPA Method 365.2 (EPA 1983)

- Physical parameters including bicarbonate alkalinity by titration using EPA Method 310.1 (EPA 1983), and gravimetric analysis of total dissolved solids (TDS) using EPA Method 160.1 (EPA 1983)

- Radionuclides, including gross alpha and beta using gas flow proportional counting by EPA Method 9310 (EPA 1996), gamma emitters by EPA Method 901.1 (EPA 1980), isotopic radium by EPA Methods 903.1 and 904.0 (EPA 1980), lead-210 by lead scintillation counting using Method LSC/SOP726 (Paragon 2004), radion-222 by lead scintillation counting using Method LSC/SOP799 (Paragon 2003), and isotopic thorium and uranium by alpha spectroscopy using ASTM International Method D3972-90 modified (ASTM International 1990).

Quantitation limits are critical to the proper evaluation of method sensitivity and nondetect data. Three types of quantitation limits were evaluated for stable chemistries as follows:

- Method detection limit (MDL) – This limit was established by the laboratory according to the requirement in Title 40 Code of Federal Regulations Part 136, Appendix B, and represents the minimum concentration of a substance that can be measured and reported with 99 percent confidence (equivalent to a 3-sigma limit) that the analyte concentration is greater than zero. MDLs are established using matrices with little or no interfering species using reagent matrices and are considered the lowest possible reporting limit. Often, the MDL is represented as the instrument detection limit. Because these limits do not reflect sample-specific characteristics and preparation volumes and masses, MDLs were not reported in the hardcopy or EDDs for individual samples. However, MDLs can be indirectly obtained from the limits reported for method blanks because method blanks were reported to the MDL.

- Sample quantitation limit (SQL) – The SQL is defined as the MDL adjusted to reflect sample-specific actions, such as dilution or aliquot sizes, and takes into account sample characteristics, sample preparation, and analytical adjustments. It represents the sample-specific detection limit, and all nondetected results are reported to this level in the hardcopy and EDD formats.

- Practical quantitation limit (PQL) – This limit is defined as the lowest level at which the entire analytical system gives a recognizable signal and acceptable calibration point for the analyte, and includes the predicted effect of sample matrices with typical interfering species. The PQL is the lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions. PQLs are used to estimate or evaluate the minimum concentration at which the laboratory can be expected to reliably measure a specific chemical contaminant during day-to-day analyses of different sample matrices. Detected results greater than the SQL, but less than the PQL were qualified by the laboratory as estimated. Further qualification based on this scenario is discussed in Section B2.1.7.

Paragon reported SQLs and PQLs for all stable chemistries (note that the SQLs are equal to the PQLs for alkalinity and TDS).

For radionuclides, the laboratory reported the minimum detectable concentration (MDC) (also known as minimum detectable activity) as the "reporting limit." The MDC for radionuclides is the lowest level of activity in a given sample that is statistically distinguishable from a sample with no activity, at the 2-sigma confidence interval (equivalent to a 95 percent confidence interval) (EPA 2004a). The MDCs for radionuclide analysis are determined by a mathematical formula that takes into account sample volume, chemical recovery, instrument detection efficiency and background, and sample counting duration. The MDC, therefore, is equivalent to the SQL for radiochemical analytes. For radiochemical analysis, no PQL is established because all results are reported to the sample-specific MDC. In addition, the 2-sigma rad error is reported for each analyte in each sample.

B1.2 VALIDATION PROCESS

Both full and partial validations were conducted on the analytical data collected during this event. Table B-2 lists the review items associated with each of the two levels of validation. Table B-1 indicates the samples for which full validation was conducted (10 percent full validation as specified in the workplan). Full validation was conducted on 2,172 records out of 21,739 total field result records in the database. (See Section B2.2.4 for a more detailed accounting of the database records.) A description of each review item, including instances when results did not meet the acceptance criteria, is provided in Section B2.0.

Stable chemistry sample results (metals and anions) were validated in accordance with the following EPA guidance documents:

- "U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (EPA 1999a)
- "U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (EPA 2004b)
- "Region 9 Superfund Data Evaluation/Validation Guidance" (EPA 2001)

EPA has not standardized the validation of radionuclide data, so the reviewer relied on professional judgment and other sources for qualification of data. Radionuclide data validation was conducted using several documents; including the EPA document "Multi-Agency Radiological Laboratory Analytical Protocols Manual (MARLAP)" (EPA 2004a), the U.S. Department of Energy (DOE) reference document

"Evaluation of Radiochemical Data Usability" (DOE 1997b), as well as QC requirements and criteria summarized in the applicable method.

A Tetra Tech project chemist conducted the data validation and review. Qualifications of the project chemist were submitted by Tetra Tech to Nevada Division of Environmental Protection (NDEP) as part of the project staff submittal (Tetra Tech 2004). Based on data validation and review, data qualifiers were placed in the electronic database to signify whether the data were acceptable, acceptable with qualification, or rejected. Where applicable, an indication of result bias is presented. In addition, for every data validation qualifier, a secondary comment code was entered to indicate the reason for qualification. Table B-3 provides the definitions for the data validation qualifiers and comment codes used in the database. Validation qualifiers and definitions are based on those used by EPA in the current validation guidelines (EPA 1999a, 2004b).

The laboratory also submitted a detailed case narrative with each data package listing any QC criteria that were not met or any other issue that might affect data quality (for example initial or continuing calibration problems). In addition to the criteria listed above, each laboratory case narrative was thoroughly reviewed. Results were qualified for any issues that affected data quality listed in the laboratory case narrative.

B1.3 REPORT ORGANIZATION

The DVSR includes three sections. Section B1.0 is the introduction. Section B2.0 summarizes data validation and usability for data collected during this event. Section B3.0 provides general conclusions about the usability of the data set. The references and tables follow the conclusions at the end of this document.

Table B-1 summarizes all sampling locations from which soil data were obtained for this event. Table B-1 also includes relevant information about the sampling dates, matrices, analytical suite, and level of validation. A map showing sampling locations for this event are presented on Figure 4-1 of the TIMET conceptual site model (main report to which this DVSR is appended).

B2.0 DATA VALIDATION SUMMARY

This section describes the data validation findings and usability with regard to the project-specific objectives. Section B2.1 summarizes the data validation findings, and Section B2.2 summarizes the

evaluation of the following quality indicator parameters: precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS).

B2.1 DATA VALIDATION FINDINGS

This section summarizes all findings based on the validation process. Each section discusses the findings and their effects, if any, on data quality.

B2.1.1 Holding Times

Holding time refers to the period of time between sample collection and the preparation and/or analysis of the sample. Sample results were reviewed for compliance with the method-prescribed preparation and analysis holding times, where available. Table B-4 presents the holding time criteria. Holding times for aqueous matrices are based on those listed in EPA documents, "Test Methods for Evaluating Solid Waste" (EPA 1996) and "Method for Chemical Analysis of Water and Waste" (EPA 1983). Soil sample holding times are not specified for all methods in the reference given above. As such, professional judgment and historical data were used to determine the most appropriate holding time for soil sample preparation and analysis. All samples were analyzed within the appropriate holding times with one exception. In SDGs 0606030, 0606031, and 0606032, the 6-month holding time for all radionuclide analyses were exceeded. Data that were qualified based on holding time exceedances are presented in Table B-5. Qualified results were also assigned the validation comment code "h" in the database.

B2.1.2 Calibration

Instrument calibration data are provided in the full data packages. Initial and continuing calibration concentrations, frequencies, and results were evaluated. No metal, radionuclide, or general chemistry data were qualified based on calibration issues. However, for VOC analysis the calibration standard response for acetone was lower than the required limit in 23 SDGs, and percent differences for endrin aldehyde, 4,4'-dichlorodiphenyltrichloroethane (-DDT), endrin ketone, and/or endosulfan sulfate in the continuing calibrations were greater than the required limit in 2 SDGs. Table B-6 lists all sample results qualified based on calibration issues during this event. Results for endrin aldehyde, 4,4'-DDT, endrin ketone, and endosulfan sulfate associated with the issues stated above were qualified as estimated (J/UJ) and assigned the validation comment code "c" in the TIMET analytical database. In addition, nondetect results for acetone were qualified as rejected (R) because of the possibility of false negatives. Detected results for acetone were qualified as estimated (J) based on low calibration response. Data qualified based

on calibration issues were also assigned the validation comment code "c" in the TIMET analytical database.

B2.1.3 Blank Samples

Field and laboratory blanks consisting of contaminant-free water were prepared and analyzed as part of standard QA/QC procedures to monitor for potential contamination of field equipment, laboratory process reagents, and sample containers. For this program, two groups of blanks were prepared and analyzed: (1) laboratory QC blanks (calibration blanks and method blanks), and (2) field QC blanks (equipment rinsate blanks, source water blanks, and trip blanks). Each blank type is discussed in the following sections.

B2.1.3.1 Laboratory QC Blanks

Two types of laboratory blanks were prepared and analyzed: calibration blanks and method blanks. Both types were prepared in the laboratory using high grade contaminant-free water.

Calibration Blanks – Calibration blanks are made up of acidified high grade contaminant-free water analyzed at the beginning (initial calibration blank), end (continuing calibration blank), and every 10 runs during analysis of metals by ICP and ICP/mass spectrometer. Their primary function is to initially set the calibration curve (along with calibration standards) and continually monitor the background for possible variations in instrument electronic signal or cross-contamination. Calibration blanks are discussed further in Section B2.2.3.

Method Blanks – Method blanks are laboratory QC samples that are prepared and analyzed with each batch of environmental samples. Method blanks are made up of high grade contaminant-free water that is carried though all preparation procedures in batches with field samples (including the addition of all reagents and QC monitoring compounds). Method blanks monitor potential contaminants in laboratory processes, reagents, and containers, and were analyzed for each analytical method used on field samples. Method blanks are discussed further in Section B2.2.3.

B2.1.3.2 Field QC Blanks

Three types of field QC blanks were collected and analyzed with field samples: equipment rinsate blanks, source water blanks, and trip blanks. Each one monitors the potential impact of field and transportation conditions on the collection and integrity of field samples as discussed in the following paragraphs.

Equipment Rinsate Blanks – In order to identify any affect of carry-over from sampling equipment on sample collection, one equipment rinsate blank was collected during soil sampling events at a frequency of one for each day of sampling. A total of two equipment rinsate blanks was collected. Equipment rinsate blanks were prepared by pouring high-grade, contaminant-free water from its shipping container onto sampling equipment after decontamination between uses and collecting it directly into containers. Equipment rinsate blanks were shipped to the laboratory for analysis for the same parameters as the soil samples. Equipment rinsate blank results were submitted in hard copy. Equipment rinsate blanks are discussed further in Section B2.2.3.

Source Water Blanks – Decontamination of the drill rig was conducted using local water supply. In order to verify that the water supply did not contribute significant concentrations of target analytes, one source water blank was collected. The source water was collected directly into preserved sample containers. The source water blank was shipped to the laboratory for analysis for the same parameters as the soil samples. Source water blank results were submitted in hard copy. Source water blanks are discussed further in Section B2.2.3.

Trip Blanks – A total of 13 trip blanks was collected and shipped to the laboratory with samples. During sampling, trip blanks were stored in coolers containing groundwater samples for VOC analysis. During shipment, one trip blank was included in each cooler containing groundwater samples for VOC analysis. Analytically certified, organic-free water or equivalent was used for trip blanks. The trip blanks were shipped to the laboratory for analysis for VOCs. Trip blank results were submitted in hard copy. Trip blanks are discussed further in Section B2.2.3.

B2.1.3.3 Qualifications Due to Blank Contamination

This section discusses the procedure for evaluating blank results and applying qualifiers on field data. Table B-7 presents data that were qualified as estimated and biased high (J+) based on laboratory blank contamination (including both calibration and method blanks). Table B-8 presents data that were qualified as estimated and biased high (J+) based on field blank contamination (including only equipment rinsate and source water blanks). No sample data were qualified solely based on trip blank contamination, because analytes detected in trip blanks were not detected in the associated samples. Note that not every analyte detected in laboratory or field QC blanks resulted in qualification of data. If the criteria discussed below were not met for a given result, then no qualification was required.

For metals and anions, the EPA inorganic data validation guidelines were used (EPA 2004b). The inorganic data validation guidelines state that if the blank (laboratory or field QC) value is greater than the SQL (EPA uses the term "instrument detection limit") but less than the PQL (EPA uses the term "contract-required detection limit"), all associated sample results greater than the SQL but less than the PQL will be qualified as undetected (U). If the blank value is greater than the SQL but less than the PQL, all associated sample results greater than the PQL will be qualified at the discretion of the reviewer as estimated and possibly biased high (J+). If the blank value is negative and less than the absolute value of the negative SQL but greater than the absolute value of the negative PQL, all associated sample results greater than the PQL will be qualified as estimated and possibly biased low (J-). These criteria caused numerous trace-level metals and methylene chloride results to be qualified as undetected (U). Numerous trace-level metals, radiochemistry, and perchlorate were qualified as estimated/biased high (J+) and several trace-level metals were qualified as estimated/biased low (J-). No data were rejected based on these criteria.

B2.1.4 Spike Samples

Spiked samples are environmental matrices spiked with a subset of target compounds at known concentrations. These QC samples were analyzed with project samples to measure laboratory accuracy and potential interference from the matrix. Two types of spike samples were analyzed with the project samples to monitor for potential interferences during analysis:

- Matrix spike (MS) and matrix spike duplicate (MSD) samples; these samples consist of aliquots of environmental samples spiked with a subset of target compounds. MS/MSD samples monitor potential interference from the site-specific sample matrix and its effect on target compounds.
- Blank spike samples, also known as laboratory control samples (LCS); these samples are an aliquot of reagent soil or water spiked with a subset of target compounds. The LCS monitors laboratory accuracy without the bias of a sample matrix. In some cases, the LCS was analyzed in duplicate (LCSD).

At least one MS/MSD sample and one LCS were prepared and analyzed with each batch of environmental samples except for radionuclides, alkalinity, and TDS analysis, which require only LCSs. Note that for some SDGs, the laboratory conducted MS and MSD analyses on samples that were not specific to this event. In those cases, evaluation of the MS and MSD is not conducted because the reviewer has no way to confirm that the matrix chosen is representative of samples from the study.

MS AND MSD recoveries for antimony were consistently biased low. Recoveries for barium in some cases were biased low. Recoveries for aluminum, magnesium, perchlorate, potassium, and sulfate in some cases were biased high, and recoveries for vanadium in some cases were high and other cases were low. In addition, LCS recoveries for thorium-230 were consistently biased high.

Data that were qualified based on MS and MSD and/or LCS and LCSD recoveries that were outside the QC limits are presented in Table B-9. Where possible, analytical bias was also determined and qualified data were assigned bias codes (- or +). Bias was not determinable in every case. Qualified results were also assigned the validation comment code "e" in the database. No data were rejected on the basis of MS and MSD or LCS and LCSD results.

B2.1.5 Surrogate Recoveries

Surrogate compounds were added to each of the samples submitted for analysis of VOCs and pesticides. Surrogates were added to the sample aliquot during preparation of the sample for analysis, and recoveries were compared with laboratory QC limits. Surrogate recoveries outside the acceptable limits indicate interference from the sample matrix for the detection of target compounds. For this event, several results for VOCs and pesticides were qualified as estimated and possibly biased high (J+) because of high surrogate recoveries. Results qualified for surrogate recovery are presented in Table B-10 and were assigned the comment code "a" in the database. No data were rejected based on surrogate recovery.

B2.1.6 Tracer Yields

Tracer isotopes were added to each of the samples submitted for analysis of radium, thorium, and uranium isotopes. Tracers were added to the sample aliquot during preparation of the sample for analysis, and recoveries were compared with QC acceptance limits of 20 to 120 percent. Tracer recoveries outside the acceptable limits indicate interference from the sample matrix for the detection of target compounds. For this study, several results for thorium isotopes were qualified as estimated and possibly biased low (J-) because of low tracer yield. Results qualified for tracer yield are presented in Table B-11 and were assigned the comment code "n" in the database. No data were rejected based on tracer yield.

B2.1.7 Duplicate Samples

Duplicate samples involved the preparation and analysis of an additional aliquot of a field sample. Results from duplicate sample analysis measure laboratory precision, as well as homogeneity of contaminants in the field matrix. For this event, three types of duplicate analyses were conducted: (1)

MSDs for total metals, VOCs, and pesticides; (2) matrix duplicates (MD) for inorganic analyses (anions, perchlorate, phosphorus, alkalinity, and TDS) and radionuclides; and (3) field duplicates for all analyses. MSDs and MDs measure laboratory precision and sample homogeneity, while field duplicates are used to evaluate field sampling technique precision, laboratory precision, and homogeneity of the sample matrix.

At least one duplicate analysis (MSD or MD) was performed with each batch of environmental samples processed in the laboratory. The laboratory calculated the relative percent difference (RPD) between the two detected values for MSD and MD analyses. RPD values within the acceptable limits indicate both laboratory precision and minimal matrix heterogeneity of compounds detected in the samples. Results associated with elevated RPD values were qualified as estimated to indicate the variability in detected concentrations or poor laboratory precision.

The duplicate error ratio (DER) was calculated for radionuclide duplicate results and compared to the laboratory QC limit. The DER for bismuth-214 and lead-214 were above the QC limit of 2.13. Positive results associated with the duplicates in question were qualified as estimated and possibly biased low; nondetects are not affected by duplicate precision. Table B-12 lists the sample results that were qualified as estimated and possibly biased low (J-) based on poor duplicate precision. These sample results were also assigned the validation comment code “d” in the database. No data were rejected based on laboratory duplicate results.

Two field duplicate pairs were collected for groundwater samples as follows:

- J2D1-R2 and J2D1-R2DUP
- PC67 and PC67DUP

According to EPA guidance, there are no specific criteria for evaluating field duplicates (EPA 1999a, 2004b). Generally, field duplicate precision was less than 25 percent RPD for groundwater sample results that exceeded five times the reporting limit. The one exception was a calculated RPD of 82 percent for chloroform in field duplicate pair PC67 and PC67DUP. Field duplicate precision was not assessed when results were less than five times the reporting limit. No data were qualified based on field duplicate precision.

B2.1.8 Other Qualifications

Each of the paragraphs in this section addresses the following qualification scenarios and comment codes that are not already addressed in the larger review sections:

- Positive results for stable chemistries above the SQL, but less than the PQL (comment code "g") as reported in Table B-13
- Other qualification including results with ICP serial dilution and pesticide quantitation issues (included in comment code "j") as reported in Table B-14
- Results replaced by more sensitive analytical method results (comment code "l"); these results are not listed in a table because these results will not be used for reporting
- Results replaced by more sensitive analytical run (comment code "m"); these results are not listed in a table because these results will not be used for reporting
- Results for radionuclides qualified due to (1) inherent bias in analytical technique for Bi-214 and Pb-214, (2) tentative identification of analyte, (3) density variation between sample and LCS of more than 15 percent, and (4) results less than the requested quantitation limit (comment code "o") as reported in Table B-15

Quantitation less than the practical quantitation limit for stable chemistries – The laboratory evaluated the SQL and PQL for each sample result. In cases where sample results were greater than the SQL, but less than the PQL, the laboratory qualified results as estimated. Specifically, results with this scenario were qualified by the laboratory as "B" for metals and "J" for all other tests. During data validation, positive results less than the PQL but greater than or equal to the SQL were qualified as estimated (J). Qualitatively, the results are acceptable; however, these results were considered estimated, because as the value approaches the SQL, the accuracy of the measurement is less certain. In these cases, bias cannot be determined. Results qualified as estimated (J) for this reason are presented in Table B-13 and were assigned the validation comment code "g" in the database.

Other stable chemistries qualifications – This category includes other issues that may affect data quality and for which qualifiers have been assigned. Specifically, the percent difference between the original analysis and the required ICP serial dilution exceeded the QC limit for several metals analyzed by ICP and ICP/MS. As such, the results for these analytes in numerous samples were qualified as estimated (J). A negative bias was assessed to some results, when the serial dilution clearly indicated that the initial reported result was lower than the result from the dilution. This indicates the possibility that the matrix interference (chemical or spectral) may be suppressing the signal in the undiluted reported result. A positive bias was assessed to some results, when the serial dilution clearly indicated that the initial reported result was higher than the result from the dilution. This indicates the possibility that the matrix interference (chemical or spectral) may be amplifying the signal in the undiluted reported result. In the pesticide analysis, percent differences between the results on the two columns exceeded the QC limit of 40 percent. As such, the results for these pesticides in numerous samples were qualified as estimated (J).

Results qualified for these issues are included in Table B-14 and were assigned the validation comment code "j" in the database.

Analytical method sensitivity – This qualification is meant only to select the most appropriate sample result for reporting when one or more values are reported for a given analyte using different analytical techniques. Radium-238 results in groundwater samples were obtained from both gamma spectroscopy analysis and gas flow proportional counting analysis. Because the gamma spectroscopy results are less reliable than the gas flow proportional counting analysis, the gamma spectroscopy results were flagged (X) as not reportable. Flagged results were assigned the comment code "l" in the TIMET database, but were not reported in a table because these results will not be used for reporting.

Analytical run sensitivity – This qualification is meant only to select the most appropriate sample result for reporting when one or more values are reported for a given analyte using identical analytical techniques, but from multiple analytical runs. Specifically, chloroform, 1,1-dichloroethane, and tetrachloroethene were detected at concentrations above the calibration range in some samples. In these cases, dilutions were required to bring the chloroform, 1,1-dichloroethane, and/or tetrachloroethene response within the calibration range for accurate quantitation. When this happens, all results are reported in the laboratory EDD (both the diluted and undiluted results for all VOC analytes). It is the responsibility of the reviewer to choose the most accurate result from the most sensitive run for each analyte. The reviewer chose the lowest dilution for all analytes that were not above the calibration range. As such, in the initial undiluted run, the chloroform, 1,1-dichloroethane, and/or tetrachloroethene results (over the calibration range) were qualified as unreportable (X); while all other VOC results were reportable. Conversely, in the diluted run, chloroform, 1,1-dichloroethane, and/or tetrachloroethene results were reported, while the other VOC results were qualified as unreportable (X). Qualified results were also assigned the comment code "m" in the TIMET database. Because the "X" qualified results are not reported in any investigative report, no summary table was included.

Other qualification for radiochemistries – This category includes other radiochemistry issues that may affect data quality and for which qualifiers have been assigned. Four scenarios resulted in qualification of radionuclide data, as discussed below.

- Bi-214 and Pb-214 results analyzed by gamma spectroscopy may be biased low due to inherent bias in the analytical method.
- Results for several samples and radionuclides were qualified as estimated because the identification of the peak was tentative. The affected results are indicated by the "TI" code beside the result.

- The density of the sample and LCS varied by more than 15 percent. The affected results are indicated by the "G" code beside the result.
- Results that are greater than the sample-specific MDC, but less than the requested MDC are qualified as estimated. The affected results are indicated by the "J" code beside the result.

To replace the laboratory codes in the database, the validation qualifiers and comments codes were added. Results qualified for these reasons are included in Table B-14 and were also assigned the comment code "o" in the TIMET database.

B2.1.9 Summary of Rejected Data

Based on the review summarized in the sections above, sample results listed in Table B-16 were rejected. The rejected results included many acetone results. The acetone results were rejected because of calibration issues (see Section B2.1.2). All other data were usable to meet project objectives with the qualifications discussed in the sections above.

B2.2 EVALUATION OF PARCCS PARAMETERS

Overall data quality was acceptable based on the critical indicator parameters, except for data specifically rejected and qualified as such (R) (see Section B2.1.8). PARCCS parameters were reviewed for laboratory analytical results obtained during the hydrogeologic characterization sampling event, and the sections below discuss the results of the evaluation for each indicated parameter.

B2.2.1 Precision

Precision is the measure of the variability associated with an entire sampling and analysis process. It is the comparison among independent measurements as the result of repeated application of the same process under similar conditions. It is determined by analyzing field duplicate pairs, MSD pairs, and MD pairs. Precision is expressed as the RPD of a pair of values (or results).

Field duplicate pairs were collected, analyzed, and evaluated for each analysis performed on every sample matrix. Frequencies of field duplicate pairs submitted to the laboratory for analysis were shown to be 7.1 percent for the data collected during this event (2 out of 28 groundwater samples). This frequency does not meet the requirement of 10 percent (1 per 10 groundwater field samples). Generally, field duplicate precision was less than 25 percent RPD except for a high RPD for chloroform in field duplicate pair PC67 and PC67DUP. No data were qualified because of field duplicate precision.

The frequency criterion for MSD or MD pairs is 5 percent of the samples (per matrix) or 1 per each analytical batch of 20 or less per matrix. MSD or MD samples were collected, analyzed, and evaluated for each analysis performed on every sample matrix. The frequencies in which MSDs or MDs were prepared and analyzed by the laboratory met the frequency requirement as stated above. Table B-12 presents data qualified as estimated based on MSD or MD precision. No data were rejected due to poor duplicate precision.

B2.2.2 Accuracy

Accuracy is the degree to which a measurement agrees with its true value and is expressed as percent recovery. Accuracy is assessed by comparing MS, LCS, surrogate recoveries, and tracer yields with associated QC limits. MS, LCS, and tracer isotope recoveries were evaluated for compliance with acceptance criteria for each applicable analytical methodology.

The frequency criterion for MSs and LCSs is 5 percent of the samples per matrix or 1 per each analytical batch of 20 samples or less per matrix. MSs and LCSs were collected, analyzed, and evaluated for each analysis performed at the proper frequency. The criterion for MS and LCS accuracy is based on recommended QC limits provided in EPA validation guidelines and on laboratory historical QC limits for those analytes not presented in validation guidelines. Data were qualified as estimated based on MS and MSD recoveries, surrogate recoveries, and tracer yields. Table B-9 presents data that were qualified based on spiked sample recoveries, Table B-10 presents data that were qualified due to surrogate recoveries, and Table B-11 presents data that were qualified based on tracer yield.

B2.2.3 Representativeness

Representativeness is a qualitative parameter and is defined by the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or a process or environmental condition. Sample results were evaluated for representativeness by examining items related to sample collection, including chain-of-custody documentation, sample labeling, collection dates, and condition of the samples upon receipt at the laboratory. Laboratory procedures also were examined, including anomalies reported by the laboratory, either upon receipt of the samples at the laboratory or during analytical processes, adherence to recommended holding times of samples prior to analysis, calibration of laboratory instruments, adherence to analytical methods, and completeness of data package documentation. Two aspects of sample collection and handling affected data quality: (1) holding time exceedances and (2) the condition of sample upon receipt at the laboratory.

Sample results were qualified as estimated where holding times were exceeded. Table B-5 presents the sample results qualified for holding time exceedances. As stated in Section 2.1.1, biases were not determined for radionuclides.

In addition to holding times discussed above, representativeness is evaluated by reviewing blanks (laboratory method blanks and field QC blanks). Laboratory and field QC blanks contained detectable amounts of VOCs, metals, chloride, nitrate, sulfate, and radionuclides. Generally, concentrations detected in the blanks were considerably less than reported results for the field samples; therefore, these concentrations did not affect overall data quality. Sample results qualified based on laboratory blanks are presented in Table B-7. Sample results qualified based on field QC blanks are presented in Table B-8. The affected data were either qualified as undetected (U), or positive results were qualified as estimated (J) due to blank contamination, and were considered biased high (+) or biased low (-).

B2.2.4 Completeness

Completeness is defined as the percentage of measurements judged to be valid. The validity of sample results is determined through the data validation process. All rejected sample results are considered to be incomplete. Data that are qualified as undetected (U), undetected at estimated reporting limits (UJ), and estimated (J) are considered to be valid and usable. The number of valid results divided by the number of possible individual analyte results, expressed as a percentage, determines the completeness of the data set.

A total of 100 sample results was rejected (R) for groundwater and soil data collected during this sampling event for hydrogeologic characterization (see Section B2.1.8). The total number of records for this sampling event in the TIMET database is 28,203. The following chart shows the breakdown of the database.

Record Type	Number of Records
XRF Field Data	6,335
pH Field Data	19
Geotechnical Data	110
Laboratory QC (LABQC)	6,671
Equipment rinsate (ER)	242
Field Duplicate (FD)	299
Source Water Blank (SB)	125
Trip Blank (TB)	867
GW and Soil Sample Data	13,535
Total Records	28,203

XRF, pH, and geotechnical data were not validated. As such, a total of 21,739 records were validated and are included in this DVSR. Of that, 6,671 are laboratory QC results (including laboratory QC samples and blanks) and 1,533 are field QC sample results (including the equipment rinsates, field duplicates, source water blank, and trip blanks). A total of 13,535 groundwater and soil sample data were validated. Of the groundwater and soil sample results, 1,214 results are flagged as not reportable (X), leaving 13,321 records of reportable sample results. If 100 results are rejected from a total of 13,321 reportable sample results, then the number of valid sample results is 13,221. The percent complete (valid and not rejected) is 99.2 percent. This meets the completeness goal of 90 percent.

B2.2.5 Comparability

Comparability of the data is a qualitative parameter that expresses the confidence with which one data set may be compared with another. Comparability of the data is achieved by using standard methods for sampling and analysis, reporting data in standard units, normalizing results to standard conditions, and using standardized reporting formats and data validation procedures. Data collected during this event uses the same or very similar analytical methods as other data collected during investigations conducted at BMI and the TIMET facility. It is understood that prior to direct comparison of results from this study to any other investigation, a thorough comparison of methodologies will be conducted.

B2.2.6 Sensitivity

Sensitivity is the measure of the signal from an instrument that represents an actual deflection or response above instrument noise. Analytical sensitivity is measured by the MDL and is reported with the necessary dilution factors, preparation factors, and dry-weight factors of an individual sample as the SQL. The sensitivity requirements were based on the laboratory's ability to detect and report consistent and reliable limits.

The laboratory was instructed to provide the lowest feasible detection limit (MDL) that can be achieved on the sample matrix. Sample-specific characteristics and preparation factors were used to calculate the SQL for each analyte and each sample, based on these lowest achievable MDLs.

Scenarios involving dilutions, high moisture content, and matrix interference affect the SQL by raising it according to the dilution factor or percent moisture content. Dilutions were required for numerous VOC analyses because of high concentrations. Dilutions were analyzed whenever the concentration exceeded the linear range of the instrumentation. All dilutions were reported.

B3.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the evaluation of the data set, greater than 90 percent of the groundwater and soil data obtained during this sampling event are valid (that is, not rejected) and acceptable for their intended use. Biased data will be used as follows:

- Biased high results based on spike recoveries, blank contamination, and ICP serial dilution results will be used as the upper limit of concentration for the analyte, recognizing that the actual value may be lower.
- Biased low results based on spike recoveries, blank contamination, tracer yields, duplicate precision, ICP serial dilution results, and method biases will be used as the lower limit of concentration for the analyte, recognizing that the actual value may be higher.

All validated data points may be considered for use in other purposes that extend beyond the original project objectives; however, limitations may exist. Limitations on data usability for future purposes may arise, but are not addressed in the scope of this document. These limitations will be identified through subsequent data evaluations and mitigated where possible by collecting additional data in future investigations.

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DATA VALIDATION SUMMARY REPORT

TABLES

TABLE B-1
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Date Sampled	SDG ID	Sample ID	Matrix	Validation	Analysis Conducted								
					TDS	Pesticides	TOC	Total Metals	VOC	Rad	Alkalinity	Anions	Perchlorate
12/6/2005	0512045	TMSB-105-01	Soil	Full	---	---	---	√	---	√	---	√	√
12/6/2005	0512045	TMSB-105-05	Soil	Part	---	---	---	√	---	√	---	√	√
12/6/2005	0512045	TMSB-105-10	Soil	Part	---	---	---	√	---	√	---	√	√
12/6/2005	0512045	TMSB-105-15	Soil	Part	---	---	---	---	√	---	---	√	√
12/6/2005	0512045	TMSB-105-20	Soil	Part	---	---	---	---	√	---	---	√	√
12/6/2005	0512045	TMSB-105-25	Soil	Part	---	---	---	2	√	2	---	√	√
12/7/2005	0512057	TMSB-106-01	Soil	Part	---	---	---	√	---	√	---	√	√
12/7/2005	0512057	TMSB-106-05	Soil	Part	---	---	---	√	---	√	---	√	√
12/7/2005	0512057	TMSB-106-10	Soil	Part	---	---	---	√	---	√	---	√	√
12/7/2005	0512057	TMSB-106-15	Soil	Part	---	---	---	---	---	---	---	√	√
12/7/2005	0512057	TMSB-106-20	Soil	Part	---	---	---	---	---	---	---	√	√
12/7/2005	0512057	TMSB-106-25	Soil	Part	---	---	---	2	√	2	---	√	√
12/7/2005	0512057	TMSB-107-01	Soil	Part	---	√	---	√	---	√	---	√	√
12/7/2005	0512057	TMSB-107-05	Soil	Part	---	√	---	√	---	√	---	√	√
12/7/2005	0512057	TMSB-107-10	Soil	Full	---	√	---	√	---	√	---	√	√
12/7/2005	0512057	TMSB-107-15	Soil	Part	---	√	---	---	---	---	---	√	√
12/7/2005	0512057	TMSB-107-20	Soil	Part	---	√	---	---	√	---	---	√	√
12/7/2005	0512057	TMSB-107-25	Soil	Part	---	√	---	2	√	2	---	√	√
12/8/2005	0512083	TMSB-108-01	Soil	Part	---	√	---	√	---	√	---	√	√
12/8/2005	0512083	TMSB-108-05	Soil	Part	---	√	---	√	---	√	---	√	√
12/8/2005	0512083	TMSB-108-10	Soil	Part	---	√	---	√	√	√	---	√	√
12/8/2005	0512083	TMSB-108-15	Soil	Part	---	---	---	---	√	---	---	√	√
12/8/2005	0512083	TMSB-108-20	Soil	Part	---	---	---	---	√	---	---	√	√
12/8/2005	0512083	TMSB-108-25	Soil	Part	---	---	---	---	√	---	---	√	√
12/8/2005	0512083	TMSB-108-30	Soil	Part	---	---	---	2	√	2	---	√	√
12/8/2005	0512083	TMSB-109-01	Soil	Part	---	---	---	√	---	√	---	√	√
12/8/2005	0512083	TMSB-109-05	Soil	Part	---	---	---	√	---	√	---	√	√

TABLE B-1 (continued)
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Date Sampled	SDG ID	Sample ID	Matrix	Validation	Analysis Conducted								
					TDS	Pesticides	TOC	Total Metals	VOC	Rad	Alkalinity	Anions	Perchlorate
12/8/2005	0512083	TMSB-109-10	Soil	Part	---	---	---	√	√	√	---	√	√
12/8/2005	0512083	TMSB-109-15	Soil	Part	---	---	---	---	---	---	---	√	√
12/8/2005	0512083	TMSB-109-20	Soil	Part	---	---	---	2	√	2	---	√	√
12/8/2005	0512083	TMSB-109-25	Soil	Part	---	---	---	---	---	---	---	√	√
12/8/2005	0512083	TMSB-109-30	Soil	Part	---	---	---	2	√	2	---	√	√
12/8/2005	0512083	TMSB-110-01	Soil	Part	---	---	---	√	---	√	---	√	√
12/8/2005	0512083	TMSB-110-05	Soil	Part	---	---	---	√	---	√	---	√	√
12/8/2005	0512083	TMSB-110-10	Soil	Part	---	---	---	√	---	√	---	√	√
12/8/2005	0512083	TMSB-110-15	Soil	Part	---	---	---	---	---	---	---	√	√
12/8/2005	0512083	TMSB-110-20	Soil	Part	---	---	---	---	√	---	---	√	√
12/8/2005	0512083	TMSB-110-25	Soil	Full	---	---	---	---	√	---	---	√	√
12/8/2005	0512083	TMSB-110-30	Soil	Part	---	---	---	2	---	2	---	√	√
12/8/2005	0512083	TMSB-110-35	Soil	Part	---	---	---	---	√	---	---	√	√
12/9/2005	0512095	TMSB-111-01	Soil	Part	---	---	---	√	---	√	---	√	√
12/9/2005	0512095	TMSB-111-05	Soil	Part	---	---	---	√	√	√	---	√	√
12/9/2005	0512095	TMSB-111-10	Soil	Full	---	---	---	√	√	√	---	√	√
12/9/2005	0512095	TMSB-111-15	Soil	Part	---	---	---	---	---	---	---	√	√
12/9/2005	0512095	TMSB-111-20	Soil	Part	---	---	---	---	---	---	---	√	√
12/9/2005	0512095	TMSB-111-25	Soil	Part	---	---	---	---	---	---	---	√	√
12/9/2005	0512095	TMSB-111-30	Soil	Part	---	---	---	---	√	---	---	√	√
12/9/2005	0512095	TMSB-111-35	Soil	Part	---	---	---	2	---	2	---	√	√
12/9/2005	0512095	Rinsate 01	Water	Part	---	√	---	√	√	√	---	√	√
12/9/2005	0512095	Source Water	Water	Part	---	√	---	√	√	√	---	√	√
12/9/2005	0512095	TB-01	Water	Part	---	---	---	---	√	---	---	---	---
12/10/2005	0512100	TMSB-104-01	Soil	Part	---	---	---	√	---	√	---	√	√
12/10/2005	0512100	TMSB-104-05	Soil	Part	---	---	---	√	---	√	---	√	√
12/10/2005	0512100	TMSB-104-10	Soil	Part	---	---	---	√	---	√	---	√	√

TABLE B-1 (continued)
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Date Sampled	SDG ID	Sample ID	Matrix	Validation	Analysis Conducted								
					TDS	Pesticides	TOC	Total Metals	VOC	Rad	Alkalinity	Anions	Perchlorate
12/10/2005	0512100	TMSB-104-15	Soil	Part	---	---	---	---	---	---	---	√	√
12/10/2005	0512100	TMSB-104-20	Soil	Part	---	---	---	2	√	2	---	√	√
12/10/2005	0512100	TMSB-104-25	Soil	Part	---	---	---	---	√	---	---	√	√
12/10/2005	0512100	TMSB-104-30	Soil	Part	---	---	---	---	---	---	---	√	√
12/10/2005	0512100	TMSB-104-35	Soil	Part	---	---	---	---	√	---	---	√	√
12/10/2005	0512100	TMSB-104-40	Soil	Part	---	---	---	2	---	2	---	√	√
12/10/2005	0512100	TMSB-104-45	Soil	Part	---	---	---	---	---	---	---	√	√
12/10/2005	0512100	TMSB-104-50	Soil	Part	---	---	---	---	---	---	---	√	√
12/10/2005	0512100	TMSB-104-55	Soil	Part	---	---	---	---	---	---	---	√	√
12/10/2005	0512100	TMSB-104-60	Soil	Part	---	---	---	---	√	---	---	√	√
12/10/2005	0512100	TMSB-104-65	Soil	Part	---	---	---	2	---	2	---	√	√
12/10/2005	0512100	TMSB-112-01	Soil	Part	---	---	---	√	---	√	---	√	√
12/10/2005	0512100	TMSB-112-05	Soil	Part	---	---	---	√	---	√	---	√	√
12/10/2005	0512100	TMSB-112-10	Soil	Part	---	---	---	√	---	√	---	√	√
12/10/2005	0512100	TMSB-112-15	Soil	Part	---	---	---	---	√	---	---	√	√
12/10/2005	0512100	TMSB-112-20	Soil	Part	---	---	---	---	√	---	---	√	√
12/10/2005	0512100	TMSB-112-25	Soil	Part	---	---	---	---	√	---	---	√	√
12/10/2005	0512100	TMSB-112-30	Soil	Part	---	---	---	---	---	---	---	√	√
12/10/2005	0512100	TMSB-112-35	Soil	Part	---	---	---	2	---	2	---	√	√
12/11/2005	0512108	TMSB-103-01	Soil	Full	---	---	---	√	---	√	---	√	√
12/11/2005	0512108	TMSB-103-05	Soil	Part	---	---	---	√	---	√	---	√	√
12/11/2005	0512108	TMSB-103-10	Soil	Part	---	---	---	√	---	√	---	√	√
12/11/2005	0512108	TMSB-103-15	Soil	Part	---	---	---	---	√	---	---	√	√
12/11/2005	0512108	TMSB-103-20	Soil	Part	---	---	---	2	---	2	---	√	√
12/11/2005	0512108	TMSB-103-25	Soil	Part	---	---	---	---	√	---	---	√	√
12/11/2005	0512108	TMSB-103-30	Soil	Part	---	---	---	---	√	---	---	√	√
12/11/2005	0512108	TMSB-103-35	Soil	Part	---	---	---	---	---	---	---	√	√

TABLE B-1 (continued)
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Date Sampled	SDG ID	Sample ID	Matrix	Validation	Analysis Conducted								
					TDS	Pesticides	TOC	Total Metals	VOC	Rad	Alkalinity	Anions	Perchlorate
12/11/2005	0512108	TMSB-103-40	Soil	Part	---	---	---	2	---	2	---	√	√
12/11/2005	0512108	TMSB-103-45	Soil	Part	---	---	---	---	---	---	---	√	√
12/11/2005	0512108	TMSB-103-50	Soil	Part	---	---	---	---	---	---	---	√	√
12/11/2005	0512108	TMSB-103-55	Soil	Part	---	---	---	---	---	---	---	√	√
12/11/2005	0512108	TMSB-103-60	Soil	Part	---	---	---	---	---	---	---	√	√
12/11/2005	0512108	TMSB-103-65	Soil	Part	---	---	---	2	---	2	---	√	√
12/12/2005	0512108	TMSB-102-01	Soil	Part	---	---	---	√	---	√	---	√	√
12/12/2005	0512108	TMSB-102-05	Soil	Part	---	---	---	√	---	√	---	√	√
12/12/2005	0512108	TMSB-102-10	Soil	Part	---	---	---	√	---	√	---	√	√
12/12/2005	0512108	TMSB-102-15	Soil	Part	---	---	---	---	---	---	---	√	√
12/12/2005	0512108	TMSB-102-20	Soil	Part	---	---	---	2	---	2	---	√	√
12/12/2005	0512108	TMSB-102-25	Soil	Full	---	---	---	---	√	---	---	√	√
12/12/2005	0512108	TMSB-102-30	Soil	Part	---	---	---	---	√	---	---	√	√
12/12/2005	0512108	TMSB-102-35	Soil	Part	---	---	---	---	---	---	---	√	√
12/12/2005	0512108	TMSB-102-40	Soil	Part	---	---	---	2	---	2	---	√	√
12/12/2005	0512108	TMSB-102-45	Soil	Part	---	---	---	---	√	---	---	√	√
12/12/2005	0512108	TMSB-102-50	Soil	Part	---	---	---	---	---	---	---	√	√
12/12/2005	0512108	TMSB-102-55	Soil	Part	---	---	---	---	---	---	---	√	√
12/12/2005	0512108	TMSB-102-60	Soil	Part	---	---	---	---	---	---	---	√	√
12/12/2005	0512108	TMSB-102-65	Soil	Part	---	---	---	2	---	2	---	√	√
12/13/2005	0512122	TMSB-101-01	Soil	Part	---	---	---	√	---	√	---	√	√
12/13/2005	0512122	TMSB-101-05	Soil	Part	---	---	---	√	---	√	---	√	√
12/13/2005	0512122	TMSB-101-10	Soil	Full	---	---	---	√	---	√	---	√	√
12/13/2005	0512122	TMSB-101-15	Soil	Part	---	---	---	---	---	---	---	√	√
12/13/2005	0512122	TMSB-101-20	Soil	Part	---	---	---	2	---	2	---	√	√
12/13/2005	0512122	TMSB-101-25	Soil	Part	---	---	---	---	---	---	---	√	√
12/13/2005	0512122	TMSB-101-30	Soil	Part	---	---	---	---	---	---	---	√	√

TABLE B-1 (continued)
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Date Sampled	SDG ID	Sample ID	Matrix	Validation	Analysis Conducted								
					TDS	Pesticides	TOC	Total Metals	VOC	Rad	Alkalinity	Anions	Perchlorate
12/13/2005	0512122	TMSB-101-35	Soil	Part	---	---	---	---	---	---	---	√	√
12/13/2005	0512122	TMSB-101-40	Soil	Part	---	---	---	2	---	2	---	√	√
12/13/2005	0512122	TMSB-101-45	Soil	Part	---	---	---	---	---	---	---	√	√
12/13/2005	0512122	TMSB-101-50	Soil	Part	---	---	---	---	---	---	---	√	√
12/13/2005	0512122	TMSB-101-55	Soil	Part	---	---	---	---	---	---	---	√	√
12/13/2005	0512122	TMSB-101-60	Soil	Part	---	---	---	---	---	---	---	√	√
12/13/2005	0512122	TMSB-101-65	Soil	Part	---	---	---	---	---	---	---	√	√
12/13/2005	0512122	TMSB-101-70	Soil	Full	---	---	---	2	---	2	---	√	√
1/10/2006	0601047	TMSB-118-01	Soil	Part	---	---	---	√	---	√	---	√	√
1/10/2006	0601047	TMSB-118-05	Soil	Full	---	---	---	√	√	√	---	√	√
1/10/2006	0601047	TMSB-118-10	Soil	Part	---	---	---	√	---	√	---	√	√
1/10/2006	0601047	TMSB-118-15	Soil	Part	---	---	---	---	√	---	---	√	√
1/10/2006	0601047	TMSB-118-20	Soil	Part	---	---	---	2	---	2	---	√	√
1/10/2006	0601047	TMSB-118-25	Soil	Part	---	---	---	---	---	---	---	√	√
1/10/2006	0601047	TMSB-118-30	Soil	Part	---	---	---	2	√	2	---	√	√
1/10/2006	0601047	TMSB-118-35	Soil	Part	---	---	---	---	---	---	---	√	√
1/10/2006	0601047	TMSB-118-40	Soil	Part	---	---	---	---	---	---	---	√	√
1/10/2006	0601047	TMSB-118-45	Soil	Part	---	---	---	2	---	2	---	√	√
1/10/2006	0601047	TMSB-118-50	Soil	Part	---	---	---	---	---	---	---	√	√
1/10/2006	0601047	TMSB-119-01	Soil	Part	---	---	---	√	---	√	---	√	√
1/10/2006	0601047	TMSB-119-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/10/2006	0601047	TMSB-119-10	Soil	Part	---	---	---	√	√	√	---	√	√
1/10/2006	0601047	TMSB-120-01	Soil	Part	---	---	---	√	---	√	---	√	√
1/10/2006	0601047	TMSB-120-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/10/2006	0601047	TMSB-120-10	Soil	Part	---	---	---	√	---	√	---	√	√
1/10/2006	0601047	TMSB-120-15	Soil	Part	---	---	---	---	√	---	---	√	√
1/10/2006	0601047	TMSB-120-20	Soil	Part	---	---	---	2	---	2	---	√	√

TABLE B-1 (continued)
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Date Sampled	SDG ID	Sample ID	Matrix	Validation	Analysis Conducted								
					TDS	Pesticides	TOC	Total Metals	VOC	Rad	Alkalinity	Anions	Perchlorate
1/10/2006	0601047	TMSB-120-25	Soil	Part	---	---	---	---	---	---	---	√	√
1/10/2006	0601047	TMSB-120-30	Soil	Part	---	---	---	2	---	2	---	√	√
1/10/2006	0601047	TMSB-120-35	Soil	Part	---	---	---	---	---	---	---	√	√
1/10/2006	0601047	TMSB-120-40	Soil	Part	---	---	---	2	---	2	---	√	√
1/10/2006	0601047	TMSB-120-47	Soil	Part	---	---	---	---	---	---	---	√	√
1/11/2006	0601058	TMSB-121-01	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601058	TMSB-121-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601058	TMSB-121-10	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601058	TMSB-121-15	Soil	Part	---	---	---	---	---	---	---	√	√
1/11/2006	0601058	TMSB-121-20	Soil	Full	---	---	---	2	√	2	---	√	√
1/11/2006	0601058	TMSB-124-01	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601058	TMSB-124-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601058	TMSB-124-10	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601058	TMSB-124-15	Soil	Part	---	---	---	---	---	---	---	√	√
1/11/2006	0601058	TMSB-124-20	Soil	Part	---	---	---	2	√	2	---	√	√
1/11/2006	0601059	TMSB-125-01	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601059	TMSB-125-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601059	TMSB-125-10	Soil	Full	---	---	---	√	√	√	---	√	√
1/11/2006	0601059	TMSB-125-15	Soil	Part	---	---	---	2	---	2	---	√	√
1/11/2006	0601059	TMSB-125-20	Soil	Part	---	---	---	2	√	2	---	√	√
1/11/2006	0601059	TMSB-126-01	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601059	TMSB-126-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601059	TMSB-126-10	Soil	Part	---	---	---	√	---	√	---	√	√
1/11/2006	0601059	TMSB-126-15	Soil	Part	---	---	---	---	---	---	---	√	√
1/11/2006	0601059	TMSB-126-20	Soil	Part	---	---	---	---	---	---	---	√	√
1/11/2006	0601059	TMSB-126-25	Soil	Part	---	---	---	2	√	2	---	√	√
1/12/2006	0601073	TMSB-113-01	Soil	Part	---	---	---	√	---	√	---	√	√

TABLE B-1 (continued)
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Date Sampled	SDG ID	Sample ID	Matrix	Validation	Analysis Conducted								
					TDS	Pesticides	TOC	Total Metals	VOC	Rad	Alkalinity	Anions	Perchlorate
1/12/2006	0601073	TMSB-113-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/12/2006	0601073	TMSB-113-10	Soil	Part	---	---	---	√	---	√	---	√	√
1/12/2006	0601073	TMSB-113-15	Soil	Part	---	---	---	---	---	---	---	√	√
1/12/2006	0601073	TMSB-113-20	Soil	Part	---	---	---	2	---	2	---	√	√
1/12/2006	0601073	TMSB-113-25	Soil	Part	---	---	---	---	---	---	---	√	√
1/12/2006	0601073	TMSB-113-30	Soil	Part	---	---	---	---	---	---	---	√	√
1/12/2006	0601073	TMSB-113-35	Soil	Full	---	---	---	---	---	---	---	√	√
1/12/2006	0601073	TMSB-113-40	Soil	Part	---	---	---	2	---	2	---	√	√
1/12/2006	0601073	TMSB-113-43	Soil	Part	---	---	---	---	√	---	---	√	√
1/12/2006	0601073	TMSB-115-01	Soil	Part	---	---	---	√	---	√	---	√	√
1/12/2006	0601073	TMSB-115-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/12/2006	0601073	TMSB-115-10	Soil	Part	---	---	---	√	---	√	---	√	√
1/12/2006	0601073	TMSB-115-15	Soil	Part	---	---	---	---	---	---	---	√	√
1/12/2006	0601073	TMSB-115-20	Soil	Part	---	---	---	2	---	2	---	√	√
1/12/2006	0601073	TMSB-115-25	Soil	Part	---	---	---	---	---	---	---	√	√
1/12/2006	0601073	TMSB-115-30	Soil	Part	---	---	---	---	---	---	---	√	√
1/12/2006	0601073	TMSB-115-35	Soil	Part	---	---	---	---	√	---	---	√	√
1/12/2006	0601073	TMSB-115-40	Soil	Part	---	---	---	2	√	2	---	√	√
1/13/2006	0601077	TMSB-116-01	Soil	Part	---	---	---	√	---	√	---	√	√
1/13/2006	0601077	TMSB-116-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/13/2006	0601077	TMSB-116-10	Soil	Part	---	---	---	√	√	√	---	√	√
1/13/2006	0601077	TMSB-117-01	Soil	Part	---	---	---	√		√	---	√	√
1/13/2006	0601077	TMSB-117-05	Soil	Part	---	---	---	√	√	√	---	√	√
1/13/2006	0601077	TMSB-117-10	Soil	Part	---	---	---	√	√	√	---	√	√
1/13/2006	0601077	TMSB-117-15	Soil	Part	---	---	---	---	√	---	---	√	√
1/13/2006	0601077	TMSB-117-20	Soil	Part	---	---	---	2	---	2	---	√	√
1/13/2006	0601077	TMSB-117-25	Soil	Part	---	---	---	---	---	---	---	√	√

TABLE B-1 (continued)
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Date Sampled	SDG ID	Sample ID	Matrix	Validation	Analysis Conducted								
					TDS	Pesticides	TOC	Total Metals	VOC	Rad	Alkalinity	Anions	Perchlorate
1/13/2006	0601077	TMSB-117-30	Soil	Part	---	---	---	2	---	2	---	√	√
1/13/2006	0601077	TMSB-117-35	Soil	Part	---	---	---	---	---	---	---	√	√
1/13/2006	0601077	TMSB-117-40	Soil	Part	---	---	---	---	---	---	---	√	√
1/13/2006	0601077	TMSB-117-45	Soil	Full	---	---	---	2	√	2	---	√	√
1/13/2006	0601077	TMSB-123-01	Soil	Full	---	---	---	√	---	√	---	√	√
1/13/2006	0601077	TMSB-123-05	Soil	Part	---	---	---	√	---	√	---	√	√
1/13/2006	0601077	TMSB-123-10	Soil	Part	---	---	---	√	---	√	---	√	√
1/13/2006	0601077	TMSB-123-15	Soil	Part	---	---	---	---	√	---	---	√	√
1/13/2006	0601077	TMSB-123-20	Soil	Part	---	---	---	2	√	2	---	√	√
1/13/2006	0601077	TB-1	Water	Part	---	---	---	---	√	---	---	---	---
1/13/2006	0601077	TRW-1	Water	Part	---	---	---	√	√	√	---	√	√
4/18/2006	0604149	CLD1-R	Water	Full	√	√	---	√	√	√	√	√	---
4/18/2006	0604149	CLD2-R	Water	Part	√	---	---	√	√	√	√	√	---
4/18/2006	0604149	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
4/19/2006	0604161	TMMW-101	Water	Full	√	---	---	√	√	√	√	√	---
4/19/2006	0604161	TMMW-102	Water	Part	√	---	---	√	√	√	√	√	---
4/19/2006	0604161	TMMW-103	Water	Part	√	---	---	√	√	√	√	√	---
4/19/2006	0604161	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
4/19/2006	0604162	CLD3-R	Water	Part	√	√	---	√	√	√	√	√	---
4/19/2006	0604162	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
4/20/2006	0604178	TMMW-104	Water	Part	√	---	---	√	√	√	√	√	---
4/20/2006	0604178	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
4/20/2006	0604181	J2D1-R2	Water	Full	√	√	---	√	√	√	√	√	---
4/20/2006	0604181	J2D1-R2DUP	Water	Part	√	√	---	√	√	√	√	√	---
4/20/2006	0604181	J2D2-R2	Water	Part	√	---	---	√	√	√	√	√	---
4/20/2006	0604181	J2D3-R	Water	Part	√	√	---	√	√	√	√	√	---

TABLE B-1 (continued)
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Date Sampled	SDG ID	Sample ID	Matrix	Validation	Analysis Conducted								
					TDS	Pesticides	TOC	Total Metals	VOC	Rad	Alkalinity	Anions	Perchlorate
4/20/2006	0604181	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
4/21/2006	0604188	BRW-R1	Water	Part	√	---	---	√	√	√	√	√	---
4/21/2006	0604188	J2U1	Water	Part	√	---	---	√	√	√	√	√	---
4/21/2006	0604188	MW-4	Water	Full	√	---	---	√	√	√	√	√	---
4/21/2006	0604188	MW-5	Water	Part	√	---	---	√	√	√	√	√	---
4/21/2006	0604188	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
4/25/2006	0604215	CLD4-R	Water	Part	√	---	---	√	√	√	√	√	√
4/25/2006	0604215	MW-3	Water	Part	√	---	---	√	√	√	√	√	---
4/25/2006	0604215	MW-6R	Water	Part	√	---	---	√	√	√	√	√	√
4/25/2006	0604215	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
4/26/2006	0604230	J2U2	Water	Part	√	---	---	√	√	√	√	√	---
4/26/2006	0604230	PC28	Water	Part	√	---	---	√	√	√	√	√	---
4/26/2006	0604230	PC64	Water	Part	√	---	---	√	√	√	√	√	---
4/26/2006	0604230	PC67	Water	Full	√	---	---	√	√	√	√	√	---
4/26/2006	0604230	PC67Dup	Water	Part	√	---	---	√	√	√	√	√	---
4/26/2006	0604230	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
5/1/2006	0605007	PC12	Water	Part	√	---	---	√	√	√	√	√	---
5/1/2006	0605007	PC17	Water	Part	√	---	---	√	√	√	√	√	---
5/1/2006 [1]	0605007	PC24	Water	Part	---	---	---	---	---	---	---	√	---
5/1/2006	0605007	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
5/2/2006	0605023	PC50	Water	Part	√	---	---	√	√	√	√	√	---
5/2/2006	0605023	PC54	Water	Part	√	---	---	√	√	√	√	√	---
5/2/2006	0605023	PC72	Water	Full	√	---	---	√	√	√	√	√	---
5/2/2006	0605023	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---
5/3/2006	0605040	PC40	Water	Part	√	---	---	√	√	√	√	√	---
5/3/2006	0605040	Trip Blank	Water	Part	---	---	---	---	√	---	---	---	---

TABLE B-1 (continued)
SUMMARY OF SOIL AND GROUNDWATER SAMPLE ANALYSIS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Notes:

1	A portion of the sample was also collected on 5/3/2006.
2	Selected samples were analyzed for metals and rad based on screening results; metals and rad results were reported in SDGs 0606030, 0606031, and 0606032.

---	Analysis not conducted
Rad	Radionuclides
SDG	Sample delivery group
TDS	Total dissolved solids
TOC	Total organic carbon
VOC	Volatile organic compound

TABLE B-2
DATA VALIDATION CRITERIA
HYDROGEOLOGIC CHARACTERIZATION
DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Inorganic Chemicals Validation Criteria	**Full**	**Partial**
Holding times	X	X
Calibration (initial and continuing)	X	--
Blanks (laboratory and field)	X	X
Inductively coupled plasma (ICP) interference check sample	X	--
Laboratory control sample	X	X
Duplicate sample analysis	X	X
Matrix spike analysis	X	X
ICP serial dilution	X	X
Tracer yield (radionuclide analysis only)	X	X
Sample results verification	X	--
Field duplicate	X	X
Overall assessment of data set	X	X
Organic Chemicals Validation Criteria	**Full**	**Partial**
Holding times	X	X
Gas chromatography/mass spectrometry (GC/MS) instrument performance check	X	--
Calibration (initial and continuing)	X	--
Blanks (laboratory and field)	X	X
Surrogate recovery	X	X
Laboratory control sample	X	X
Duplicate sample analysis	X	X
Matrix spike/matrix spike duplicate analysis	X	X
Field duplicate	X	X
Internal standard performance	X	X
Target compound identification	X	--
Tentatively identified compounds	X	--
System performance	X	--
Overall assessment of data set	X	X

Notes:

-- Criterion not evaluated
X Criterion evaluated

TABLE B-3
DATA VALIDATION QUALIFIERS AND COMMENT CODES
HYDROGEOLOGIC CHARACTERIZATION
DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Validation Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
UJ	The analyte was analyzed for, but was not detected. The reported sample quantitation limit is approximate and may be inaccurate or imprecise.
J	The result is an estimated quantity. The associated numerical value is an approximate concentration of the analyte in the sample.
R	The sample result is rejected and unusable due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.
X	Result is not used for reporting because a more accurate and precise results is reported in its place.
Comment Code	**Definition**
a	Surrogate recovery exceeded
b	Laboratory method blank and common blank contamination
c	Calibration criteria exceeded
d	Duplicate precision criteria exceeded
e	Matrix spike or laboratory control sample recovery exceeded
f	Field blank contamination
g	Quantification below practical quantitation limit for stable chemistries
h	Holding time exceeded
i	Internal standard criteria exceeded
j	Other stable chemistry qualification
k	Radiochemistry quantitation issue
l	Duplicate result from a less sensitive analytical method (for example ICP versus ICP/MS)
m	Duplicate result from a less sensitive analytical run (for example worse surrogate recoveries or dilution analysis)
n	Radiochemistry tracer yield criteria exceeded
o	Other radiochemistry qualification
+	Estimated results are possibly biased high based on associated quality control
–	Estimated results are possibly biased low based on associated quality control

Notes:

ICP Inductively coupled plasma
ICP/MS Inductively coupled plasma/mass spectrometer

TABLE B-4
HOLDING TIME CRITERIA
HYDROGEOLOGIC CHARACTERIZATION
DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Parameter	Aqueous Matrix	Soil Matrix [1]
Anions - Chloride, fluoride, nitrate, nitrite, perchlorate, and sulfate	48 hour (nitrate and nitrite), 28 days (others)	48 hour (nitrate and nitrite), 28 days
Phosphorus (total phosphate-P)	Not applicable	48 hours
Bicarbonate alkalinity	14 days	14 days
Total dissolved solids	14 days	Not applicable
Metals	180 days	180 days
Mercury	28 days	28 days
Hexavalent chromium	24 hours	30 days/4 days
Volatile organic compounds	14 days	7 days
Pesticides	7 days/40 days	14 days/40 days
Radionuclides	4 days (Radon-222) 180 days (others)	180 days

Notes:

1 Date from sampling to extraction/date from extraction to analysis

TABLE B-5
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-7	TMSB-101-20	Soil	Pb-210	0.4		1.82		J	h	pCi/g
0606031	0606031-7	TMSB-101-20	Soil	Th-232	0.0346		1.55		J	h	pCi/g
0606031	0606031-7	TMSB-101-20	Soil	Th-230	0.0873		2.14		J	h	pCi/g
0606031	0606031-7	TMSB-101-20	Soil	Th-228	0.139		2.07	M3	J	h	pCi/g
0606031	0606031-7	TMSB-101-20	Soil	U-235	0.0242		0.109		J	h	pCi/g
0606031	0606031-7	TMSB-101-20	Soil	U-234	0.0226		1.99		J	h	pCi/g
0606031	0606031-7	TMSB-101-20	Soil	U-238	0.0226		1.92		J	h	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	U-234	0.0194		1.38		J	h	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Pb-210	0.377		1.58		J	h	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Th-232	0.0208		1.65		J	h	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Th-230	0.0819		1.42		J	h	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	U-235	0.0229		0.0956	LT	J	h	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	U-238	0.0219		1.32		J	h	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Th-228	0.137		1.99	M3	J	h	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	U-238	0.0306		1.32		J	h	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Th-232	0.0257		1.79		J	h	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Pb-210	0.397		1.33		J	h	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	U-234	0.0276		1.19		J	h	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	U-235	0.0191		0.0824	LT	J	h	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Th-228	0.129		2.26	M3	J	h	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Th-230	0.0835		1.23		J	h	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	U-234	0.0205		1.61		J	h	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	U-238	0.0151		1.55		J	h	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	Pb-210	0.396		1.36		J	h	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	Th-232	0.0503		1.61		J	h	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	Th-230	0.0971		1.53		J	h	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	Th-228	0.148		1.94	M3	J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-1	TMSB-102-20	Soil	Pb-214	0.252		1.61	J	J-	h, o	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	Bi-214	0.298		1.43	J	J-	h, o	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	U-235	0.0214		0.0826	LT	J	h	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	Th-228	0.162		2.2	M3	J	h	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	U-235	0.0203		0.0784	LT	J	h	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	U-238	0.0213		1.4		J	h	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	U-234	0.023		1.43		J	h	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	Pb-214	0.273		1.33	J	J-	h, o	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	Th-230	0.0956		1.3		J	h	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	Th-232	0.0262		1.71		J	h	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	Pb-210	0.384		1.36		J	h	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	Bi-214	0.351		1.02	J	J-	h, o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	U-238	0.0202		1.01		J	h	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	U-234	0.0305		1		J	h	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	U-235	0.00904		0.0734	LT	J	h	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Th-228	0.139		1.79	M3	J	h	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Th-230	0.0908		1.09		J	h	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Th-232	0.035		1.34		J	h	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Pb-210	0.417		1.15		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Ra-228	0.647		1.85		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Ra-224	0.229		2.15		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Th-232	0.0267		1.82		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Th-230	0.103		1.48	M3	J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Th-228	0.155		2.36	M3	J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Tl-208	0.168		0.639		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Th-234	2.89		1.92	U	UJ	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Pb-214	0.284		1.28	J	J-	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-4	TMSB-103-20	Soil	Pb-212	0.229		2.15		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	K-40	1.95		26.4		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Cs-134	0.146		0.00967	U	UJ	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Co-60	0.147		-0.00929	U	UJ	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Pb-210	0.393		1.39		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Bi-214	0.294		1.12	J	J-	h, o	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Bi-212	2.79		1.7	U	UJ	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Ac-228	0.647		1.85		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	U-235	0.0175		0.0953	LT	J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	U-234	0.0201		1.3		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	U-238	0.0253		1.13		J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Cs-137	0.153		-0.0558	U	UJ	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Pa-234M	24.8		4.22	U	UJ	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Th-227	0.799		-0.117	U	UJ	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Ra-226	0.134		1.68	Y1	J	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Co-57	0.144		-0.035	U	UJ	h	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	U-235	0.629		-0.129	U	UJ	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Co-57	0.107		-0.0161	U	UJ	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Ra-226	0.141		1.82	Y1	J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Ra-228	0.644		1.94		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Th-227	0.877		-0.372	U	UJ	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Pa-234M	25.2		-2.25	U	UJ	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Cs-137	0.175		-0.0594	U	UJ	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	U-238	0.0183		1.36		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	U-234	0.0183		1.35		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	U-235	0.592		0.01	U	UJ	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Pb-210	0.386		1.24		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-5	TMSB-103-40	Soil	Bi-214	0.327		1.11	J	J-	h, o	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Ra-224	0.228		2.57		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Co-60	0.163		0.0183	U	UJ	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Cs-134	0.163		0.036	U	UJ	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	K-40	1.96		26.1		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Pb-212	0.228		2.57		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Pb-214	0.246		1.4	J	J-	h, o	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Th-234	1.51		1.75	LT	J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Tl-208	0.198		0.707		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Th-228	0.13		2.2	M3	J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Th-230	0.0841		1.26		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Th-232	0.0265		1.96		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Ac-228	0.644		1.94		J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Bi-212	2.16		2.82	LT	J	h	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	U-235	0.0179		0.0945	LT	J	h	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	U-234	0.0257		1.17		J	h	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Bi-214	0.349		1.14	GJ	J	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Ra-224	0.304		2.29	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Th-232	0.0243		1.52		J	h	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Th-230	0.0884		1.06		J	h	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Th-228	0.139		2.15	M3	J	h	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Tl-208	0.191		0.627	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Th-234	2.34		2.17	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Pb-214	0.295		0.948	GJ	J	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Pb-212	0.304		2.29	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	K-40	2.18		18.9	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Cs-134	0.269		0.0454	UG	UJ	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-6	TMSB-103-65	Soil	Ra-228	0.687		1.71	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Co-57	0.142		0.00969	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Pb-210	0.38		1.04		J	h	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Bi-212	2.81		2.29	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	U-235	0.72		-0.0673	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Ac-228	0.687		1.71	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	U-235	0.024		0.0949	LT	J	h	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Ra-226	0.151		1.25	Y1	J	h	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	U-238	0.0224		1.12		J	h	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Cs-137	0.179		0.0118	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Pa-234M	31.2		11.9	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Th-227	1.07		0.178	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Co-60	0.229		-0.0261	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Tl-208	0.129		0.728	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Co-60	0.125		0.0304	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Co-60	0.125		0.0304	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Cs-134	0.13		0.0148	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Cs-134	0.13		0.0148	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	K-40	1.5		24	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	K-40	1.5		24	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-212	0.24		2.36	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-212	0.24		2.36	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-214	0.237		1.37	GJ	J	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-214	0.237		1.37	GJ	J	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Co-57	0.109		0.055	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-234	1.67		2.06	LTG	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Bi-214	0.26		1.07	GJ	J	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-9	TMSB-104-20	Soil	Tl-208	0.129		0.728	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-228	0.138		2.07	M3	J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-228	0.138		2.07	M3	J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-230	0.098		1.39		J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-230	0.098		1.39		J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-232	0.0259		1.72		J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-232	0.0259		1.72		J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ra-224	0.24		2.36	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ra-224	0.24		2.36	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-210	0.411		1.37		J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-210	0.411		1.37		J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-234	1.67		2.06	LTG	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	U-234	0.0422		1.5		J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ra-228	0.565		1.67	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ra-228	0.565		1.67	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-227	16.1		-2.47	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-227	16.1		-2.47	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pa-234M	22.7		-1.04	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pa-234M	22.7		-1.04	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Cs-137	0.129		-0.0155	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Cs-137	0.129		-0.0155	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Co-57	0.109		0.055	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	U-238	0.0462		1.32		J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ra-226	0.147		1.91	Y1	J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	U-234	0.0422		1.5		J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	U-235	0.0496		0.0425	U	UJ	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	U-235	0.0496		0.0425	U	UJ	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-9	TMSB-104-20	Soil	U-235	0.679		-0.0754	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ra-226	0.147		1.91	Y1	J	h	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	U-235	0.679		-0.0754	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ac-228	0.565		1.67	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ac-228	0.565		1.67	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Bi-212	1.97		1.92	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Bi-212	1.97		1.92	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Bi-214	0.26		1.07	GJ	J	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	U-238	0.0462		1.32		J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ra-228	0.719		2.27	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-214	0.276		1.26	GJ	J	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-212	0.274		2.54	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pa-234M	28.7		12.9	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pa-234M	28.7		12.9	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ra-226	0.135		1.36	Y1	J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-227	0.825		0.22	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ra-228	0.719		2.27	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-227	0.825		0.22	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ra-226	0.135		1.36	Y1	J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-214	0.276		1.26	GJ	J	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-234	1.9		1.62	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-234	1.9		1.62	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Tl-208	0.218		0.738	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-228	0.125		2.18	M3	J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-232	0.0198		1.74		J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-228	0.125		2.18	M3	J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-230	0.0921		1.3		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-10	TMSB-104-40	Soil	Co-57	0.154		-0.0582	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ra-224	0.274		2.54	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-230	0.0921		1.3		J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-232	0.0198		1.74		J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Tl-208	0.218		0.738	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Bi-212	2.61		2.9	LTGTI	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ra-224	0.274		2.54	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-210	0.433		1.46		J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-210	0.433		1.46		J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-212	0.274		2.54	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	K-40	1.54		25.8	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	K-40	1.54		25.8	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Cs-134	0.193		-0.0551	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Cs-134	0.193		-0.0551	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Co-60	0.173		0.0763	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Co-60	0.173		0.0763	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Bi-214	0.305		1.05	GJ	J	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Bi-214	0.305		1.05	GJ	J	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Bi-212	2.61		2.9	LTGTI	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ac-228	0.719		2.27	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ac-228	0.719		2.27	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	U-235	0.763		0.346	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	U-235	0.763		0.346	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	U-234	0.0352		1.21		J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	U-234	0.0352		1.21		J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	U-238	0.0352		1.18		J	h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	U-238	0.0352		1.18		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-10	TMSB-104-40	Soil	Cs-137	0.17		0.00901	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Cs-137	0.17		0.00901	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Co-57	0.154		-0.0582	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Cs-137	0.115		0	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-226	0.142		1.24	Y1	J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pa-234M	24.7		2.45	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	U-238	0.0582		0.977		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Cs-137	0.115		0	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pa-234M	24.7		2.45	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pb-212	0.318		1.96	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-227	18.2		-1.54	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-227	18.2		-1.54	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-228	0.719		1.58	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-226	0.142		1.24	Y1	J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pb-210	0.405		1.24		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	U-238	0.0582		0.977		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-228	0.719		1.58	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Tl-208	0.172		0.79	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pb-210	0.405		1.24		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-224	0.318		1.96	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-224	0.318		1.96	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-232	0.034		1.53		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-232	0.034		1.53		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-230	0.0951		1.2		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	K-40	1.3		25.3	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-228	0.133		1.97	M3	J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-228	0.133		1.97	M3	J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-11	TMSB-104-65	Soil	Th-234	1.8		1.7	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-234	1.8		1.7	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pb-214	0.274		1.3	GJ	J	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pb-212	0.318		1.96	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	U-234	0.0525		1.13		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	K-40	1.3		25.3	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pb-214	0.274		1.3	GJ	J	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-230	0.0951		1.2		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Bi-214	0.34		1.12	GJ	J	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	U-235	0.664		0.0238	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	U-234	0.0525		1.13		J	h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Tl-208	0.172		0.79	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ac-228	0.719		1.58	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Bi-212	2.41		2.33	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	U-235	0.664		0.0238	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Bi-212	2.41		2.33	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ac-228	0.719		1.58	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Bi-214	0.34		1.12	GJ	J	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Co-57	0.121		-0.0169	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Co-57	0.121		-0.0169	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Co-60	0.169		0.009	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Co-60	0.169		0.009	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Cs-134	0.159		0.0466	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Cs-134	0.159		0.0466	UG	UJ	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Cs-137	0.0789		-0.0521	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Bi-214	0.137		1.99	J	J-	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Bi-214	0.137		1.99	J	J-	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-1	TMSB-105-25	Soil	Bi-212	1.12		2.59	LT	J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Bi-212	1.12		2.59	LT	J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Ac-228	0.3		2.17		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Ra-224	0.132		2.67		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	U-235	0.444		-0.0731	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	U-234	0.064		1.73		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	U-234	0.064		1.73		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Co-57	0.0897		-0.00649	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	U-238	0.0409		1.61		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Ac-228	0.3		2.17		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Cs-137	0.0789		-0.0521	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pa-234M	13.3		3.74	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pa-234M	13.3		3.74	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-227	10.4		0.73	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-227	10.4		0.73	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Ra-228	0.3		2.17		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Ra-228	0.3		2.17		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Ra-226	0.136		2.35		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	U-238	0.0409		1.61		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-230	0.0939		1.74		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Ra-224	0.132		2.67		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pb-210	0.428		2.09		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pb-210	0.428		2.09		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	U-235	0.444		-0.0731	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-232	0.0254		1.83		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Co-57	0.0897		-0.00649	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-230	0.0939		1.74		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-1	TMSB-105-25	Soil	Th-228	0.0834		2.28		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-228	0.0834		2.28		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Tl-208	0.0939		0.796		J+	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Tl-208	0.0939		0.796		J+	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-234	1.53		3.5	LTTI	J+	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Cs-134	0.076		0.0265	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-232	0.0254		1.83		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-234	1.53		3.5	LTTI	J+	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Co-60	0.0887		0.0138	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Cs-134	0.076		0.0265	U	UJ	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	K-40	0.769		24.3		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Ra-226	0.136		2.35		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	K-40	0.769		24.3		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pb-212	0.132		2.67		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pb-212	0.132		2.67		J	h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pb-214	0.146		2.14	J	J-	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pb-214	0.146		2.14	J	J-	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Co-60	0.0887		0.0138	U	UJ	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	U-238	0.0357		1.31		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Bi-214	0.27		1.42	GJ	J	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Bi-214	0.27		1.42	GJ	J	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Bi-212	2.01		2.84	LTG	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Bi-212	2.01		2.84	LTG	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ac-228	0.503		1.81	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ac-228	0.503		1.81	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	U-235	0.718		0.163	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	U-235	0.718		0.163	UG	UJ	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-2	TMSB-106-25	Soil	U-234	0.0357		1.5		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-226	0.141		1.72	Y1	J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	U-238	0.0357		1.31		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Co-60	0.169		0.0194	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Cs-137	0.132		0.0107	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Cs-137	0.132		0.0107	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pa-234M	22.9		1.08	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-227	0.955		0.118	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-227	0.955		0.118	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-228	0.503		1.81	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-228	0.503		1.81	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	U-234	0.0357		1.5		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-234	1.82		3.09	LTG	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pb-210	0.404		1.6		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pb-210	0.404		1.6		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-224	0.237		2.3	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-224	0.237		2.3	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-232	0.0348		1.81		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-232	0.0348		1.81		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-230	0.0907		1.63		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-230	0.0907		1.63		J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-228	0.127		1.88	M3	J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-228	0.127		1.88	M3	J	h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Co-57	0.128		-0.0177	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Tl-208	0.123		0.726	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Co-57	0.128		-0.0177	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-234	1.82		3.09	LTG	J+	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-2	TMSB-106-25	Soil	Pb-214	0.261		1.6	GJ	J	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pb-214	0.261		1.6	GJ	J	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pb-212	0.237		2.3	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pb-212	0.237		2.3	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	K-40	1.45		23.4	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	K-40	1.45		23.4	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Cs-134	0.151		-0.0205	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Cs-134	0.151		-0.0205	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Co-60	0.169		0.0194	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pa-234M	22.9		1.08	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Tl-208	0.123		0.726	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-226	0.141		1.72	Y1	J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Cs-137	0.164		-0.0189	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	U-238	0.0409		1.4		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	U-238	0.0409		1.4		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	U-234	0.0469		1.75		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	U-234	0.0469		1.75		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	U-235	0.926		-0.0355	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ac-228	0.693		1.83	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Cs-137	0.164		-0.0189	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Bi-212	2.14		2.2	LTG	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-227	22.2		-0.783	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Bi-214	0.321		1.53	GJ	J	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Bi-212	2.14		2.2	LTG	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ra-226	0.135		1.78	Y1	J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pa-234M	28.1		-2.5	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-227	22.2		-0.783	UG	UJ	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-3	TMSB-107-25	Soil	Ra-228	0.693		1.83	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ra-228	0.693		1.83	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ra-226	0.135		1.78	Y1	J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Bi-214	0.321		1.53	GJ	J	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Tl-208	0.184		0.853	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pa-234M	28.1		-2.5	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-234	2.46		1.98	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ac-228	0.693		1.83	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-210	0.428		1.83		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-210	0.428		1.83		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ra-224	0.273		2.25	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ra-224	0.273		2.25	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-232	0.0184		1.7		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-232	0.0184		1.7		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-230	0.087		1.57		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-230	0.087		1.57		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-228	0.0529		1.9		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-234	2.46		1.98	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Tl-208	0.184		0.853	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Co-57	0.191		-0.039	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-214	0.275		1.56	GJ	J	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-214	0.275		1.56	GJ	J	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-212	0.273		2.25	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-212	0.273		2.25	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	K-40	1.85		22.1	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	K-40	1.85		22.1	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Cs-134	0.147		0.09	UG	UJ	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-3	TMSB-107-25	Soil	Cs-134	0.147		0.09	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Co-60	0.169		0.0189	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Co-60	0.169		0.0189	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Co-57	0.191		-0.039	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-228	0.0529		1.9		J	h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	U-235	0.926		-0.0355	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-234	1.9		3.24	LTGTI	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-234	1.9		3.24	LTGTI	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pb-214	0.164		1.37	GJ	J	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pb-212	0.194		2.88	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pb-212	0.194		2.88	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	K-40	1.09		25.2	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	K-40	1.09		25.2	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Co-60	0.153		-0.0248	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Cs-134	0.0831		0.0725	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Tl-208	0.117		0.764	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pb-210	0.421		1.31		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Cs-134	0.0831		0.0725	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Tl-208	0.117		0.764	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-228	0.0962		1.92		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-228	0.0962		1.92		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-230	0.0865		1.26		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-230	0.0865		1.26		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-232	0.0177		1.63		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-232	0.0177		1.63		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-224	0.194		2.88	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pb-210	0.421		1.31		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-5	TMSB-108-30	Soil	Pb-214	0.164		1.37	GJ	J	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Co-57	0.109		-0.0264	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-224	0.194		2.88	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-228	0.433		2.24	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Co-60	0.153		-0.0248	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Co-57	0.109		-0.0264	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-226	0.135		1.35	Y1	J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-228	0.433		2.24	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-227	14.1		1.41	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-227	14.1		1.41	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pa-234M	22.4		-10.4	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pa-234M	22.4		-10.4	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Cs-137	0.108		0.017	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ac-228	0.433		2.24	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-226	0.135		1.35	Y1	J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Bi-214	0.21		1.28	GJ	J	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Cs-137	0.108		0.017	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Bi-212	1.7		2.46	LTG	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Bi-214	0.21		1.28	GJ	J	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ac-228	0.433		2.24	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	U-235	0.542		-0.156	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	U-235	0.542		-0.156	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	U-234	0.0356		1.29		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	U-234	0.0356		1.29		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	U-238	0.0474		1.2		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	U-238	0.0474		1.2		J	h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Bi-212	1.7		2.46	LTG	J+	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-6	TMSB-109-20	Soil	Co-57	0.141		0.164	GTI	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	K-40	1.81		25.5	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	K-40	1.81		25.5	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Cs-134	0.168		-0.0529	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Cs-134	0.168		-0.0529	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Co-60	0.152		0.00724	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-235	0.0475		0.0256	U	UJ	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Co-57	0.141		0.164	GTI	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-214	0.262		1.23	GJ	J	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Bi-214	0.269		1.18	GJ	J	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Bi-214	0.269		1.18	GJ	J	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Bi-212	1.74		1.34	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Bi-212	1.74		1.34	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ac-228	0.499		2.12	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-235	0.767		0.296	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Co-60	0.152		0.00724	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-228	0.147		2.17	M3	J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-210	0.422		1.23		J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-210	0.422		1.23		J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-224	0.273		2.35	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-224	0.273		2.35	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-232	0.0302		1.59		J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-232	0.0302		1.59		J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-212	0.273		2.35	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-230	0.0947		1.15		J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-212	0.273		2.35	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-228	0.147		2.17	M3	J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-6	TMSB-109-20	Soil	Tl-208	0.163		0.864	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Tl-208	0.163		0.864	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-234	2.86		0.354	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-234	2.86		0.354	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-214	0.262		1.23	GJ	J	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-235	0.767		0.296	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-230	0.0947		1.15		J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-227	23.7		-2.04	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ac-228	0.499		2.12	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-235	0.0475		0.0256	U	UJ	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-226	0.138		1.24	Y2	J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-226	0.138		1.24	Y2	J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-228	0.499		2.12	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-227	23.7		-2.04	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pa-234M	26.8		-2.45	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pa-234M	26.8		-2.45	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-234	0.0573		1.24		J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Cs-137	0.157		0.00617	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Cs-137	0.157		0.00617	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-238	0.0605		0.876		J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-238	0.0605		0.876		J	h	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-228	0.499		2.12	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-234	0.0573		1.24		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-210	0.434		1.02		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Bi-212	2.72		3.88	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ac-228	0.574		2.23	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ac-228	0.574		2.23	G	J+	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-7	TMSB-109-30	Soil	U-235	1.06		-0.178	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	U-235	1.06		-0.178	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	U-234	0.05		1.26		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	U-234	0.05		1.26		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	U-238	0.05		1.4		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	U-238	0.05		1.4		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Cs-137	0.184		-0.0122	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Bi-214	0.355		1.45	GJ	J	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pa-234M	30.4		2.39	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pa-234M	30.4		2.39	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-227	23.1		2.33	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-227	23.1		2.33	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-228	0.574		2.23	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-228	0.574		2.23	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-226	0.167		1.12	Y1	J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-226	0.167		1.12	Y1	J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Cs-137	0.184		-0.0122	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-234	2.85		2.22	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-210	0.434		1.02		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-224	0.286		3	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-224	0.286		3	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-232	0.0232		1.7		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-232	0.0232		1.7		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-230	0.0917		1.35		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-230	0.0917		1.35		J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-228	0.111		2.13	M3	J	h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-228	0.111		2.13	M3	J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-7	TMSB-109-30	Soil	Tl-208	0.176		0.842	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Bi-212	2.72		3.88	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-234	2.85		2.22	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Bi-214	0.355		1.45	GJ	J	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-214	0.322		1.5	GJ	J	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-214	0.322		1.5	GJ	J	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-212	0.286		3	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	K-40	1.81		25.8	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	K-40	1.81		25.8	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Cs-134	0.18		0.0653	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Cs-134	0.18		0.0653	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Co-60	0.231		-0.0554	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Co-60	0.231		-0.0554	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Co-57	0.214		0.0724	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Co-57	0.214		0.0724	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Tl-208	0.176		0.842	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-212	0.286		3	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-230	0.0886		1.29		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pb-214	0.231		1.04	GJ	J	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-224	0.312		2.03	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Bi-214	0.288		1.08	GJ	J	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Co-57	0.139		0.0179	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Co-57	0.139		0.0179	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Co-60	0.194		0.00994	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Co-60	0.194		0.00994	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Cs-134	0.174		-0.0382	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Cs-134	0.174		-0.0382	UG	UJ	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-4	TMSB-110-30	Soil	K-40	1.61		19.3	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	K-40	1.61		19.3	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Bi-212	2.66		1.33	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pb-212	0.312		2.03	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Bi-212	2.66		1.33	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pb-214	0.231		1.04	GJ	J	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-234	1.74		1.46	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-234	1.74		1.46	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Tl-208	0.178		0.745	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Tl-208	0.178		0.745	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-228	0.104		1.9	M3	J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-228	0.104		1.9	M3	J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-230	0.0886		1.29		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-232	0.0188		1.59		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-224	0.312		2.03	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-232	0.0188		1.59		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pb-212	0.312		2.03	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Cs-137	0.157		-0.0216	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-226	0.135		1.06		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-226	0.135		1.06		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-228	0.706		1.84	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-228	0.706		1.84	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-227	22.3		-0.184	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-227	22.3		-0.184	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pa-234M	23.9		12.3	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pa-234M	23.9		12.3	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Bi-214	0.288		1.08	GJ	J	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-4	TMSB-110-30	Soil	Pb-210	0.386		1.3		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Cs-137	0.157		-0.0216	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-238	0.0417		1.15		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-238	0.0417		1.15		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-234	0.0417		1.33		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-234	0.0417		1.33		J	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-235	0.0447		0.032	U	UJ	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-235	0.0447		0.032	U	UJ	h	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-235	0.712		0.2	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-235	0.712		0.2	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ac-228	0.706		1.84	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ac-228	0.706		1.84	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pb-210	0.386		1.3		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	U-238	0.043		1.37		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	U-238	0.043		1.37		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	U-234	0.0546		1.22		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Cs-137	0.164		-0.048	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	U-234	0.0546		1.22		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	U-235	0.86		0.0508	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	U-235	0.86		0.0508	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ac-228	0.577		2.12	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pa-234M	28.7		1.19	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Bi-212	2.79		4.33	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Bi-212	2.79		4.33	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ac-228	0.577		2.12	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Cs-137	0.164		-0.048	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-228	0.577		2.12	G	J+	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-8	TMSB-111-35	Soil	Pa-234M	28.7		1.19	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-227	23.2		-4.8	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-227	23.2		-4.8	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-214	0.294		1.36	GJ	J	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Bi-214	0.293		1.25	GJ	J	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-224	0.257		2.23	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-228	0.577		2.12	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-226	0.137		1.66	Y1	J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-224	0.257		2.23	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-226	0.137		1.66	Y1	J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-214	0.294		1.36	GJ	J	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-234	2.59		2.04	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-234	2.59		2.04	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Tl-208	0.21		0.706	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Tl-208	0.21		0.706	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-228	0.123		2.04	M3	J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-228	0.123		2.04	M3	J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-230	0.0917		1.27		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-230	0.0917		1.27		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-210	0.42		1.28		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-232	0.00689		1.67		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Bi-214	0.293		1.25	GJ	J	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-210	0.42		1.28		J	h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-212	0.257		2.23	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-212	0.257		2.23	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	K-40	1.48		25	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	K-40	1.48		25	G	J+	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-8	TMSB-111-35	Soil	Cs-134	0.168		-0.0915	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Cs-134	0.168		-0.0915	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Co-60	0.126		0.0141	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Co-60	0.126		0.0141	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Co-57	0.175		-0.0112	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Co-57	0.175		-0.0112	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-232	0.00689		1.67		J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-214	0.231		1.2	GJ	J	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-212	0.232		2.44	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-212	0.232		2.44	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	K-40	1.35		25.5	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	K-40	1.35		25.5	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Cs-134	0.159		-0.0158	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Cs-134	0.159		-0.0158	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Co-60	0.165		-0.00722	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-214	0.231		1.2	GJ	J	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Co-57	0.164		-0.0092	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-230	0.0933		1.25		J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Co-60	0.165		-0.00722	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-234	3.67		2.72	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-234	3.67		2.72	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Tl-208	0.174		0.787	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Tl-208	0.174		0.787	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Co-57	0.164		-0.0092	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-228	0.121		2.17	M3	J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-232	0.0223		1.57		J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-230	0.0933		1.25		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-12	TMSB-112-35	Soil	Th-232	0.0223		1.57		J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ra-224	0.232		2.44	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-210	0.414		1.65		J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-210	0.414		1.65		J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-228	0.121		2.17	M3	J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ra-228	0.566		1.63	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ra-224	0.232		2.44	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Bi-214	0.28		1.29	GJ	J	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ra-226	0.133		1.7	Y1	J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ra-226	0.133		1.7	Y1	J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ra-228	0.566		1.63	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-227	1.08		-0.404	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-227	1.08		-0.404	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pa-234M	21.4		-1.1E-06	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pa-234M	21.4		-1.1E-06	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	U-235	0.814		-0.437	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Cs-137	0.136		-0.0277	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Bi-212	2.02		2.59	LTG	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ac-228	0.566		1.63	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Bi-212	2.02		2.59	LTG	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Bi-214	0.28		1.29	GJ	J	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ac-228	0.566		1.63	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	U-235	0.814		-0.437	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	U-234	0.0504		1.3		J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	U-234	0.0504		1.3		J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	U-238	0.0504		1.25		J	h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	U-238	0.0504		1.25		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-12	TMSB-112-35	Soil	Cs-137	0.136		-0.0277	UG	UJ	h, o	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	K-40	2.39		26.2		J	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Cs-137	0.19		-0.0848	U	UJ	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Cs-134	0.206		-0.03	U	UJ	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Co-60	0.232		-0.0106	U	UJ	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Co-57	0.15		0.0665	U	UJ	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Bi-214	0.302		0.983	J	J-	h, o	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Bi-212	1.68		2.23	LT	J	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Pa-234M	34.7		-6.72	U	UJ	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Ac-228	0.711		1.75		J	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Pb-212	0.346		2.66		J	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Pb-214	0.282		1.07	J	J-	h, o	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Ra-224	0.346		2.66		J	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Ra-228	0.711		1.75		J	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Th-227	25		0.823	U	UJ	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Th-234	2.27		1.21	U	UJ	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Tl-208	0.193		0.548		J	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	U-234	0.0261		1.15		J	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	U-235	0.0151		0.0557	LT	J	h	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	U-238	0.029		0.993		J	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Pb-214	0.228		1.16	J	J-	h, o	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Bi-214	0.238		0.796	J	J-	h, o	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Co-57	0.1		-0.0367	U	UJ	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Co-60	0.174		0.0216	U	UJ	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Cs-134	0.143		-0.0384	U	UJ	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Cs-137	0.152		-0.0561	U	UJ	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	K-40	1.88		21.1		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-9	TMSB-113-40	Soil	U-238	0.0333		1.16		J	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Bi-212	1.99		2.66	LTTI	J	h, o	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Ac-228	0.577		1.71		J	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Ra-224	0.205		1.87		J	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Ra-228	0.577		1.71		J	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Th-227	12		1.47	U	UJ	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Th-234	1.7		0.972	U	UJ	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Tl-208	0.167		0.534		J	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	U-234	0.0356		1.26		J	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	U-235	0.0275		0.0577	LT	J	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Pb-212	0.205		1.87		J	h	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Pa-234M	29.2		-11.1	U	UJ	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Bi-212	2.25		1.71	U	UJ	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Pa-234M	26		-4.86	U	UJ	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Bi-214	0.275		1.01	J	J-	h, o	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Co-57	0.0972		0.0252	U	UJ	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Co-60	0.228		-0.077	U	UJ	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Cs-134	1.1		0.124	U	UJ	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Cs-137	0.148		-0.043	U	UJ	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	K-40	1.48		23		J	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Ac-228	0.617		1.58		J	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	U-235	0.0329		0.0561	LT	J	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Pb-212	0.21		1.96		J	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	U-238	0.0378		1.23		J	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	U-234	0.0325		1.42		J	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Tl-208	0.158		0.594		J	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Th-234	1.66		1.52	U	UJ	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-6	TMSB-115-20	Soil	Th-227	0.894		0.0476	U	UJ	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Ra-228	0.617		1.58		J	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Ra-224	0.21		1.96		J	h	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Pb-214	0.251		0.872	J	J-	h, o	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Ac-228	0.53		1.57		J	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	K-40	1.78		21.8		J	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Cs-137	0.121		0.0229	U	UJ	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Cs-134	0.131		-0.0173	U	UJ	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Co-60	0.127		0.0527	U	UJ	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Co-57	0.107		0.0384	U	UJ	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Bi-214	0.263		0.802	J	J-	h, o	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Pb-214	0.258		0.991	J	J-	h, o	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Bi-212	2.39		2.03	U	UJ	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	U-238	0.0373		1.26		J	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Pb-212	0.235		1.92		J	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Pa-234M	21.9		7.63	U	UJ	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	U-235	0.0273		0.0921	LT	J	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	U-234	0.0303		1.28		J	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Tl-208	0.172		0.481		J	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Th-234	1.92		1.71	U	UJ	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Th-227	0.774		0.106	U	UJ	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Ra-228	0.53		1.57		J	h	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Ra-224	0.235		1.92		J	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	K-40	2.31		28.8		J	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Cs-137	0.161		-0.0395	U	UJ	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Cs-134	0.185		-0.0788	U	UJ	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Co-60	0.188		0.0226	U	UJ	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-12	TMSB-117-20	Soil	Co-57	0.14		0.0598	U	UJ	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Bi-214	0.314		1.05	J	J-	h, o	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Ac-228	0.633		2.06		J	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Pa-234M	31.5		-18.6	U	UJ	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Bi-212	2.92		2.68	U	UJ	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	U-238	0.0286		0.973		J	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Pb-214	0.268		1.04	J	J-	h, o	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Ra-224	0.297		3.2		J	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Ra-228	0.633		2.06		J	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Th-227	1.35		0.0676	U	UJ	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Th-234	2.32		1.97	U	UJ	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Tl-208	0.182		0.842		J	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	U-234	0.0267		0.989		J	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Pb-212	0.297		3.2		J	h	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	U-235	0.029		0.0494	LT	J	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Pb-214	0.2		0.918	J	J-	h, o	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Pb-212	0.186		1.86		J	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Bi-214	0.241		1.01	J	J-	h, o	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Co-57	0.0912		-0.0128	U	UJ	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Co-60	0.161		0.0353	U	UJ	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Cs-134	0.101		0.131	TI	J	h, o	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Cs-137	0.12		-0.0388	U	UJ	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	K-40	1.35		21.9		J	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Bi-212	1.68		1.67	U	UJ	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	U-235	0.0259		0.0322	LT	J	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Ra-224	0.186		1.86		J	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Ra-228	0.515		1.75		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
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SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-13	TMSB-117-30	Soil	Th-227	0.88		-0.271	U	UJ	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Th-234	1.6		0.794	U	UJ	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Tl-208	0.149		0.536		J	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	U-234	0.0288		1.1		J	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Ac-228	0.515		1.75		J	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Pa-234M	20.5		8.52	U	UJ	h	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	U-238	0.022		1.1		J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Tl-208	0.166		0.528		J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	K-40	1.87		18.2		J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Cs-137	0.148		-0.0343	U	UJ	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Cs-134	0.147		-0.0462	U	UJ	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Co-60	0.162		-0.00618	U	UJ	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Co-57	0.124		0.0164	U	UJ	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Bi-214	0.266		1.13	J	J-	h, o	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Bi-212	2.44		1.36	U	UJ	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Pa-234M	20.5		9.18	U	UJ	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Ac-228	0.629		1.42		J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	U-235	0.0348		0.0747	LT	J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Pb-212	0.253		1.48		J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	U-234	0.0523		1.48		J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Th-227	0.759		0.453	U	UJ	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Th-234	2.18		0.797	U	UJ	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	U-238	0.0369		1.27		J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Ra-228	0.629		1.42		J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Ra-224	0.253		1.48		J	h	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Pb-214	0.26		0.955	J	J-	h, o	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Pa-234M	30.1		5.19	U	UJ	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-1	TMSB-121-20	Soil	Ac-228	0.565		1.66		J	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Bi-214	0.315		1.37	J	J-	h, o	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Co-57	0.152		-0.0082	U	UJ	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Co-60	0.226		-0.0127	U	UJ	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Cs-134	0.175		-0.0233	U	UJ	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Cs-137	0.147		-0.00494	U	UJ	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	K-40	2.34		22.3		J	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Bi-212	2.65		2.88	LTTI	J	h, o	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Pb-214	0.282		1.27	J	J-	h, o	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Ra-224	0.309		2.61		J	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Ra-228	0.565		1.66		J	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Th-227	20.4		-1.38	U	UJ	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Th-234	2.5		1.05	U	UJ	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Tl-208	0.194		0.668		J	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	U-234	0.0477		1.2		J	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	U-238	0.0382		1.02		J	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Pb-212	0.309		2.61		J	h	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	U-235	0.0332		0.0187	U	UJ	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Pb-214	0.217		1.36	J	J-	h, o	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Pb-212	0.204		1.86		J	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Bi-214	0.255		1.3	J	J-	h, o	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Co-57	0.0917		0.0189	U	UJ	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Co-60	0.176		0.0121	U	UJ	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Cs-134	0.172		0.0214	U	UJ	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Cs-137	0.141		-0.0445	U	UJ	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	K-40	1.82		19.4		J	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Bi-212	1.56		1.63	LT	J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-10	TMSB-123-20	Soil	U-235	0.0257		0.0484	LT	J	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Pa-234M	22.8		-1.81	U	UJ	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	U-238	0.0332		1.37		J	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Ac-228	0.558		1.38		J	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	U-234	0.037		1.42		J	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Tl-208	0.155		0.601		J	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Th-234	1.58		1.44	U	UJ	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Th-227	20.5		-1.87	U	UJ	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Ra-228	0.558		1.38		J	h	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Ra-224	0.204		1.86		J	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Pa-234M	25.4		-2.9	U	UJ	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	K-40	1.88		23.5		J	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Cs-137	0.145		-0.0492	U	UJ	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Cs-134	0.149		-0.0997	U	UJ	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Co-60	0.178		-0.0215	U	UJ	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Co-57	0.117		0.0167	U	UJ	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Bi-214	0.268		1.21	J	J-	h, o	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Bi-212	2.42		1.04	U	UJ	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Th-234	1.95		1.46	U	UJ	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Ac-228	0.568		1.74		J	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	U-235	0.0294		0.0944	LT	J	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Pb-212	0.234		1.88		J	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	U-234	0.0303		1.12		J	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Tl-208	0.144		0.638		J	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Ra-228	0.568		1.74		J	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Th-227	18		-1.45	U	UJ	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	U-238	0.0303		1.2		J	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-2	TMSB-124-20	Soil	Ra-224	0.234		1.88		J	h	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Pb-214	0.232		1.34	J	J-	h, o	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Ac-228	0.567		1.09		J	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Pb-214	0.235		1.11	J	J-	h, o	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Bi-214	0.239		1.05	J	J-	h, o	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Co-57	0.0928		0.0405	U	UJ	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Co-60	0.148		0.00562	U	UJ	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Cs-134	0.139		0.0266	U	UJ	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Cs-137	0.159		-0.106	U	UJ	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	K-40	2.11		21.8		J	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Bi-212	2.36		1.05	U	UJ	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Ra-224	0.211		2.01		J	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Ra-228	0.567		1.09		J	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Th-227	0.942		-0.198	U	UJ	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Th-234	2.24		1.17	U	UJ	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Tl-208	0.15		0.601		J	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	U-234	0.0367		1.33		J	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	U-235	0.0333		0.0514	LT	J	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	U-238	0.0383		1.33		J	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Pb-212	0.211		2.01		J	h	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Pa-234M	21		6.47	U	UJ	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Pb-212	0.304		2.9		J	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Cs-134	0.185		-0.0503	U	UJ	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Ac-228	0.689		2.15		J	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Bi-212	1.98		1.93	U	UJ	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Bi-214	0.316		1.36	J	J-	h, o	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Co-60	0.235		-0.108	U	UJ	h	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-4	TMSB-125-20	Soil	Cs-137	0.174		-0.0193	U	UJ	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	K-40	2.28		26.6		J	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Pa-234M	29.9		1.02	U	UJ	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	U-234	0.036		1.36		J	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Co-57	0.163		-0.0607	U	UJ	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Pb-214	0.282		1.83	J	J-	h, o	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	U-235	0.0145		0.0749	LT	J	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Tl-208	0.183		0.725		J	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Th-234	2.15		0.677	U	UJ	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	U-238	0.0324		1.44		J	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Th-227	27		-2.79	U	UJ	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Ra-228	0.689		2.15		J	h	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Ra-224	0.304		2.9		J	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Cs-134	0.141		-0.0347	U	UJ	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	U-238	0.0335		1.06		J	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Ac-228	0.556		1.49		J	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Bi-212	2.06		1.54	U	UJ	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Bi-214	0.255		1	J	J-	h, o	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Co-60	0.155		0.0189	U	UJ	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Cs-137	0.138		-0.0214	U	UJ	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	K-40	1.76		20.5		J	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Pa-234M	24.3		-1.92	U	UJ	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Tl-208	0.121		0.539		J	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Co-57	0.114		-0.0251	U	UJ	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	U-234	0.042		1.16		J	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Pb-212	0.208		2.03		J	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Th-234	1.94		2.53	LTTI	J	h, o	pCi/g

TABLE B-5 (continued)
QUALIFICATIONS BASED ON HOLDING TIME EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Lab ID	Sample ID	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-5	TMSB-126-25	Soil	Th-227	17.6		-1.07	U	UJ	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Ra-228	0.556		1.49		J	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Ra-224	0.208		2.03		J	h	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Pb-214	0.244		1.14	J	J-	h, o	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	U-235	0.0289		0.0738	LT	J	h	pCi/g

Notes:

1	For radionuclides, the SQL is equal to the minimum detectable concentration that is reported in the PQL field.
-	Result is possibly biased low
% Rec	Percent recovery
+	Result is possibly biased high
B	Result less than the practical quantitation limit for metals and inorganic chemicals, and detected in associated laboratory blank for organic chemicals
G	Sample density differs by more than 15 percent of laboratory control sample density
h	Comment code representing qualification due to holding time exceedances
J	Value is estimated
LT	Result is less than the requested MDC, but greater than the sample MDC; result is acceptable with no qualification
M3	Requested MDC was not met, but the result is greater than the sample-specific MDC
MDC	Minimum detectable concentration
o	Comment code representing qualification of radiochemistry data for reasons specified in Table 14
pCi/g	PicoCurie per gram
PQL	Practical quantitation limit
SDG	Sample delivery group
SQL	Sample quantitation limit
U	Undetected
UJ	Undetected at estimated quantitation limit
Y1	Chemical yield is in control limits of 100 to 110 percent; however, quantitative yield of 100 percent is used in calculation of result
Y2	Chemical yield outside QC limits

TABLE B-6
QUALIFICATIONS BASED ON CALIBRATION CRITERIA EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0604188	0604188-5	BRW-R1	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604149	0604149-1	CLD1-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604149	0604149-1	CLD1-R	Water	Endrin Ketone	0.048	0.009	0.048	U	UJ	c	µg/L
0604149	0604149-1	CLD1-R	Water	Endrin Aldehyde	0.048	0.0081	0.048	U	UJ	c	µg/L
0604149	0604149-3	CLD2-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604162	0604162-1	CLD3-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604215	0604215-3	CLD4-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604181	0604181-1	J2D1-R2	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Endosulfan Sulfate	0.047	0.0092	0.047	U	UJ	c	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Endrin Ketone	0.047	0.0089	0.047	U	UJ	c	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	4,4'-DDD	0.047	0.0092	0.047	U	UJ	c	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604181	0604181-4	J2D2-R2	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604181	0604181-5	J2D3-R	Water	Endosulfan Sulfate	0.047	0.0091	0.047	U	UJ	c	µg/L
0604181	0604181-5	J2D3-R	Water	4,4'-DDD	0.047	0.0091	0.047	U	UJ	c	µg/L
0604181	0604181-5	J2D3-R	Water	Endrin Ketone	0.047	0.0088	0.047	U	UJ	c	µg/L
0604181	0604181-5	J2D3-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604188	0604188-3	J2U1	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604230	0604230-3	J2U2	Water	Acetone	25	3.6	25	U	R	c	µg/L
0604215	0604215-1	MW-3	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604188	0604188-1	MW-4	Water	Acetone	20	2.9	20	U	R	c	µg/L
0604188	0604188-4	MW-5	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604215	0604215-2	MW-6R	Water	Acetone	10	1.4	10	U	R	c	µg/L

TABLE B-6 (continued)
QUALIFICATIONS BASED ON CALIBRATION CRITERIA EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0605007	0605007-3	PC12	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605007	0605007-1	PC17	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605040	0605040-1	PC24	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604230	0604230-6	PC28	Water	Acetone	120	18	120	U	R	c	µg/L
0605040	0605040-2	PC40	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605023	0605023-3	PC50	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605023	0605023-4	PC54	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604230	0604230-5	PC64	Water	Acetone	160	23	160	U	R	c	µg/L
0604230	0604230-1	PC67	Water	Acetone	400	57	400	U	R	c	µg/L
0604230	0604230-2	PC67Dup	Water	Acetone	400	57	400	U	R	c	µg/L
0605023	0605023-1	PC72	Water	Acetone	10	1.4	10	U	R	c	µg/L
0512095	0512095-2	Rinsate 01	Water	Acetone	10	1.4	10	U	R	c	µg/L
0512095	0512095-1	Source Water	Water	Acetone	10	1.4	10	U	R	c	µg/L
0512095	0512095-3	TB-01	Water	Acetone	10	1.4	10	U	R	c	µg/L
0601077	0601077-2	TB-1	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604161	0604161-1	TMMW-101	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604161	0604161-3	TMMW-102	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604161	0604161-4	TMMW-103	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604178	0604178-1	TMMW-104	Water	Acetone	10	1.4	10	U	R	c	µg/L
0512122	0512122-15	TMSB-101-70	Soil	Acetone	26	8.4	26	U	R	c	µg/kg
0512108	0512108-6	TMSB-102-25	Soil	Acetone	23	7.6	23	U	R	c	µg/kg
0512108	0512108-7	TMSB-102-30	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512108	0512108-10	TMSB-102-45	Soil	Acetone	22	7.4	22	U	R	c	µg/kg

TABLE B-6 (continued)
QUALIFICATIONS BASED ON CALIBRATION CRITERIA EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0512108	0512108-18	TMSB-103-15	Soil	Acetone	22	7.1	22	U	R	c	µg/kg
0512108	0512108-20	TMSB-103-25	Soil	Acetone	21	7	21	U	R	c	µg/kg
0512108	0512108-21	TMSB-103-30	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512100	0512100-5	TMSB-104-20	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512100	0512100-6	TMSB-104-25	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512100	0512100-8	TMSB-104-35	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512100	0512100-13	TMSB-104-60	Soil	Acetone	23	7.6	23	U	R	c	µg/kg
0512045	0512045-4	TMSB-105-15	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512045	0512045-6	TMSB-105-25	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512057	0512057-6	TMSB-106-25	Soil	Acetone	23	7.5	23	U	R	c	µg/kg
0512057	0512057-11	TMSB-107-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512057	0512057-12	TMSB-107-25	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512083	0512083-11	TMSB-108-10	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512083	0512083-12	TMSB-108-15	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-13	TMSB-108-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512083	0512083-14	TMSB-108-25	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512083	0512083-15	TMSB-108-30	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-18	TMSB-109-10	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-20	TMSB-109-20	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-22	TMSB-109-30	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512083	0512083-5	TMSB-110-20	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-6	TMSB-110-25	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-8	TMSB-110-35	Soil	Acetone	22	7.3	22	U	R	c	µg/kg

TABLE B-6 (continued)
QUALIFICATIONS BASED ON CALIBRATION CRITERIA EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0512095	0512095-5	TMSB-111-05	Soil	Acetone	22	7.1	22	U	R	c	µg/kg
0512095	0512095-6	TMSB-111-10	Soil	Acetone	22	7.4	22	U	R	c	µg/kg
0512095	0512095-10	TMSB-111-30	Soil	Acetone	22	7.4	22	U	R	c	µg/kg
0512100	0512100-18	TMSB-112-15	Soil	Acetone	22	7.1	22	U	R	c	µg/kg
0512100	0512100-19	TMSB-112-20	Soil	Acetone	21	7	21	U	R	c	µg/kg
0512100	0512100-20	TMSB-112-25	Soil	Acetone	21	7	21	U	R	c	µg/kg
0601073	0601073-2	TMSB-113-43	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0601073	0601073-10	TMSB-115-35	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0601073	0601073-11	TMSB-115-40	Soil	Acetone	21	7.1	21	U	R	c	µg/kg
0601077	0601077-10	TMSB-116-10	Soil	Acetone	22	7.1	22	U	R	c	µg/kg
0601077	0601077-14	TMSB-117-05	Soil	Acetone	24	8.1	24	U	R	c	µg/kg
0601077	0601077-15	TMSB-117-10	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601077	0601077-16	TMSB-117-15	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601077	0601077-12	TMSB-117-45	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601047	0601047-2	TMSB-118-05	Soil	Acetone	21	6.9	21	U	R	c	µg/kg
0601047	0601047-4	TMSB-118-15	Soil	Acetone	21	7.1	21	U	R	c	µg/kg
0601047	0601047-7	TMSB-118-30	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0601047	0601047-14	TMSB-119-10	Soil	Acetone	22	7.1	91		J	c	µg/kg
0601047	0601047-18	TMSB-120-15	Soil	Acetone	22	7.1	22	U	R	c	µg/kg
0601058	0601058-5	TMSB-121-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601077	0601077-6	TMSB-123-15	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601077	0601077-7	TMSB-123-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601058	0601058-10	TMSB-124-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg

TABLE B-6 (continued)
QUALIFICATIONS BASED ON CALIBRATION CRITERIA EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0601059	0601059-3	TMSB-125-10	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601059	0601059-5	TMSB-125-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601059	0601059-11	TMSB-126-25	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0604188	0604188-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604215	0604215-4	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604149	0604149-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604188	0604188-6	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604161	0604161-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604162	0604162-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604178	0604178-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604230	0604230-7	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605007	0605007-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605007	0605007-5	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605040	0605040-3	Trip Blank	Water	Acetone	10	1.4	14		J	c	µg/L
0605023	0605023-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605023	0605023-5	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604181	0604181-3	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604230	0604230-4	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0601077	0601077-1	TRW-1	Water	Acetone	10	1.4	10	U	R	c	µg/L

TABLE B-6 (continued)
QUALIFICATIONS BASED ON CALIBRATION CRITERIA EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Notes:

µg/kg	Microgram per kilogram
µg/L	Microgram per liter
c	Comment code representing qualification due to calibration criteria exceedances
DDD	Dichlorodiphenyldichloroethane
J	Value is estimated
PQL	Practical quantitation limit
R	Rejected
SDG	Sample delivery group
SQL	Sample quantitation limit
U	Undetected
UJ	Undetected at estimated quantitation limit

TABLE B-7
QUALIFICATIONS BASED ON LABORATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604188	0604188-5	BRW-R1	Water	Titanium	20	0.54	2.4	B	J-	b	µg/L
0604188	0604188-5	BRW-R1	Water	Barium	100	0.17	7.5	B	U	b	µg/L
0604188	0604188-5	BRW-R1	Water	Aluminum	100	6.8	23	B	U	b	µg/L
0604188	0604188-5	BRW-R1	Water	Beryllium	2	0.028	0.31	B	U	b	µg/L
0604188	0604188-5	BRW-R1	Water	Toluene	1	0.13	0.29	J	U	b	µg/L
0604188	0604188-5	BRW-R1	Water	Iron	100	14	23	B	U	b	µg/L
0604188	0604188-5	BRW-R1	Water	Manganese	10	0.23	0.89	B	U	b	µg/L
0604188	0604188-5	BRW-R1	Water	Nickel	20	0.99	1.1	B	U	b	µg/L
0604188	0604188-5	BRW-R1	Water	Thallium	0.2	0.016	0.034	B	U	b	µg/L
0604149	0604149-1	CLD1-R	Water	Aluminum	100	6.8	32	B	U	b	µg/L
0604149	0604149-1	CLD1-R	Water	Barium	100	0.17	12	B	U	b	µg/L
0604149	0604149-1	CLD1-R	Water	Iron	100	14	26	B	U	b	µg/L
0604149	0604149-1	CLD1-R	Water	Manganese	10	0.23	19		J-	b	µg/L
0604149	0604149-1	CLD1-R	Water	Nickel	20	0.99	11	B	U	b	µg/L
0604149	0604149-1	CLD1-R	Water	Zinc	20	0.55	1.9	B	J-	b	µg/L
0604149	0604149-1	CLD1-R	Water	Titanium	20	0.54	0.99	B	J-	b	µg/L
0604149	0604149-1	CLD1-R	Water	Beryllium	2	0.028	0.2	B	U	b	µg/L
0604149	0604149-1	CLD1-R	Water	Thallium	0.2	0.016	0.042	B	U	b	µg/L
0604149	0604149-3	CLD2-R	Water	Thallium	0.2	0.016	0.036	B	U	b	µg/L
0604149	0604149-3	CLD2-R	Water	Iron	100	14	24	B	U	b	µg/L
0604149	0604149-3	CLD2-R	Water	Nickel	20	0.99	7.7	B	U	b	µg/L
0604149	0604149-3	CLD2-R	Water	Barium	100	0.17	6.8	B	U	b	µg/L
0604149	0604149-3	CLD2-R	Water	Zinc	20	0.55	2.9	B	J-	b	µg/L

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604149	0604149-3	CLD2-R	Water	Titanium	20	0.54	0.77	B	J-	b	µg/L
0604149	0604149-3	CLD2-R	Water	Beryllium	2	0.028	0.2	B	U	b	µg/L
0604149	0604149-3	CLD2-R	Water	Aluminum	100	6.8	29	B	U	b	µg/L
0604162	0604162-1	CLD3-R	Water	Beryllium	2	0.028	0.32	B	U	b	µg/L
0604162	0604162-1	CLD3-R	Water	Iron	100	14	26	B	U	b	µg/L
0604162	0604162-1	CLD3-R	Water	Nickel	20	0.99	2.5	B	U	b	µg/L
0604162	0604162-1	CLD3-R	Water	Thallium	0.2	0.016	0.094	B	U	b	µg/L
0604162	0604162-1	CLD3-R	Water	Titanium	20	0.54	5.4	B	J-	b	µg/L
0604162	0604162-1	CLD3-R	Water	Methylene Chloride	1	0.57	0.91	J	U	b	µg/L
0604162	0604162-1	CLD3-R	Water	Mercury	0.2	0.0047	0.0084	B	J-	b	µg/L
0604162	0604162-1	CLD3-R	Water	Manganese	10	0.23	4	B	U	b	µg/L
0604215	0604215-3	CLD4-R	Water	U-238	0.0935		2.89		J+	b	pCi/L
0604215	0604215-3	CLD4-R	Water	U-234	0.0356		3.88		J+	b	pCi/L
0604215	0604215-3	CLD4-R	Water	Barium	100	0.17	11	B	U	b	µg/L
0604215	0604215-3	CLD4-R	Water	Mercury	0.2	0.0047	0.016	B	U	b	µg/L
0604215	0604215-3	CLD4-R	Water	Nickel	20	0.99	1.4	B	U	b	µg/L
0604215	0604215-3	CLD4-R	Water	Thallium	0.2	0.016	0.07	B	U	b	µg/L
0604215	0604215-3	CLD4-R	Water	Zinc	20	0.55	2	B	U	b	µg/L
0604215	0604215-3	CLD4-R	Water	Titanium	20	0.54	2.6	B	U	b	µg/L
0604215	0604215-3	CLD4-R	Water	Beryllium	2	0.028	0.79	B	U	b	µg/L
0604181	0604181-1	J2D1-R2	Water	Nickel	20	0.99	1.6	B	U	b	µg/L
0604181	0604181-1	J2D1-R2	Water	Beryllium	2	0.028	0.47	B	U	b	µg/L
0604181	0604181-1	J2D1-R2	Water	Iron	100	14	32	B	U	b	µg/L

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604181	0604181-1	J2D1-R2	Water	Thallium	0.2	0.016	0.035	B	U	b	µg/L
0604181	0604181-1	J2D1-R2	Water	Titanium	20	0.54	4.1	B	J-	b	µg/L
0604181	0604181-1	J2D1-R2	Water	Barium	100	0.17	15	B	U	b	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Barium	100	0.17	15	B	U	b	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Zinc	20	0.55	0.87	B	U	b	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Manganese	10	0.23	0.51	B	U	b	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Iron	100	14	40	B	U	b	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Titanium	20	0.54	4.7	B	J-	b	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Nickel	20	0.99	2.4	B	U	b	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Thallium	0.2	0.016	0.025	B	U	b	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Beryllium	2	0.028	0.5	B	U	b	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Aluminum	100	6.8	22	B	U	b	µg/L
0604181	0604181-4	J2D2-R2	Water	Titanium	20	0.54	8.5	B	J-	b	µg/L
0604181	0604181-4	J2D2-R2	Water	Manganese	10	0.23	1.8	B	U	b	µg/L
0604181	0604181-4	J2D2-R2	Water	Nickel	20	0.99	2.3	B	U	b	µg/L
0604181	0604181-4	J2D2-R2	Water	Iron	100	14	70	B	U	b	µg/L
0604181	0604181-4	J2D2-R2	Water	Thallium	0.2	0.016	0.093	B	U	b	µg/L
0604181	0604181-4	J2D2-R2	Water	Zinc	20	0.55	1.4	B	U	b	µg/L
0604181	0604181-4	J2D2-R2	Water	Aluminum	100	6.8	83	B	U	b	µg/L
0604181	0604181-4	J2D2-R2	Water	Barium	100	0.17	23	B	U	b	µg/L
0604181	0604181-4	J2D2-R2	Water	Beryllium	2	0.028	0.57	B	U	b	µg/L
0604181	0604181-5	J2D3-R	Water	Manganese	10	0.23	4.2	B	U	b	µg/L
0604181	0604181-5	J2D3-R	Water	Zinc	20	0.55	3.6	B	U	b	µg/L

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604181	0604181-5	J2D3-R	Water	Barium	100	0.17	25	B	U	b	µg/L
0604181	0604181-5	J2D3-R	Water	Beryllium	2	0.028	0.4	B	U	b	µg/L
0604181	0604181-5	J2D3-R	Water	Iron	100	14	29	B	U	b	µg/L
0604181	0604181-5	J2D3-R	Water	Thallium	0.2	0.016	0.04	B	U	b	µg/L
0604181	0604181-5	J2D3-R	Water	Nickel	20	0.99	1.8	B	U	b	µg/L
0604181	0604181-5	J2D3-R	Water	Titanium	20	0.54	3.2	B	J-	b	µg/L
0604188	0604188-3	J2U1	Water	Aluminum	100	6.8	94	B	U	b	µg/L
0604188	0604188-3	J2U1	Water	Copper	10	0.67	4.5	B	J-	b	µg/L
0604188	0604188-3	J2U1	Water	Mercury	0.2	0.0047	0.0048	B	J-	b	µg/L
0604188	0604188-3	J2U1	Water	Toluene	1	0.13	0.44	J	U	b	µg/L
0604188	0604188-3	J2U1	Water	Nickel	20	0.99	4.5	B	U	b	µg/L
0604188	0604188-3	J2U1	Water	Thallium	0.2	0.016	0.039	B	U	b	µg/L
0604188	0604188-3	J2U1	Water	Beryllium	2	0.028	0.35	B	U	b	µg/L
0604188	0604188-3	J2U1	Water	Titanium	20	0.54	10	B	J-	b	µg/L
0604188	0604188-3	J2U1	Water	Barium	100	0.17	9.8	B	U	b	µg/L
0604188	0604188-3	J2U1	Water	Iron	100	14	72	B	U	b	µg/L
0604230	0604230-3	J2U2	Water	Cobalt	10	0.75	4	B	J-	b	µg/L
0604230	0604230-3	J2U2	Water	Beryllium	2	0.028	0.34	B	U	b	µg/L
0604230	0604230-3	J2U2	Water	Barium	100	0.17	25	B	UJ	b, e, j	µg/L
0604230	0604230-3	J2U2	Water	U-234	0.0619		53.1		J+	b	pCi/L
0604230	0604230-3	J2U2	Water	Nickel	20	0.99	3.2	B	U	b	µg/L
0604230	0604230-3	J2U2	Water	Thallium	0.2	0.016	0.069	B	U	b	µg/L
0604230	0604230-3	J2U2	Water	Mercury	0.2	0.0047	0.0069	B	J-	b	µg/L

TABLE B-7 (continued)
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604230	0604230-3	J2U2	Water	Zinc	20	0.55	5.9	B	U	b	µg/L
0604230	0604230-3	J2U2	Water	Titanium	20	0.54	9.9	B	U	b	µg/L
0604230	0604230-3	J2U2	Water	Manganese	10	0.23	3.8	B	U	b	µg/L
0604215	0604215-1	MW-3	Water	U-234	0.0688		23.6		J+	b	pCi/L
0604215	0604215-1	MW-3	Water	Nickel	20	0.99	1.4	B	U	b	µg/L
0604215	0604215-1	MW-3	Water	Mercury	0.2	0.0047	0.021	B	U	b	µg/L
0604215	0604215-1	MW-3	Water	Manganese	10	0.23	1.2	B	U	b	µg/L
0604215	0604215-1	MW-3	Water	Iron	100	14	34	B	U	b	µg/L
0604215	0604215-1	MW-3	Water	Barium	100	0.17	8.8	B	U	b	µg/L
0604215	0604215-1	MW-3	Water	U-238	0.0827		17.1		J+	b	pCi/L
0604215	0604215-1	MW-3	Water	Titanium	20	0.54	4.1	B	U	b	µg/L
0604215	0604215-1	MW-3	Water	Zinc	20	0.55	3.3	B	U	b	µg/L
0604215	0604215-1	MW-3	Water	Thallium	0.2	0.016	0.064	B	U	b	µg/L
0604215	0604215-1	MW-3	Water	Beryllium	2	0.028	0.27	B	U	b	µg/L
0604188	0604188-1	MW-4	Water	Aluminum	100	6.8	19	B	U	b	µg/L
0604188	0604188-1	MW-4	Water	Thallium	0.2	0.016	0.043	B	U	b	µg/L
0604188	0604188-1	MW-4	Water	Manganese	10	0.23	1.3	B	U	b	µg/L
0604188	0604188-1	MW-4	Water	Zinc	20	0.55	6	B	U	b	µg/L
0604188	0604188-1	MW-4	Water	Titanium	20	0.54	2	B	J-	b	µg/L
0604188	0604188-1	MW-4	Water	Iron	100	14	25	B	U	b	µg/L
0604188	0604188-1	MW-4	Water	Nickel	20	0.99	1.1	B	U	b	µg/L
0604188	0604188-1	MW-4	Water	Barium	100	0.17	8.4	B	U	b	µg/L
0604188	0604188-1	MW-4	Water	Beryllium	2	0.028	0.29	B	U	b	µg/L

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604188	0604188-4	MW-5	Water	Beryllium	2	0.028	0.35	B	U	b	µg/L
0604188	0604188-4	MW-5	Water	Iron	100	14	23	B	U	b	µg/L
0604188	0604188-4	MW-5	Water	Toluene	1	0.13	0.5	J	U	b	µg/L
0604188	0604188-4	MW-5	Water	Manganese	10	0.23	0.52	B	U	b	µg/L
0604188	0604188-4	MW-5	Water	Nickel	20	0.99	2.7	B	U	b	µg/L
0604188	0604188-4	MW-5	Water	Thallium	0.2	0.016	0.029	B	U	b	µg/L
0604188	0604188-4	MW-5	Water	Zinc	20	0.55	13	B	U	b	µg/L
0604188	0604188-4	MW-5	Water	Titanium	20	0.54	2.3	B	J-	b	µg/L
0604215	0604215-2	MW-6R	Water	Barium	100	0.17	12	B	U	b	µg/L
0604215	0604215-2	MW-6R	Water	Nickel	20	0.99	3.5	B	U	b	µg/L
0604215	0604215-2	MW-6R	Water	Beryllium	2	0.028	0.08	B	U	b	µg/L
0604215	0604215-2	MW-6R	Water	Aluminum	100	6.8	46	B	U	b	µg/L
0604215	0604215-2	MW-6R	Water	U-234	0.119		29		J+	b	pCi/L
0604215	0604215-2	MW-6R	Water	U-238	0.0699		19.6		J+	b	pCi/L
0604215	0604215-2	MW-6R	Water	Manganese	10	0.23	0.83	B	U	b	µg/L
0604215	0604215-2	MW-6R	Water	Iron	100	14	49	B	U	b	µg/L
0604215	0604215-2	MW-6R	Water	Thallium	0.2	0.016	0.058	B	U	b	µg/L
0604215	0604215-2	MW-6R	Water	Titanium	20	0.54	3.4	B	U	b	µg/L
0604215	0604215-2	MW-6R	Water	Zinc	20	0.55	1.5	B	U	b	µg/L
0604215	IP060517-1	PBW	Water	Thallium	0.2	0.016	0.018	B	U	b	µg/L
0605007	0605007-3	PC12	Water	Nickel	20	0.99	1.2	B	U	b	µg/L
0605007	0605007-3	PC12	Water	Manganese	10	0.23	1.3	B	U	b	µg/L
0605007	0605007-3	PC12	Water	Iron	100	14	95	B	U	b	µg/L

TABLE B-7 (continued)
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0605007	0605007-3	PC12	Water	Beryllium	2	0.028	0.4	B	U	b	µg/L
0605007	0605007-3	PC12	Water	Titanium	20	0.54	9.7	B	U	b	µg/L
0605007	0605007-3	PC12	Water	Thallium	0.2	0.016	0.15	B	U	b	µg/L
0605007	0605007-3	PC12	Water	Bi-214	17		3.44	UJ	UJ	b, o	pCi/L
0605007	0605007-3	PC12	Water	Pb-214	13.6		0.636	UJ	J	b, o	pCi/L
0605007	0605007-3	PC12	Water	Aluminum	100	6.8	63	B	U	b	µg/L
0605007	0605007-3	PC12	Water	Zinc	20	0.55	1.7	B	U	b	µg/L
0605007	0605007-3	PC12	Water	Barium	100	0.17	12	B	U	b	µg/L
0605007	0605007-1	PC17	Water	Beryllium	2	0.028	0.3	B	U	b	µg/L
0605007	0605007-1	PC17	Water	Titanium	20	0.54	5.9	B	U	b	µg/L
0605007	0605007-1	PC17	Water	Iron	100	14	27	B	U	b	µg/L
0605007	0605007-1	PC17	Water	Nickel	20	0.99	6.8	B	U	b	µg/L
0605007	0605007-1	PC17	Water	Mercury	0.2	0.0047	0.016	B	UJ	b, e	µg/L
0605007	0605007-1	PC17	Water	Zinc	20	0.55	2.1	B	U	b	µg/L
0605007	0605007-1	PC17	Water	Barium	100	0.17	26	B	U	b	µg/L
0605007	0605007-1	PC17	Water	Cobalt	10	0.75	2.1	B	U	b	µg/L
0605007	0605007-1	PC17	Water	Pb-214	8.77		9.67	LTJTI	J	b, o	pCi/L
0605040	0605040-1	PC24	Water	Manganese	10	0.23	4.1	B	U	b	µg/L
0605040	0605040-1	PC24	Water	Beryllium	2	0.028	0.5	B	U	b	µg/L
0605040	0605040-1	PC24	Water	Nickel	20	0.99	1.6	B	U	b	µg/L
0605040	0605040-1	PC24	Water	Thallium	0.2	0.016	0.059	B	U	b	µg/L
0605040	0605040-1	PC24	Water	Zinc	20	0.55	3.4	B	U	b	µg/L
0605040	0605040-1	PC24	Water	Titanium	20	0.54	17	B	U	b	µg/L

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0605040	0605040-1	PC24	Water	Barium	100	0.17	21	B	U	b	µg/L
0604230	0604230-6	PC28	Water	Beryllium	2	0.028	0.38	B	U	b	µg/L
0604230	0604230-6	PC28	Water	Methylene Chloride	12	7.1	19	B	U	b	µg/L
0604230	0604230-6	PC28	Water	Zinc	20	0.55	3.8	B	U	b	µg/L
0604230	0604230-6	PC28	Water	Thallium	0.2	0.016	0.024	B	U	b	µg/L-
0604230	0604230-6	PC28	Water	Mercury	0.2	0.0047	0.012	B	J-	b	µg/L
0604230	0604230-6	PC28	Water	Barium	100	0.17	17	B	UJ	b, e, j	µg/L
0604230	0604230-6	PC28	Water	U-234	0.0342		42.4		J+	b	pCi/L
0604230	0604230-6	PC28	Water	Nickel	20	0.99	4.8	B	U	b	µg/L
0605040	0605040-2	PC40	Water	Aluminum	100	6.8	58	B	U	b	µg/L
0605040	0605040-2	PC40	Water	Barium	100	0.17	23	B	U	b	µg/L
0605040	0605040-2	PC40	Water	Cobalt	10	0.75	1.6	B	J-	b	µg/L
0605040	0605040-2	PC40	Water	Nickel	20	0.99	4.3	B	U	b	µg/L
0605040	0605040-2	PC40	Water	Zinc	20	0.55	1.4	B	U	b	µg/L
0605040	0605040-2	PC40	Water	Titanium	20	0.54	8.4	B	U	b	µg/L
0605040	0605040-2	PC40	Water	Beryllium	2	0.028	0.25	B	U	b	µg/L
0605023	0605023-3	PC50	Water	Barium	100	0.17	28	B	U	b	µg/L
0605023	0605023-3	PC50	Water	Beryllium	2	0.028	0.35	B	U	b	µg/L
0605023	0605023-3	PC50	Water	Nickel	20	0.99	6.7	B	U	b	µg/L
0605023	0605023-3	PC50	Water	Thallium	0.2	0.016	0.2	B	U	b	µg/L-
0605023	0605023-4	PC54	Water	Zinc	20	0.55	6.3	B	U	b	µg/L
0605023	0605023-4	PC54	Water	Titanium	20	0.54	18	B	U	b	µg/L
0605023	0605023-4	PC54	Water	Thallium	0.2	0.016	0.038	B	U	b	µg/L-

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0605023	0605023-4	PC54	Water	Nickel	20	0.99	8.4	B	U	b	µg/L
0605023	0605023-4	PC54	Water	Beryllium	2	0.028	0.35	B	U	b	µg/L
0605023	0605023-4	PC54	Water	Barium	100	0.17	14	B	U	b	µg/L
0604230	0604230-5	PC64	Water	U-234	0.0484		17.8		J+	b	pCi/L
0604230	0604230-5	PC64	Water	Mercury	0.2	0.0047	0.022	B	J-	b	µg/L
0604230	0604230-5	PC64	Water	Cobalt	10	0.75	0.76	B	J-	b	µg/L
0604230	0604230-5	PC64	Water	Beryllium	2	0.028	0.49	B	U	b	µg/L
0604230	0604230-5	PC64	Water	Barium	100	0.17	27	B	UJ	b, e, j	µg/L
0604230	0604230-5	PC64	Water	Zinc	20	0.55	7.3	B	U	b	µg/L
0604230	0604230-5	PC64	Water	Thallium	0.2	0.016	0.047	B	U	b	µg/L-
0604230	0604230-5	PC64	Water	Nickel	20	0.99	7.1	B	U	b	µg/L
0604230	0604230-1	PC67	Water	Barium	100	0.17	52	B	UJ	b, e, j	µg/L
0604230	0604230-1	PC67	Water	U-234	0.0984		82.8		J+	b	pCi/L
0604230	0604230-1	PC67	Water	Pb-214	7.03		7.27	LTJTI	J	b, o	pCi/L
0604230	0604230-1	PC67	Water	Beryllium	2	0.028	0.5	B	U	b	µg/L
0604230	0604230-1	PC67	Water	Cobalt	10	0.75	1.4	B	J-	b	µg/L
0604230	0604230-1	PC67	Water	Mercury	0.2	0.0047	0.011	B	J-	b	µg/L
0604230	0604230-1	PC67	Water	Thallium	0.2	0.016	0.07	B	U	b	µg/L-
0604230	0604230-1	PC67	Water	Nickel	20	0.99	7.6	B	U	b	µg/L
0604230	0604230-2	PC67Dup	Water	Mercury	0.2	0.0047	0.012	B	J-	b	µg/L
0604230	0604230-2	PC67Dup	Water	Nickel	20	0.99	8.2	B	U	b	µg/L
0604230	0604230-2	PC67Dup	Water	Beryllium	2	0.028	0.51	B	U	b	µg/L
0604230	0604230-2	PC67Dup	Water	Cobalt	10	0.75	2.2	B	J-	b	µg/L

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604230	0604230-2	PC67Dup	Water	U-234	0.147		80.2		J+	b	pCi/L
0604230	0604230-2	PC67Dup	Water	Barium	100	0.17	49	B	UJ	b, e, j	µg/L
0604230	0604230-2	PC67Dup	Water	Zinc	20	0.55	7.8	B	U	b	µg/L
0604230	0604230-2	PC67Dup	Water	Thallium	0.2	0.016	0.072	B	U	b	µg/L-
0605023	0605023-1	PC72	Water	Nickel	20	0.99	7.9	B	U	b	µg/L
0605023	0605023-1	PC72	Water	Thallium	0.2	0.016	0.036	B	U	b	µg/L-
0605023	0605023-1	PC72	Water	Beryllium	2	0.028	0.32	B	U	b	µg/L
0605023	0605023-1	PC72	Water	Titanium	20	0.54	5	B	U	b	µg/L
0605023	0605023-1	PC72	Water	Barium	100	0.17	9.7	B	U	b	µg/L
0605023	0605023-1	PC72	Water	Iron	100	14	61	B	U	b	µg/L
0605023	0605023-1	PC72	Water	Manganese	10	0.23	4.5	B	U	b	µg/L
0605023	0605023-1	PC72	Water	Zinc	20	0.55	3	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Molybdenum	10	1.2	6.4	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Chromium	10	0.6	0.99	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Selenium	5	3.2	3.8	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Cobalt	10	0.53	0.83	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Zinc	20	0.65	13	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Copper	10	0.61	4.3	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Lead	3	1.3	2.1	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Cadmium	5	0.27	0.34	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Arsenic	10	2.7	5.5	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Nickel	20	0.9	2.4	B	U	b	µg/L
0512095	0512095-2	Rinsate 01	Water	Vanadium	10	0.71	3.2	B	U	b	µg/L

TABLE B-7 (continued)
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512095	0512095-2	Rinsate 01S	Water	Molybdenum	0.01	0.00125	98		U	b	%Rec
0512095	0512095-2	Rinsate 01S	Water	Thallium	0.0002	1.48E-06	97		J+	b	%Rec
0512095	0512095-1	Source Water	Water	Copper	10	0.61	4.1	B	U	b	µg/L
0512095	0512095-1	Source Water	Water	Cobalt	10	0.53	0.72	B	U	b	µg/L
0512095	0512095-1	Source Water	Water	Thallium	0.2	0.015	0.036	B	J+	b	µg/L
0512095	0512095-1	Source Water	Water	Arsenic	10	2.7	5.5	B	U	b	µg/L
0512095	0512095-1	Source Water	Water	Nickel	20	0.9	2	B	U	b	µg/L
0512095	0512095-1	Source Water	Water	Vanadium	10	0.71	2.8	B	U	b	µg/L
0512095	0512095-1	Source Water	Water	Lead	3	1.3	2.4	B	U	b	µg/L
0604161	0604161-1	TMMW-101	Water	Beryllium	2	0.028	0.23	B	U	b	µg/L
0604161	0604161-1	TMMW-101	Water	Barium	100	0.17	13	B	U	b	µg/L
0604161	0604161-1	TMMW-101	Water	Nickel	20	0.99	2.6	B	U	b	µg/L
0604161	0604161-1	TMMW-101	Water	Thallium	0.2	0.016	0.023	B	U	b	µg/L
0604161	0604161-1	TMMW-101	Water	Zinc	20	0.55	1.3	B	J-	b	µg/L
0604161	0604161-1	TMMW-101	Water	U-234	0.037	0.037	10.1		J+	b	pCi/L
0604161	0604161-3	TMMW-102	Water	Manganese	10	0.23	4.9	B	J-	b	µg/L
0604161	0604161-3	TMMW-102	Water	U-234	0.0311	0.0311	6.95		J+	b	pCi/L
0604161	0604161-3	TMMW-102	Water	Barium	100	0.17	18	B	U	b	µg/L
0604161	0604161-3	TMMW-102	Water	Beryllium	2	0.028	0.2	B	U	b	µg/L
0604161	0604161-3	TMMW-102	Water	Titanium	20	0.54	8.1	B	J-	b	µg/L
0604161	0604161-3	TMMW-102	Water	Zinc	20	0.55	2.2	B	J-	b	µg/L
0604161	0604161-3	TMMW-102	Water	Thallium	0.2	0.016	0.024	B	U	b	µg/L
0604161	0604161-3	TMMW-102	Water	Nickel	20	0.99	1.2	B	U	b	µg/L

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604161	0604161-4	TMMW-103	Water	Barium	100	0.17	23	B	U	b	µg/L
0604161	0604161-4	TMMW-103	Water	Aluminum	100	6.8	58	B	U	b	µg/L
0604161	0604161-4	TMMW-103	Water	U-234	0.0362	0.0362	4.41		J+	b	pCi/L
0604161	0604161-4	TMMW-103	Water	Titanium	20	0.54	2.4	B	J-	b	µg/L
0604161	0604161-4	TMMW-103	Water	Thallium	0.2	0.016	0.022	B	U	b	µg/L
0604161	0604161-4	TMMW-103	Water	Manganese	10	0.23	0.92	B	J-	b	µg/L
0604161	0604161-4	TMMW-103	Water	Iron	100	14	37	B	U	b	µg/L
0604161	0604161-4	TMMW-103	Water	Copper	10	0.67	4.8	B	J-	b	µg/L
0604161	0604161-4	TMMW-103	Water	Beryllium	2	0.028	0.37	B	U	b	µg/L
0604178	0604178-1	TMMW-104	Water	Nickel	20	0.99	1.3	B	U	b	µg/L
0604178	0604178-1	TMMW-104	Water	Th-234	55.2	55.2	55.8	LTTI	J+	b	pCi/L
0604178	0604178-1	TMMW-104	Water	Barium	100	0.17	14	B	U	b	µg/L
0604178	0604178-1	TMMW-104	Water	Beryllium	2	0.028	0.13	B	U	b	µg/L
0604178	0604178-1	TMMW-104	Water	Manganese	10	0.23	9.9	B	U	b	µg/L
0604178	0604178-1	TMMW-104	Water	Thallium	0.2	0.016	0.032	B	U	b	µg/L
0604178	0604178-1	TMMW-104	Water	Zinc	20	0.55	0.65	B	U	b	µg/L
0604178	0604178-1	TMMW-104	Water	Titanium	20	0.54	13	B	J-	b	µg/L
0604178	0604178-1	TMMW-104	Water	U-234	0.0258	0.0258	4.32		J+	b	pCi/L
0512122	0512122-1	TMSB-101-01	Soil	U-234	0.042		0.956		J+	b	pCi/g
0512122	0512122-1	TMSB-101-01	Soil	Molybdenum	1.1	0.13	0.37	B	U	b	mg/kg
0512122	0512122-1	TMSB-101-01	Soil	Mercury	0.036	0.00066	0.023	B	J-	b	mg/kg
0512122	0512122-2	TMSB-101-05	Soil	Mercury	0.038	0.00068	0.01	B	J-	b	mg/kg
0512122	0512122-2	TMSB-101-05	Soil	U-234	0.0541		1.46		J+	b	pCi/g

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512122	0512122-2	TMSB-101-05	Soil	Molybdenum	1.1	0.14	0.14	B	U	b	mg/kg
0512122	0512122-2	TMSB-101-05	Soil	Chromium	1.1	0.066	9.4		J-	b	mg/kg
0512122	0512122-3	TMSB-101-10	Soil	U-234	0.0356		1.51		J+	b	pCi/g
0512122	0512122-3	TMSB-101-10	Soil	Chromium	1.1	0.064	9.1		J-	b	mg/kg
0512122	0512122-3	TMSB-101-10	Soil	Mercury	0.035	0.00063	0.0054	B	J-	b	mg/kg
0606031	0606031-7	TMSB-101-20	Soil	Thallium	1.1	0.43	0.45	B	U	b	mg/kg
0606031	0606031-8	TMSB-101-40	Soil	Antimony	2.1	0.44	0.7	B	U	b	mg/kg
0606031	0606031-8	TMSB-101-40	Soil	Thallium	2.1	0.85	2.1	B	U	b	mg/kg
0606031	0606031-9	TMSB-101-70	Soil	Antimony	2.5	0.52	0.7	B	U	b	mg/kg
0606031	0606031-9	TMSB-101-70	Soil	Molybdenum	1.3	0.17	1.1	B	U	b	mg/kg
0512108	0512108-1	TMSB-102-01	Soil	U-234	0.0391		0.913		J+	b	pCi/g
0512108	0512108-1	TMSB-102-01	Soil	Mercury	0.035	0.00064	0.003	B	J-	b	mg/kg
0512108	0512108-1	TMSB-102-01	Soil	Molybdenum	1.1	0.13	0.35	B	U	b	mg/kg
0512108	0512108-1	TMSB-102-01	Soil	Antimony	2.1	0.44	0.46	B	UJ	b, e	mg/kg
0512108	0512108-2	TMSB-102-05	Soil	U-234	0.04		1.1		J+	b	pCi/g
0512108	0512108-2	TMSB-102-05	Soil	Antimony	2.2	0.46	0.7	B	UJ	b, e	mg/kg
0512108	0512108-2	TMSB-102-05	Soil	Mercury	0.037	0.00067	0.0032	B	J-	b	mg/kg
0512108	0512108-3	TMSB-102-10	Soil	Mercury	0.036	0.00065	0.036	U	J-	b	mg/kg
0512108	0512108-3	TMSB-102-10	Soil	Antimony	2.2	0.45	0.95	B	UJ	b, e	mg/kg
0512108	0512108-3	TMSB-102-10	Soil	U-234	0.0498		1.49		J+	b	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	Antimony	2.1	0.42	0.45	B	U	b	mg/kg
0606031	0606031-1	TMSB-102-20	Soil	Thallium	1	0.41	0.47	B	U	b	mg/kg
0606031	0606031-2	TMSB-102-40	Soil	Antimony	2.1	0.44	0.47	B	U	b	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-2	TMSB-102-40	Soil	Molybdenum	1.1	0.15	0.32	B	U	b	mg/kg
0606031	0606031-3	TMSB-102-65	Soil	Molybdenum	1	0.14	0.49	B	U	b	mg/kg
0512108	0512108-15	TMSB-103-01	Soil	U-234	0.0271		0.913		J+	b	pCi/g
0512108	0512108-15	TMSB-103-01	Soil	Antimony	2.1	0.44	0.72	B	UJ	b, e	mg/kg
0512108	0512108-15	TMSB-103-01	Soil	Molybdenum	1	0.13	0.33	B	U	b	mg/kg
0512108	0512108-15	TMSB-103-01	Soil	Mercury	0.035	0.00064	0.0015	B	J-	b	mg/kg
0512108	0512108-16	TMSB-103-05	Soil	U-234	0.0377		1.12		J+	b	pCi/g
0512108	0512108-16	TMSB-103-05	Soil	Antimony	2.1	0.44	0.51	B	UJ	b, e	mg/kg
0512108	0512108-16	TMSB-103-05	Soil	Molybdenum	1.1	0.13	0.3	B	U	b	mg/kg
0512108	0512108-16	TMSB-103-05	Soil	Mercury	0.037	0.00066	0.012	B	J-	b	mg/kg
0512108	0512108-17	TMSB-103-10	Soil	Antimony	2.1	0.45	0.54	B	UJ	b, e	mg/kg
0512108	0512108-17	TMSB-103-10	Soil	Molybdenum	1.1	0.13	0.16	B	U	b	mg/kg
0512108	0512108-17	TMSB-103-10	Soil	U-234	0.03		1.05		J+	b	pCi/g
0512108	0512108-17	TMSB-103-10	Soil	Mercury	0.036	0.00065	0.0027	B	J-	b	mg/kg
0606031	0606031-4	TMSB-103-20	Soil	Antimony	2	0.41	0.77	B	U	b	mg/kg
0606031	0606031-5	TMSB-103-40	Soil	Antimony	2.2	0.44	0.45	B	U	b	mg/kg
0606031	0606031-5	TMSB-103-40	Soil	Molybdenum	1.1	0.15	0.27	B	U	b	mg/kg
0606031	0606031-6	TMSB-103-65	Soil	Molybdenum	1.1	0.16	0.32	B	U	b	mg/kg
0512100	0512100-1	TMSB-104-01	Soil	Antimony	2.1	0.44	0.6	B	UJ	b, e	mg/kg
0512100	0512100-1	TMSB-104-01	Soil	Mercury	0.035	0.00064	0.0096	B	J-	b	mg/kg
0512100	0512100-1	TMSB-104-01	Soil	Selenium	0.53	0.34	0.4	B	U	b	mg/kg
0512100	0512100-1	TMSB-104-01	Soil	Thallium	1.1	0.37	0.43	B	U	b	mg/kg
0512100	0512100-1	TMSB-104-01	Soil	Molybdenum	1.1	0.13	0.53	B	U	b	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512100	0512100-2	TMSB-104-05	Soil	Mercury	0.035	0.00063	0.003	B	J-	b	mg/kg
0512100	0512100-2	TMSB-104-05	Soil	Selenium	0.52	0.33	0.49	B	U	b	mg/kg
0512100	0512100-2	TMSB-104-05	Soil	Molybdenum	1	0.13	0.33	B	U	b	mg/kg
0512100	0512100-3	TMSB-104-10	Soil	Mercury	0.037	0.00066	0.011	B	J-	b	mg/kg
0512100	0512100-3	TMSB-104-10	Soil	Molybdenum	1.1	0.14	0.22	B	U	b	mg/kg
0606030	0606030-9	TMSB-104-20	Soil	Antimony	2.1	0.43	1.2	B	J-	b, e	mg/kg
0606030	0606030-9	TMSB-104-20	Soil	Antimony	2.1	0.43	1.2	B	J-	b, e	mg/kg
0606030	0606030-10	TMSB-104-40	Soil	U-235	0.0467		0.112		UJ	b, h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	U-235	0.0467		0.112		UJ	b, h	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Antimony	2	0.41	0.64	B	J-	b, e	mg/kg
0606030	0606030-10	TMSB-104-40	Soil	Antimony	2	0.41	0.64	B	J-	b, e	mg/kg
0606030	0606030-11	TMSB-104-65	Soil	U-235	0.0363		0.0531	LT	UJ	b, h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	U-235	0.0363		0.0531	LT	UJ	b, h	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Molybdenum	1.1	0.15	0.46	B	U	b	mg/kg
0606030	0606030-11	TMSB-104-65	Soil	Molybdenum	1.1	0.15	0.46	B	U	b	mg/kg
0606030	0606030-11	TMSB-104-65	Soil	Antimony	2.2	0.45	0.64	B	J-	b, e	mg/kg
0606030	0606030-11	TMSB-104-65	Soil	Antimony	2.2	0.45	0.64	B	J-	b, e	mg/kg
0512045	0512045-1	TMSB-105-01	Soil	Mercury	0.035	0.00064	0.0072	B	J-	b	mg/kg
0512045	0512045-1	TMSB-105-01	Soil	Antimony	2.1	0.44	1	B	J	b	mg/kg
0512045	0512045-1	TMSB-105-01	Soil	Bi-214	0.248		1.15	GJ	J	b, o	pCi/g
0512045	0512045-1	TMSB-105-01	Soil	Pb-214	0.26		1.26	GJ	J	b, o	pCi/g
0512045	0512045-2	TMSB-105-05	Soil	Bi-214	0.234		1.3	GJ	J	b, o	pCi/g
0512045	0512045-2	TMSB-105-05	Soil	Pb-214	0.299		1.1	GJ	J	b, o	pCi/g

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512045	0512045-2	TMSB-105-05	Soil	Antimony	2.1	0.44	0.82	B	J	b	mg/kg
0512045	0512045-2	TMSB-105-05	Soil	Molybdenum	1.1	0.13	0.42	B	U	b	mg/kg
0512045	0512045-2	TMSB-105-05	Soil	Mercury	0.036	0.00064	0.011	B	J-	b	mg/kg
0512045	0512045-3	TMSB-105-10	Soil	Bi-214	0.298		1.14	GJ	J	b, o	pCi/g
0512045	0512045-3	TMSB-105-10	Soil	Pb-214	0.327		1.29	GJ	J	b, o	pCi/g
0512045	0512045-3	TMSB-105-10	Soil	Mercury	0.038	0.00068	0.0068	B	J-	b	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	U-235	0.0355		0.079	LT	UJ	b, h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	U-235	0.0355		0.079	LT	UJ	b, h	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Thallium	1.1	0.43	0.6	B	U	b	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Thallium	1.1	0.43	0.6	B	U	b	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Molybdenum	1.1	0.15	0.65	B	U	b	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Molybdenum	1.1	0.15	0.65	B	U	b	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Antimony	2.2	0.44	0.71	B	J-	b, e	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Antimony	2.2	0.44	0.71	B	J-	b, e	mg/kg
0512057	0512057-1	TMSB-106-01	Soil	U-234	0.0374		1.03		J+	b	pCi/g
0512057	0512057-1	TMSB-106-01	Soil	Molybdenum	1	0.13	0.72	B	U	b	mg/kg
0512057	0512057-1	TMSB-106-01	Soil	Mercury	0.035	0.00063	0.0086	B	J+	b	mg/kg
0512057	0512057-2	TMSB-106-05	Soil	U-234	0.0349		1.03		J+	b	pCi/g
0512057	0512057-2	TMSB-106-05	Soil	Molybdenum	1.1	0.14	0.33	B	U	b	mg/kg
0512057	0512057-2	TMSB-106-05	Soil	Mercury	0.036	0.00066	0.0046	B	J+	b	mg/kg
0512057	0512057-3	TMSB-106-10	Soil	U-234	0.0142		1.2		J+	b	pCi/g
0512057	0512057-3	TMSB-106-10	Soil	Molybdenum	1.1	0.14	0.78	B	U	b	mg/kg
0512057	0512057-3	TMSB-106-10	Soil	Mercury	0.037	0.00067	0.01	B	J+	b	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-2	TMSB-106-25	Soil	U-235	0.035		0.0579	LT	UJ	b, h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	U-235	0.035		0.0579	LT	UJ	b, h	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Thallium	1.1	0.43	0.63	B	U	b	mg/kg
0606030	0606030-2	TMSB-106-25	Soil	Thallium	1.1	0.43	0.63	B	U	b	mg/kg
0606030	0606030-2	TMSB-106-25	Soil	Molybdenum	1.1	0.15	0.47	B	U	b	mg/kg
0606030	0606030-2	TMSB-106-25	Soil	Molybdenum	1.1	0.15	0.47	B	U	b	mg/kg
0606030	0606030-2	TMSB-106-25	Soil	Antimony	2.2	0.45	0.54	B	J-	b, e	mg/kg
0606030	0606030-2	TMSB-106-25	Soil	Antimony	2.2	0.45	0.54	B	J-	b, e	mg/kg
0512057	0512057-7	TMSB-107-01	Soil	U-234	0.0284		1.13		J+	b	pCi/g
0512057	0512057-7	TMSB-107-01	Soil	Molybdenum	1.1	0.13	0.45	B	U	b	mg/kg
0512057	0512057-7	TMSB-107-01	Soil	Mercury	0.035	0.00063	0.0064	B	J+	b	mg/kg
0512057	0512057-8	TMSB-107-05	Soil	U-234	0.0573		1.48		J+	b	pCi/g
0512057	0512057-8	TMSB-107-05	Soil	Molybdenum	1	0.13	1.2		U	b	mg/kg
0512057	0512057-8	TMSB-107-05	Soil	Mercury	0.035	0.00064	0.0069	B	J+	b	mg/kg
0512057	0512057-9	TMSB-107-10	Soil	U-235	0.0431		0.0471	LT	J+	b	pCi/g
0512057	0512057-9	TMSB-107-10	Soil	Mercury	0.037	0.00067	0.003	B	J+	b	mg/kg
0512057	0512057-9	TMSB-107-10	Soil	Molybdenum	1.1	0.14	0.49	B	U	b	mg/kg
0606030	0606030-3	TMSB-107-25	Soil	U-235	0.0439		0.105		UJ	b, h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	U-235	0.0439		0.105		UJ	b, h	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Thallium	1.1	0.43	0.9	B	U	b	mg/kg
0606030	0606030-3	TMSB-107-25	Soil	Thallium	1.1	0.43	0.9	B	U	b	mg/kg
0606030	0606030-3	TMSB-107-25	Soil	Molybdenum	1.1	0.15	0.56	B	U	b	mg/kg
0606030	0606030-3	TMSB-107-25	Soil	Molybdenum	1.1	0.15	0.56	B	U	b	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-3	TMSB-107-25	Soil	Antimony	2.2	0.44	0.51	B	J-	b, e	mg/kg
0606030	0606030-3	TMSB-107-25	Soil	Antimony	2.2	0.44	0.51	B	J-	b, e	mg/kg
0512083	0512083-9	TMSB-108-01	Soil	Mercury	0.035	0.00064	0.0091	B	J-	b	mg/kg
0512083	0512083-9	TMSB-108-01	Soil	Molybdenum	1.1	0.13	0.75	B	U	b	mg/kg
0512083	0512083-9	TMSB-108-01	Soil	U-234	0.0353		1.25		J+	b	pCi/g
0512083	0512083-10	TMSB-108-05	Soil	Mercury	0.036	0.00066	0.011	B	J-	b	mg/kg
0512083	0512083-10	TMSB-108-05	Soil	Molybdenum	1.1	0.14	0.24	B	U	b	mg/kg
0512083	0512083-10	TMSB-108-05	Soil	U-234	0.0353		1.05		J+	b	pCi/g
0512083	0512083-11	TMSB-108-10	Soil	U-234	0.0247		1.3		J+	b	pCi/g
0512083	0512083-11	TMSB-108-10	Soil	Molybdenum	1.1	0.14	0.2	B	U	b	mg/kg
0512083	0512083-11	TMSB-108-10	Soil	Mercury	0.037	0.00066	0.032	B	J-	b	mg/kg
0606030	0606030-5	TMSB-108-30	Soil	U-235	0.018		0.0465	LT	UJ	b, h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	U-235	0.018		0.0465	LT	UJ	b, h	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Molybdenum	1.1	0.15	0.57	B	U	b	mg/kg
0606030	0606030-5	TMSB-108-30	Soil	Molybdenum	1.1	0.15	0.57	B	U	b	mg/kg
0606030	0606030-5	TMSB-108-30	Soil	Antimony	2.1	0.43	0.53	B	J-	b, e	mg/kg
0606030	0606030-5	TMSB-108-30	Soil	Antimony	2.1	0.43	0.53	B	J-	b, e	mg/kg
0512083	0512083-16	TMSB-109-01	Soil	U-234	0.0642		3.03		J+	b	pCi/g
0512083	0512083-16	TMSB-109-01	Soil	Mercury	0.036	0.00065	0.012	B	J-	b	mg/kg
0512083	0512083-17	TMSB-109-05	Soil	U-234	0.0447		0.985		J+	b	pCi/g
0512083	0512083-17	TMSB-109-05	Soil	Molybdenum	1.1	0.13	0.92	B	U	b	mg/kg
0512083	0512083-17	TMSB-109-05	Soil	Mercury	0.036	0.00065	0.012	B	J-	b	mg/kg
0512083	0512083-18	TMSB-109-10	Soil	Molybdenum	1.1	0.14	0.25	B	U	b	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512083	0512083-18	TMSB-109-10	Soil	Mercury	0.036	0.00065	0.0091	B	J-	b	mg/kg
0512083	0512083-18	TMSB-109-10	Soil	U-234	0.0141		1.19		J+	b	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Thallium	1.1	0.41	0.86	B	U	b	mg/kg
0606030	0606030-6	TMSB-109-20	Soil	Thallium	1.1	0.41	0.86	B	U	b	mg/kg
0606030	0606030-7	TMSB-109-30	Soil	U-235	0.0537		0.0912	LT	UJ	b, h	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	U-235	0.0537		0.0912	LT	UJ	b, h	pCi/g
0512083	0512083-1	TMSB-110-01	Soil	Mercury	0.036	0.00064	0.015	B	J-	b	mg/kg
0512083	0512083-1	TMSB-110-01	Soil	U-234	0.0139		1.15		J+	b	pCi/g
0512083	0512083-2	TMSB-110-05	Soil	U-234	0.0445		1.03		J+	b	pCi/g
0512083	0512083-2	TMSB-110-05	Soil	Molybdenum	1.1	0.13	0.23	B	U	b	mg/kg
0512083	0512083-2	TMSB-110-05	Soil	Mercury	0.035	0.00063	0.013	B	J-	b	mg/kg
0512083	0512083-3	TMSB-110-10	Soil	Mercury	0.036	0.00065	0.0079	B	J-	b	mg/kg
0512083	0512083-3	TMSB-110-10	Soil	Molybdenum	1.1	0.13	0.24	B	U	b	mg/kg
0512083	0512083-3	TMSB-110-10	Soil	U-234	0.0133		1.1		J+	b	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Thallium	1.1	0.43	0.6	B	U	b	mg/kg
0606030	0606030-4	TMSB-110-30	Soil	Thallium	1.1	0.43	0.6	B	U	b	mg/kg
0606030	0606030-4	TMSB-110-30	Soil	Antimony	2.2	0.44	0.54	B	J-	b, e	mg/kg
0606030	0606030-4	TMSB-110-30	Soil	Antimony	2.2	0.44	0.54	B	J-	b, e	mg/kg
0512095	0512095-4	TMSB-111-01	Soil	Molybdenum	1.1	0.13	0.6	B	U	b	mg/kg
0512095	0512095-4	TMSB-111-01	Soil	Mercury	0.035	0.00064	0.0048	B	J	b, f	mg/kg
0512095	0512095-5	TMSB-111-05	Soil	Mercury	0.036	0.00066	0.0052	B	J	b, f	mg/kg
0512095	0512095-5	TMSB-111-05	Soil	Molybdenum	1.1	0.13	0.29	B	U	b	mg/kg
0512095	0512095-6	TMSB-111-10	Soil	Mercury	0.037	0.00067	0.0059	B	J	b, f	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512095	0512095-6	TMSB-111-10	Soil	Molybdenum	1.1	0.14	0.3	B	U	b	mg/kg
0606030	0606030-8	TMSB-111-35	Soil	U-235	0.0462		0.0979	LT	UJ	b, h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	U-235	0.0462		0.0979	LT	UJ	b, h	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Antimony	2.2	0.44	0.79	B	J-	b, e	mg/kg
0606030	0606030-8	TMSB-111-35	Soil	Antimony	2.2	0.44	0.79	B	J-	b, e	mg/kg
0512100	0512100-15	TMSB-112-01	Soil	Molybdenum	1	0.13	0.73	B	U	b	mg/kg
0512100	0512100-15	TMSB-112-01	Soil	Mercury	0.035	0.00063	0.0089	B	J-	b	mg/kg
0512100	0512100-16	TMSB-112-05	Soil	Molybdenum	1.1	0.13	0.28	B	U	b	mg/kg
0512100	0512100-16	TMSB-112-05	Soil	Mercury	0.035	0.00063	0.0016	B	J-	b	mg/kg
0512100	0512100-17	TMSB-112-10	Soil	Mercury	0.037	0.00066	0.0015	B	J-	b	mg/kg
0512100	0512100-17	TMSB-112-10	Soil	Molybdenum	1.1	0.13	0.29	B	U	b	mg/kg
0606030	0606030-12	TMSB-112-35	Soil	U-235	0.0541		0.0691	LT	UJ	b, h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	U-235	0.0541		0.0691	LT	UJ	b, h	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Thallium	2.1	0.84	1.9	B	U	b	mg/kg
0606030	0606030-12	TMSB-112-35	Soil	Thallium	2.1	0.84	1.9	B	U	b	mg/kg
0606030	0606030-12	TMSB-112-35	Soil	Molybdenum	1.1	0.15	0.21	B	U	b	mg/kg
0606030	0606030-12	TMSB-112-35	Soil	Molybdenum	1.1	0.15	0.21	B	U	b	mg/kg
0601073	0601073-12	TMSB-113-01	Soil	Th-230	0.0948		1.14		J+	b, e	pCi/g
0601073	0601073-13	TMSB-113-05	Soil	Molybdenum	1.1	0.092	0.63	B	U	b	mg/kg
0601073	0601073-13	TMSB-113-05	Soil	Th-230	0.0962		1.31		J+	b, e	pCi/g
0601073	0601073-13	TMSB-113-05	Soil	Mercury	0.036	0.00066	0.021	B	U	b	mg/kg
0601073	0601073-14	TMSB-113-10	Soil	Th-230	0.116		0.887	M3	J+	b, e	pCi/g
0601073	0601073-14	TMSB-113-10	Soil	Mercury	0.036	0.00066	0.018	B	U	b	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601073	0601073-14	TMSB-113-10	Soil	Molybdenum	1.1	0.092	0.18	B	U	b	mg/kg
0606032	0606032-8	TMSB-113-20	Soil	Molybdenum	1.1	0.15	0.33	B	U	b	mg/kg
0606032	0606032-8	TMSB-113-20	Soil	Antimony	2.1	0.43	0.88	B	U	b	mg/kg
0606032	0606032-9	TMSB-113-40	Soil	Antimony	2.1	0.42	0.46	B	U	b	mg/kg
0606032	0606032-9	TMSB-113-40	Soil	Molybdenum	1	0.14	0.14	B	U	b	mg/kg
0601073	0601073-2	TMSB-113-43	Soil	Methylene Chloride	5.4	1.6	6.2	B	U	b	µg/kg
0601073	0601073-3	TMSB-115-01	Soil	Silver	1	0.067	0.19	B	J-	b	mg/kg
0601073	0601073-3	TMSB-115-01	Soil	Cadmium	0.51	0.018	0.087	B	J-	b	mg/kg
0601073	0601073-3	TMSB-115-01	Soil	Thallium	5.1	1.5	3.2	B	U	b	mg/kg
0601073	0601073-3	TMSB-115-01	Soil	Th-230	0.0831		1.51	Y2	J	b, e, n	pCi/g
0601073	0601073-4	TMSB-115-05	Soil	Th-230	0.0961		1.18		J+	b, e	pCi/g
0601073	0601073-4	TMSB-115-05	Soil	Silver	1.1	0.069	0.24	B	J-	b	mg/kg
0601073	0601073-4	TMSB-115-05	Soil	Molybdenum	1.1	0.09	0.68	B	U	b	mg/kg
0601073	0601073-4	TMSB-115-05	Soil	Mercury	0.036	0.00064	0.023	B	U	b	mg/kg
0601073	0601073-5	TMSB-115-10	Soil	Mercury	0.036	0.00064	0.012	B	U	b	mg/kg
0601073	0601073-5	TMSB-115-10	Soil	Th-230	0.0873		1.05		J+	b, e	pCi/g
0601073	0601073-5	TMSB-115-10	Soil	Molybdenum	1.1	0.092	0.23	B	U	b	mg/kg
0606032	0606032-6	TMSB-115-20	Soil	Molybdenum	1.1	0.15	0.31	B	U	b	mg/kg
0601073	0601073-10	TMSB-115-35	Soil	Methylene Chloride	5.4	1.6	5.8	B	U	b	µg/kg
0601073	0601073-11	TMSB-115-40	Soil	Methylene Chloride	5.3	1.6	5.3	JB	U	b	µg/kg
0606032	0606032-7	TMSB-115-40	Soil	Antimony	2.1	0.42	0.8	B	U	b	mg/kg
0606032	0606032-7	TMSB-115-40	Soil	Molybdenum	1	0.14	0.47	B	U	b	mg/kg
0601077	0601077-8	TMSB-116-01	Soil	Silver	1	0.068	0.21	B	J-	b	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601077	0601077-8	TMSB-116-01	Soil	Th-232	0.0303		1.87		J+	b	pCi/g
0601077	0601077-9	TMSB-116-05	Soil	Th-232	0.0268		1.69		J+	b	pCi/g
0601077	0601077-9	TMSB-116-05	Soil	Molybdenum	1.1	0.089	0.72	B	U	b	mg/kg
0601077	0601077-9	TMSB-116-05	Soil	Mercury	0.035	0.00063	0.018	B	U	b	mg/kg
0601077	0601077-10	TMSB-116-10	Soil	Methylene Chloride	5.4	1.6	5	JB	U	b	µg/kg
0601077	0601077-10	TMSB-116-10	Soil	Mercury	0.036	0.00064	0.016	B	U	b	mg/kg
0601077	0601077-10	TMSB-116-10	Soil	Molybdenum	1.1	0.09	0.28	B	U	b	mg/kg
0601077	0601077-10	TMSB-116-10	Soil	Th-232	0.0339		1.61		J+	b	pCi/g
0601077	0601077-13	TMSB-117-01	Soil	Mercury	0.035	0.00064	0.028	B	U	b	mg/kg
0601077	0601077-13	TMSB-117-01	Soil	Th-232	0.0309		1.87		J+	b	pCi/g
0601077	0601077-14	TMSB-117-05	Soil	Methylene Chloride	6.1	1.8	2.2	JB	U	b	µg/kg
0601077	0601077-14	TMSB-117-05	Soil	Th-232	0.0834		4.69		J+	b	pCi/g
0601077	0601077-15	TMSB-117-10	Soil	Methylene Chloride	5.5	1.7	4	JB	U	b	µg/kg
0601077	0601077-15	TMSB-117-10	Soil	Th-232	0.0296		1.71		J+	b	pCi/g
0601077	0601077-15	TMSB-117-10	Soil	Silver	1.1	0.07	0.67	B	J-	b	mg/kg
0601077	0601077-16	TMSB-117-15	Soil	Methylene Chloride	5.5	1.7	6.5	B	U	b	µg/kg
0606032	0606032-12	TMSB-117-20	Soil	Molybdenum	1.1	0.15	0.58	B	U	b	mg/kg
0606032	0606032-12	TMSB-117-20	Soil	Antimony	2.2	0.44	0.7	B	U	b	mg/kg
0606032	0606032-13	TMSB-117-30	Soil	Molybdenum	1.1	0.15	0.2	B	U	b	mg/kg
0606032	0606032-13	TMSB-117-30	Soil	Antimony	2.1	0.43	0.76	B	U	b	mg/kg
0606032	0606032-11	TMSB-117-45	Soil	Molybdenum	1.1	0.15	0.6	B	U	b	mg/kg
0601077	0601077-12	TMSB-117-45	Soil	Methylene Chloride	5.5	1.7	5	JB	U	b	µg/kg
0601047	0601047-1	TMSB-118-01	Soil	Th-230	0.0927		1.43		J+	b, e	pCi/g

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601047	0601047-2	TMSB-118-05	Soil	Th-230	0.164		4.99	M3	J+	b, e	pCi/g
0601047	0601047-2	TMSB-118-05	Soil	Antimony	6.2	0.48	1.8	B	J-	b, e	mg/kg
0601047	0601047-2	TMSB-118-05	Soil	Beryllium	0.52	0.0021	0.49	B	UJ	b, j	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Thallium	1	0.29	0.46	B	U	b	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Lead	3.1	1.2	1.4	B	J-	b	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Cobalt	2.1	0.099	1.6	B	UJ	b, j	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Beryllium	0.52	0.0021	0.12	B	UJ	b, j	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Th-230	0.108		1.83	M3	J+	b	pCi/g
0606031	0606031-10	TMSB-118-20	Soil	Silver	1.1	0.11	1	B	U	b	mg/kg
0606031	0606031-10	TMSB-118-20	Soil	Thallium	2.1	0.84	1.5	B	U	b	mg/kg
0606031	0606031-11	TMSB-118-30	Soil	Antimony	2.1	0.43	0.44	B	U	b	mg/kg
0606031	0606031-11	TMSB-118-30	Soil	Molybdenum	1.1	0.14	0.41	B	U	b	mg/kg
0606031	0606031-12	TMSB-118-45	Soil	Antimony	2.1	0.43	0.91	B	U	b	mg/kg
0606031	0606031-12	TMSB-118-45	Soil	Silver	1.1	0.11	0.11	B	U	b	mg/kg
0606031	0606031-12	TMSB-118-45	Soil	Molybdenum	1.1	0.15	0.59	B	U	b	mg/kg
0601047	0601047-12	TMSB-119-01	Soil	Cadmium	1	0.036	0.076	B	U	b	mg/kg
0601047	0601047-12	TMSB-119-01	Soil	Silver	1	0.067	0.47	B	J-	b	mg/kg
0601047	0601047-12	TMSB-119-01	Soil	Th-230	0.0849		1.43		J+	b, e	pCi/g
0601047	0601047-13	TMSB-119-05	Soil	Thallium	11	3.1	4.7	B	U	b	mg/kg
0601047	0601047-13	TMSB-119-05	Soil	Silver	1.1	0.07	0.13	B	J-	b	mg/kg
0601047	0601047-13	TMSB-119-05	Soil	Th-230	0.101		1.24	M3	J+	b, e	pCi/g
0601047	0601047-14	TMSB-119-10	Soil	Antimony	2.1	0.16	1.1	B	J-	b, e	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Th-230	0.0781		0.963		J+	b, e	pCi/g

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601047	0601047-14	TMSB-119-10	Soil	Lead	0.64	0.24	17		J-	b	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Cadmium	1.1	0.037	0.043	B	U	b	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Beryllium	0.53	0.0021	0.43	B	UJ	b, j	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Silver	1.1	0.069	0.22	B	J-	b	mg/kg
0601047	0601047-15	TMSB-120-01	Soil	Th-230	0.0823		1.34		J+	b, e	pCi/g
0601047	0601047-16	TMSB-120-05	Soil	Th-230	0.0958		3.8		J+	b, e	pCi/g
0601047	0601047-17	TMSB-120-10	Soil	Th-230	0.0996		8.1	Y2	J+	b, e	pCi/g
0606031	0606031-13	TMSB-120-20	Soil	Antimony	2.2	0.44	0.49	B	U	b	mg/kg
0606031	0606031-13	TMSB-120-20	Soil	Thallium	1.1	0.43	0.44	B	U	b	mg/kg
0606031	0606031-13	TMSB-120-20	Soil	Molybdenum	1.1	0.15	0.79	B	U	b	mg/kg
0606031	0606031-14	TMSB-120-30	Soil	Antimony	2.1	0.44	0.49	B	U	b	mg/kg
0606031	0606031-14	TMSB-120-30	Soil	Molybdenum	1.1	0.15	0.38	B	U	b	mg/kg
0606031	0606031-15	TMSB-120-40	Soil	Antimony	2.2	0.44	0.48	B	U	b	mg/kg
0606031	0606031-15	TMSB-120-40	Soil	Molybdenum	1.1	0.15	0.62	B	U	b	mg/kg
0601058	0601058-1	TMSB-121-01	Soil	Mercury	0.036	0.00064	0.024	B	J-	b	mg/kg
0601058	0601058-1	TMSB-121-01	Soil	Cadmium	0.53	0.019	0.16	B	U	b	mg/kg
0601058	0601058-1	TMSB-121-01	Soil	Beryllium	0.53	0.0021	0.49	B	U	b	mg/kg
0601058	0601058-1	TMSB-121-01	Soil	Antimony	2.1	0.16	0.59	B	J-	b, g	mg/kg
0601058	0601058-2	TMSB-121-05	Soil	Mercury	0.037	0.00067	0.032	B	J-	b	mg/kg
0601058	0601058-2	TMSB-121-05	Soil	Molybdenum	1.1	0.094	0.27	B	U	b	mg/kg
0601058	0601058-2	TMSB-121-05	Soil	Antimony	2.2	0.17	0.79	B	J-	b, g	mg/kg
0601058	0601058-3	TMSB-121-10	Soil	Molybdenum	1.1	0.092	0.27	B	U	b	mg/kg
0601058	0601058-3	TMSB-121-10	Soil	Antimony	2.2	0.17	1.1	B	J-	b, g	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601058	0601058-5	TMSB-121-20	Soil	Methylene Chloride	5.5	1.7	8.1	B	U	b	µg/kg
0606032	0606032-1	TMSB-121-20	Soil	Antimony	2.2	0.44	0.59	B	U	b	mg/kg
0606032	0606032-1	TMSB-121-20	Soil	Molybdenum	1.1	0.15	0.43	B	U	b	mg/kg
0601077	0601077-3	TMSB-123-01	Soil	Th-232	0.0505		3.48		J+	b	pCi/g
0601077	0601077-3	TMSB-123-01	Soil	Silver	1	0.068	0.95	B	J-	b	mg/kg
0601077	0601077-4	TMSB-123-05	Soil	Mercury	0.037	0.00066	0.025	B	U	b	mg/kg
0601077	0601077-4	TMSB-123-05	Soil	Silver	1.1	0.07	0.091	B	J-	b	mg/kg
0601077	0601077-4	TMSB-123-05	Soil	Th-232	0.0308		1.9		J+	b	pCi/g
0601077	0601077-5	TMSB-123-10	Soil	Molybdenum	1.1	0.093	0.46	B	U	b	mg/kg
0601077	0601077-5	TMSB-123-10	Soil	Th-232	0.0579		1.94		J+	b	pCi/g
0601077	0601077-5	TMSB-123-10	Soil	Mercury	0.036	0.00065	0.0077	B	U	b	mg/kg
0601077	0601077-6	TMSB-123-15	Soil	Methylene Chloride	5.5	1.7	5.2	JB	U	b	µg/kg
0606032	0606032-10	TMSB-123-20	Soil	Molybdenum	1.1	0.15	0.28	B	U	b	mg/kg
0606032	0606032-10	TMSB-123-20	Soil	Antimony	2.2	0.45	0.6	B	U	b	mg/kg
0601077	0601077-7	TMSB-123-20	Soil	Methylene Chloride	5.5	1.7	4.7	JB	U	b	µg/kg
0601058	0601058-6	TMSB-124-01	Soil	Antimony	6.3	0.49	0.54	B	J-	b, g	mg/kg
0601058	0601058-6	TMSB-124-01	Soil	Silver	1.1	0.069	0.098	B	J-	b, g	mg/kg
0601058	0601058-6	TMSB-124-01	Soil	Cadmium	0.53	0.019	0.056	B	U	b	mg/kg
0601058	0601058-7	TMSB-124-05	Soil	Antimony	2.2	0.17	0.55	B	J-	b, g	mg/kg
0601058	0601058-7	TMSB-124-05	Soil	Molybdenum	1.1	0.095	1.6		U	b	mg/kg
0601058	0601058-8	TMSB-124-10	Soil	Antimony	2.3	0.17	0.25	B	J-	b, g	mg/kg
0601058	0601058-8	TMSB-124-10	Soil	Mercury	0.038	0.00069	0.0045	B	J-	b	mg/kg
0606032	0606032-2	TMSB-124-20	Soil	Molybdenum	1.1	0.15	0.42	B	U	b	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-2	TMSB-124-20	Soil	Thallium	1.1	0.43	0.48	B	U	b	mg/kg
0601058	0601058-10	TMSB-124-20	Soil	Methylene Chloride	5.5	1.7	7.7	B	U	b	µg/kg
0601059	0601059-1	TMSB-125-01	Soil	Mercury	0.036	0.00065	0.013	B	J-	b	mg/kg
0601059	0601059-1	TMSB-125-01	Soil	Antimony	2.2	0.17	0.9	B	J-	b, e	mg/kg
0601059	0601059-2	TMSB-125-05	Soil	Molybdenum	1.1	0.094	0.24	B	U	b	mg/kg
0601059	0601059-2	TMSB-125-05	Soil	Mercury	0.037	0.00067	0.0037	B	J-	b	mg/kg
0601059	0601059-2	TMSB-125-05	Soil	Antimony	2.2	0.17	0.81	B	J-	b, e	mg/kg
0601059	0601059-3	TMSB-125-10	Soil	Methylene Chloride	5.5	1.7	6.7	B	U	b	µg/kg
0601059	0601059-3	TMSB-125-10	Soil	Mercury	0.036	0.00066	0.0037	B	J-	b	mg/kg
0601059	0601059-3	TMSB-125-10	Soil	Molybdenum	1.1	0.093	0.77	B	U	b	mg/kg
0601059	0601059-3	TMSB-125-10	Soil	Antimony	2.2	0.17	0.67	B	J-	b, e	mg/kg
0606032	0606032-3	TMSB-125-15	Soil	Antimony	2.2	0.45	0.52	B	U	b	mg/kg
0606032	0606032-3	TMSB-125-15	Soil	Molybdenum	1.1	0.15	0.63	B	U	b	mg/kg
0601059	0601059-5	TMSB-125-20	Soil	Methylene Chloride	5.6	1.7	6.2	B	U	b	µg/kg
0606032	0606032-4	TMSB-125-20	Soil	Molybdenum	1.1	0.15	0.28	B	U	b	mg/kg
0601059	0601059-6	TMSB-126-01	Soil	Silver	1	0.068	0.29	B	J-	b	mg/kg
0601059	0601059-7	TMSB-126-05	Soil	Antimony	2.2	0.17	0.55	B	J-	b, e	mg/kg
0601059	0601059-7	TMSB-126-05	Soil	Molybdenum	1.1	0.093	0.89	B	U	b	mg/kg
0601059	0601059-7	TMSB-126-05	Soil	Mercury	0.037	0.00066	0.015	B	J-	b	mg/kg
0601059	0601059-8	TMSB-126-10	Soil	Mercury	0.037	0.00066	0.0075	B	J-	b	mg/kg
0601059	0601059-8	TMSB-126-10	Soil	Thallium	1.1	0.32	0.39	B	J+	b	mg/kg
0601059	0601059-8	TMSB-126-10	Soil	Antimony	2.2	0.17	0.73	B	J-	b, e	mg/kg
0606032	0606032-5	TMSB-126-25	Soil	Molybdenum	1.1	0.15	0.31	B	U	b	mg/kg

TABLE B-7 (continued)
QUALIFICATIONS BASED ON LABOARATORY BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601059	0601059-11	TMSB-126-25	Soil	Methylene Chloride	5.5	1.7	6.5	B	U	b	µg/kg
0605023	0605023-2	Trip Blank	Water	Methylene Chloride	1	0.57	1.2	B	U	b	µg/L
0601077	0601077-1	TRW-1	Water	Thallium	0.2	0.025	0.031	B	U	b	µg/L
0601077	0601077-1	TRW-1	Water	Arsenic	2	0.081	1.5	B	U	b	µg/L
0601077	0601077-1	TRW-1	Water	Molybdenum	10	0.85	6.6	B	U	b	µg/L
0601077	0601077-1	TRW-1	Water	Vanadium	10	0.43	6.7	B	J-	b	µg/L
0601077	0601077-1	TRW-1	Water	Titanium	20	0.29	5.4	B	J-	b	µg/L
0601077	0601077-1	TRW-1	Water	Chromium	10	0.39	3	B	J-	b	µg/L
0601077	0601077-1	TRW-1	Water	Selenium	5	2.9	4.5	B	U	b	µg/L

Notes:

1 For radionuclides, the SQL is equal to the minimum detectable concentration that is reported in the PQL field.

+ Result is possibly biased high
- Result is possibly biased low
µg/kg Microgram per kilogram
µg/L Microgram per liter
% Rec Percent recovery
B Result less than the practical quantitation limit for metals and inorganics, and detected in associated laboratory blank for organics
b Comment code representing qualification due to associated laboratory blank contamination
e Comment code representing qualification due to spike recovery
f Comment code representing qualification due to field blank contamination
g Comment code representing qualification because results are less than the PQL
h Comment code representing qualification due to holding time exceedences
j Comment code representing qualification due to serial dilution results
J Value is estimated
LT Result is less than the requested MDC, but greater than the sample MDC; result is acceptable with no qualification.
MDC Minimum detectable concentration
mg/kg Milligram per kilogram
n Comment code representing qualification due to tracer yield
o Comment code representing qualification of radiochemistry data for reasons specified in table
pCi/g PicoCurie per gram
pCi/L PicoCurie per liter
PQL Practical quantitation limit
SDG Sample delivery group
SQL Sample quantitation limit
TI Tentative identification of analyte
U Undetected
UJ Undetected at estimated quantitation limit

TABLE B-8
QUALIFICATIONS BASED ON FIELD BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0512095	0512095-4	TMSB-111-01	Soil	Sodium	110	0.61	530		J+	f	mg/kg
0512095	0512095-4	TMSB-111-01	Soil	U-238	0.0368		0.986		J+	f	pCi/g
0512095	0512095-4	TMSB-111-01	Soil	U-234	0.0517		0.859		J+	f	pCi/g
0512095	0512095-4	TMSB-111-01	Soil	U-235	0.033		0.0773	LT	J+	f	pCi/g
0512095	0512095-4	TMSB-111-01	Soil	Bi-212	1.55		2.23	LTTI	J+	f	pCi/g
0512095	0512095-4	TMSB-111-01	Soil	Th-230	0.0961		1.07		J+	f	pCi/g
0512095	0512095-4	TMSB-111-01	Soil	Th-232	0.0312		1.5		J+	f	pCi/g
0512095	0512095-4	TMSB-111-01	Soil	Calcium	110	0.36	21,000		J+	f	mg/kg
0512095	0512095-4	TMSB-111-01	Soil	Potassium	110	7.2	3,000		J+	f	mg/kg
0512095	0512095-4	TMSB-111-01	Soil	Uranium	0.011	0.0005	0.77		J+	f	mg/kg
0512095	0512095-4	TMSB-111-01	Soil	Mercury	0.035	0.00064	0.0048	B	J	b, f	mg/kg
0512095	0512095-4	TMSB-111-01	Soil	Perchlorate	0.042	0.025	0.29		J+	f	mg/kg
0512095	0512095-4	TMSB-111-01	Soil	Magnesium	110	0.75	12,000		J+	f	mg/kg
0512095	0512095-5	TMSB-111-05	Soil	Th-232	0.0316		1.53		J+	f	pCi/g
0512095	0512095-5	TMSB-111-05	Soil	U-238	0.0238		1.05		J+	f	pCi/g
0512095	0512095-5	TMSB-111-05	Soil	U-234	0.0238		0.89		J+	f	pCi/g
0512095	0512095-5	TMSB-111-05	Soil	Th-230	0.0863		0.869		J+	f	pCi/g
0512095	0512095-5	TMSB-111-05	Soil	Magnesium	110	0.77	10,000		J+	f	mg/kg
0512095	0512095-5	TMSB-111-05	Soil	Potassium	110	7.3	1,700		J+	f	mg/kg
0512095	0512095-5	TMSB-111-05	Soil	Sodium	110	0.62	1,200		J+	f	mg/kg
0512095	0512095-5	TMSB-111-05	Soil	Uranium	0.011	0.00051	0.82		J+	f	mg/kg
0512095	0512095-5	TMSB-111-05	Soil	Mercury	0.036	0.00066	0.0052	B	J	b, f	mg/kg
0512095	0512095-5	TMSB-111-05	Soil	Calcium	110	0.37	23,000		J+	f	mg/kg

TABLE B-8 (continued)
QUALIFICATIONS BASED ON FIELD BLANK CONTAMINATION
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0512095	0512095-5	TMSB-111-05	Soil	U-235	0.0236		0.0414	LT	J+	f	pCi/g
0512095	0512095-6	TMSB-111-10	Soil	Th-230	0.105		1.05	M3	J+	f	pCi/g
0512095	0512095-6	TMSB-111-10	Soil	U-238	0.0197		1.15		J+	f	pCi/g
0512095	0512095-6	TMSB-111-10	Soil	Mercury	0.037	0.00067	0.0059	B	J	b, f	mg/kg
0512095	0512095-6	TMSB-111-10	Soil	U-235	0.0232		0.0732	LT	J+	f	pCi/g
0512095	0512095-6	TMSB-111-10	Soil	Th-232	0.0427		1.66		J+	f	pCi/g
0512095	0512095-6	TMSB-111-10	Soil	Calcium	110	0.39	32,000		J+	f	mg/kg
0512095	0512095-6	TMSB-111-10	Soil	Magnesium	110	0.8	11000		J+	f	mg/kg
0512095	0512095-6	TMSB-111-10	Soil	Potassium	110	7.6	2000		J+	f	mg/kg
0512095	0512095-6	TMSB-111-10	Soil	Sodium	110	0.64	1000		J+	f	mg/kg
0512095	0512095-6	TMSB-111-10	Soil	Uranium	0.011	0.00053	1.3		J+	f	mg/kg
0512095	0512095-6	TMSB-111-10	Soil	U-234	0.0234		1.21		J+	f	pCi/g
0512095	0512095-11	TMSB-111-35	Soil	Perchlorate	0.044	0.025	0.073		J+	f	mg/kg

Notes:

1 For radionuclides, the SQL is equal to the minimum detectable concentration that is reported in the PQL field.

+ Result is possibly biased high

B Result less than the practical quantitation limit for metals and inorganics, and detected in associated laboratory blank for organics

b Comment code representing qualification due to associated laboratory blank contamination

f Comment code representing qualification due to field blank contamination

J Value is estimated

LT Result is less than the requested MDC, but greater than the sample MDC; result is acceptable with no qualification.

M3 Requested MDC was not met, but the result is greater than the sample-specific MDC

MDC Minimum detectable concentration

mg/kg Milligram per kilogram

pCi/g PicoCurie per gram

PQL Practical quantitation limit

SDG Sample delivery group

SQL Sample quantitation limit

TI Tentative identification of analyte

TABLE B-9
QUALIFICATIONS BASED ON MATRIX SPIKE OR CONTROL SAMPLE RECOVERY EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604230	0604230-3	J2U2	Water	Potassium	1000	74	18000		J+	e	µg/L
0604230	0604230-3	J2U2	Water	Barium	100	0.17	25	B	UJ	b, e, j	µg/L
0604230	0604230-3	J2U2	Water	Aluminum	100	6.8	130		J+	e	µg/L
0605007	0605007-3	PC12	Water	Mercury	0.2	0.0047	0.2	U	UJ	e	µg/L
0605007	0605007-1	PC17	Water	Mercury	0.2	0.0047	0.016	B	UJ	b, e	µg/L
0604230	0604230-6	PC28	Water	Potassium	1000	74	16000		J+	e	µg/L
0604230	0604230-6	PC28	Water	Barium	100	0.17	17	B	UJ	b, e, j	µg/L
0604230	0604230-6	PC28	Water	Aluminum	100	6.8	560		J+	e	µg/L
0604230	0604230-5	PC64	Water	Potassium	1000	74	27000		J+	e	µg/L
0604230	0604230-5	PC64	Water	Barium	100	0.17	27	B	UJ	b, e, j	µg/L
0604230	0604230-5	PC64	Water	Aluminum	100	6.8	1500		J+	e	µg/L
0604230	0604230-1	PC67	Water	Potassium	3000	220	51000		J+	e	µg/L
0604230	0604230-1	PC67	Water	Barium	100	0.17	52	B	UJ	b, e, j	µg/L
0604230	0604230-1	PC67	Water	Aluminum	100	6.8	2100		J+	e	µg/L
0604230	0604230-2	PC67Dup	Water	Aluminum	100	6.8	1900		J+	e	µg/L
0604230	0604230-2	PC67Dup	Water	Barium	100	0.17	49	B	UJ	b, e, j	µg/L
0604230	0604230-2	PC67Dup	Water	Potassium	1000	74	51000		J+	e	µg/L
0512108	0512108-1	TMSB-102-01	Soil	Antimony	2.1	0.44	0.46	B	UJ	b, e	mg/kg
0512108	0512108-2	TMSB-102-05	Soil	Antimony	2.2	0.46	0.7	B	UJ	b, e	mg/kg
0512108	0512108-3	TMSB-102-10	Soil	Antimony	2.2	0.45	0.95	B	UJ	b, e	mg/kg
0512108	0512108-15	TMSB-103-01	Soil	Antimony	2.1	0.44	0.72	B	UJ	b, e	mg/kg
0512108	0512108-16	TMSB-103-05	Soil	Antimony	2.1	0.44	0.51	B	UJ	b, e	mg/kg
0512108	0512108-17	TMSB-103-10	Soil	Antimony	2.1	0.45	0.54	B	UJ	b, e	mg/kg

TABLE B-9 (continued)
QUALIFICATIONS BASED ON MATRIX SPIKE OR CONTROL SAMPLE RECOVERY EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512100	0512100-1	TMSB-104-01	Soil	Antimony	2.1	0.44	0.6	B	UJ	b, e	mg/kg
0512100	0512100-2	TMSB-104-05	Soil	Antimony	2.1	0.43	0.67	B	J	e	mg/kg
0512100	0512100-3	TMSB-104-10	Soil	Antimony	2.2	0.46	2.2	U	UJ	e	mg/kg
0606030	0606030-9	TMSB-104-20	Soil	Antimony	2.1	0.43	1.2	B	J-	b, e	mg/kg
0606030	0606030-9	TMSB-104-20	Soil	Antimony	2.1	0.43	1.2	B	J-	b, e	mg/kg
0606030	0606030-10	TMSB-104-40	Soil	Antimony	2	0.41	0.64	B	J-	b, e	mg/kg
0606030	0606030-10	TMSB-104-40	Soil	Antimony	2	0.41	0.64	B	J-	b, e	mg/kg
0606030	0606030-11	TMSB-104-65	Soil	Antimony	2.2	0.45	0.64	B	J-	b, e	mg/kg
0606030	0606030-11	TMSB-104-65	Soil	Antimony	2.2	0.45	0.64	B	J-	b, e	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Antimony	2.2	0.44	0.71	B	J-	b, e	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Antimony	2.2	0.44	0.71	B	J-	b, e	mg/kg
0606030	0606030-2	TMSB-106-25	Soil	Antimony	2.2	0.45	0.54	B	J-	b, e	mg/kg
0606030	0606030-2	TMSB-106-25	Soil	Antimony	2.2	0.45	0.54	B	J-	b, e	mg/kg
0606030	0606030-3	TMSB-107-25	Soil	Antimony	2.2	0.44	0.51	B	J-	b, e	mg/kg
0606030	0606030-3	TMSB-107-25	Soil	Antimony	2.2	0.44	0.51	B	J-	b, e	mg/kg
0512083	0512083-9	TMSB-108-01	Soil	Antimony	2.1	0.44	0.99	B	J	e, g	mg/kg
0512083	0512083-10	TMSB-108-05	Soil	Antimony	2.2	0.45	0.74	B	J	e, g	mg/kg
0512083	0512083-11	TMSB-108-10	Soil	Antimony	2.2	0.46	0.6	B	J	e, j	mg/kg
0606030	0606030-5	TMSB-108-30	Soil	Antimony	2.1	0.43	0.53	B	J-	b, e	mg/kg
0606030	0606030-5	TMSB-108-30	Soil	Antimony	2.1	0.43	0.53	B	J-	b, e	mg/kg
0512083	0512083-16	TMSB-109-01	Soil	Antimony	4.3	0.9	4.3	U	UJ	e	mg/kg
0512083	0512083-17	TMSB-109-05	Soil	Antimony	4.3	0.9	1.3	B	J	e, g	mg/kg
0512083	0512083-18	TMSB-109-10	Soil	Antimony	2.2	0.45	0.77	B	J	e, g	mg/kg

TABLE B-9 (continued)
QUALIFICATIONS BASED ON MATRIX SPIKE OR CONTROL SAMPLE RECOVERY EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-6	TMSB-109-20	Soil	Antimony	2.1	0.43	2.1	U	UJ	e	mg/kg
0606030	0606030-6	TMSB-109-20	Soil	Antimony	2.1	0.43	2.1	U	UJ	e	mg/kg
0606030	0606030-7	TMSB-109-30	Soil	Antimony	2	0.41	2	U	UJ	e	mg/kg
0606030	0606030-7	TMSB-109-30	Soil	Antimony	2	0.41	2	U	UJ	e	mg/kg
0512083	0512083-1	TMSB-110-01	Soil	Antimony	2.1	0.43	0.64	B	J	e, g	mg/kg
0512083	0512083-2	TMSB-110-05	Soil	Antimony	2.1	0.45	0.79	B	J	e, g	mg/kg
0512083	0512083-3	TMSB-110-10	Soil	Antimony	2.1	0.45	0.95	B	J	e, g	mg/kg
0606030	0606030-4	TMSB-110-30	Soil	Antimony	2.2	0.44	0.54	B	J-	b, e	mg/kg
0606030	0606030-4	TMSB-110-30	Soil	Antimony	2.2	0.44	0.54	B	J-	b, e	mg/kg
0512095	0512095-4	TMSB-111-01	Soil	Antimony	2.1	0.44	0.86	B	J	e	mg/kg
0512095	0512095-5	TMSB-111-05	Soil	Antimony	2.2	0.45	0.78	B	J	e	mg/kg
0512095	0512095-6	TMSB-111-10	Soil	Antimony	2.2	0.47	1.3	B	J	e	mg/kg
0606030	0606030-8	TMSB-111-35	Soil	Antimony	2.2	0.44	0.79	B	J-	b, e	mg/kg
0606030	0606030-8	TMSB-111-35	Soil	Antimony	2.2	0.44	0.79	B	J-	b, e	mg/kg
0512100	0512100-15	TMSB-112-01	Soil	Antimony	2.1	0.44	0.76	B	J	e	mg/kg
0512100	0512100-16	TMSB-112-05	Soil	Antimony	2.1	0.44	1.1	B	J	e	mg/kg
0512100	0512100-17	TMSB-112-10	Soil	Antimony	2.2	0.45	0.8	B	J	e	mg/kg
0606030	0606030-12	TMSB-112-35	Soil	Antimony	2.1	0.43	2.1	U	UJ	e	mg/kg
0606030	0606030-12	TMSB-112-35	Soil	Antimony	2.1	0.43	2.1	U	UJ	e	mg/kg
0601073	0601073-12	TMSB-113-01	Soil	Th-230	0.0948		1.14		J+	b, e	pCi/g
0601073	0601073-12	TMSB-113-01	Soil	Antimony	4.2	0.33	4.2	U	UJ	e	mg/kg
0601073	0601073-12	TMSB-113-01	Soil	Magnesium	110	0.4	11000		J+	e	mg/kg
0601073	0601073-13	TMSB-113-05	Soil	Magnesium	110	0.41	9700		J+	e	mg/kg

TABLE B-9 (continued)
QUALIFICATIONS BASED ON MATRIX SPIKE OR CONTROL SAMPLE RECOVERY EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601073	0601073-13	TMSB-113-05	Soil	Antimony	2.2	0.17	0.6	B	J-	e	mg/kg
0601073	0601073-13	TMSB-113-05	Soil	Th-230	0.0962		1.31		J+	b, e	pCi/g
0601073	0601073-14	TMSB-113-10	Soil	Antimony	2.2	0.17	0.31	B	J-	e	mg/kg
0601073	0601073-14	TMSB-113-10	Soil	Magnesium	110	0.41	9200		J+	e	mg/kg
0601073	0601073-14	TMSB-113-10	Soil	Th-230	0.116		0.887	M3	J+	b, e	pCi/g
0601073	0601073-3	TMSB-115-01	Soil	Antimony	2	0.16	1	B	J-	e	mg/kg
0601073	0601073-3	TMSB-115-01	Soil	Magnesium	100	0.39	11000		J+	e	mg/kg
0601073	0601073-3	TMSB-115-01	Soil	Th-230	0.0831		1.51	Y2	J	b, e, n	pCi/g
0601073	0601073-4	TMSB-115-05	Soil	Th-230	0.0961		1.18		J+	b, e	pCi/g
0601073	0601073-4	TMSB-115-05	Soil	Antimony	2.1	0.16	0.59	B	J-	e	mg/kg
0601073	0601073-4	TMSB-115-05	Soil	Magnesium	110	0.4	9500		J+	e	mg/kg
0601073	0601073-5	TMSB-115-10	Soil	Magnesium	110	0.41	9300		J+	e	mg/kg
0601073	0601073-5	TMSB-115-10	Soil	Th-230	0.0873		1.05		J+	b, e	pCi/g
0601073	0601073-5	TMSB-115-10	Soil	Antimony	2.2	0.17	0.28	B	J-	e	mg/kg
0601077	0601077-8	TMSB-116-01	Soil	Sulfate	10	3.5	980		J+	e	mg/kg
0601077	0601077-9	TMSB-116-05	Soil	Sulfate	11	3.6	160		J+	e	mg/kg
0601077	0601077-10	TMSB-116-10	Soil	Sulfate	11	3.6	470		J+	e	mg/kg
0601077	0601077-13	TMSB-117-01	Soil	Sulfate	11	3.5	110		J+	e	mg/kg
0601077	0601077-14	TMSB-117-05	Soil	Sulfate	120	41	1700		J+	e	mg/kg
0601077	0601077-15	TMSB-117-10	Soil	Sulfate	110	37	1500		J+	e	mg/kg
0601077	0601077-16	TMSB-117-15	Soil	Sulfate	55	18	1300		J+	e	mg/kg
0601077	0601077-17	TMSB-117-20	Soil	Sulfate	22	7.4	390		J+	e	mg/kg
0601077	0601077-18	TMSB-117-25	Soil	Sulfate	22	7.3	180		J+	e	mg/kg

TABLE B-9 (continued)
QUALIFICATIONS BASED ON MATRIX SPIKE OR CONTROL SAMPLE RECOVERY EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601077	0601077-19	TMSB-117-30	Soil	Sulfate	22	7.2	78		J+	e	mg/kg
0601077	0601077-20	TMSB-117-35	Soil	Sulfate	22	7.3	130		J+	e	mg/kg
0601077	0601077-11	TMSB-117-40	Soil	Sulfate	11	3.7	140		J+	e	mg/kg
0601077	0601077-12	TMSB-117-45	Soil	Sulfate	11	3.7	180		J+	e	mg/kg
0601047	0601047-1	TMSB-118-01	Soil	Th-230	0.0927		1.43		J+	b, e	pCi/g
0601047	0601047-1	TMSB-118-01	Soil	Antimony	4.2	0.32	4.2	U	UJ	e	mg/kg
0601047	0601047-1	TMSB-118-01	Soil	Vanadium	1	0.045	71		J	e	mg/kg
0601047	0601047-1	TMSB-118-01	Soil	Perchlorate	0.042	0.024	0.19		J+	e	mg/kg
0601047	0601047-2	TMSB-118-05	Soil	Th-230	0.164		4.99	M3	J+	b, e	pCi/g
0601047	0601047-2	TMSB-118-05	Soil	Vanadium	1	0.045	49		J	e	mg/kg
0601047	0601047-2	TMSB-118-05	Soil	Perchlorate	0.84	0.49	6.8		J+	e	mg/kg
0601047	0601047-2	TMSB-118-05	Soil	Antimony	6.2	0.48	1.8	B	J-	b, e	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Antimony	2.1	0.16	2.1	U	UJ	e	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Vanadium	1	0.045	7.1		J	e	mg/kg
0601047	0601047-4	TMSB-118-15	Soil	Perchlorate	0.43	0.25	2		J+	e	mg/kg
0601047	0601047-5	TMSB-118-20	Soil	Perchlorate	0.086	0.05	1.2		J+	e	mg/kg
0601047	0601047-6	TMSB-118-25	Soil	Perchlorate	0.043	0.025	0.14		J+	e	mg/kg
0601047	0601047-8	TMSB-118-35	Soil	Perchlorate	0.043	0.025	0.061		J+	e	mg/kg
0601047	0601047-9	TMSB-118-40	Soil	Perchlorate	0.044	0.025	0.22		J+	e	mg/kg
0601047	0601047-10	TMSB-118-45	Soil	Perchlorate	0.044	0.025	0.71		J+	e	mg/kg
0601047	0601047-11	TMSB-118-50	Soil	Perchlorate	0.044	0.026	0.44		J+	e	mg/kg
0601047	0601047-12	TMSB-119-01	Soil	Perchlorate	0.083	0.048	1.2		J+	e	mg/kg
0601047	0601047-12	TMSB-119-01	Soil	Antimony	4.1	0.32	4.1	U	UJ	e	mg/kg

TABLE B-9 (continued)
QUALIFICATIONS BASED ON MATRIX SPIKE OR CONTROL SAMPLE RECOVERY EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601047	0601047-12	TMSB-119-01	Soil	Th-230	0.0849		1.43		J+	b, e	pCi/g
0601047	0601047-13	TMSB-119-05	Soil	Th-230	0.101		1.24	M3	J+	b, e	pCi/g
0601047	0601047-13	TMSB-119-05	Soil	Antimony	22	1.7	22	U	UJ	e	mg/kg
0601047	0601047-13	TMSB-119-05	Soil	Vanadium	1.1	0.047	170		J	e	mg/kg
0601047	0601047-13	TMSB-119-05	Soil	Perchlorate	0.22	0.12	2.8		J+	e	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Th-230	0.0781		0.963		J+	b, e	pCi/g
0601047	0601047-14	TMSB-119-10	Soil	Vanadium	1.1	0.046	51		J	e	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Antimony	2.1	0.16	1.1	B	J-	b, e	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Perchlorate	0.086	0.05	2		J+	e	mg/kg
0601047	0601047-15	TMSB-120-01	Soil	Vanadium	1	0.045	53		J	e	mg/kg
0601047	0601047-15	TMSB-120-01	Soil	Antimony	2.1	0.16	1.2	B	J-	e	mg/kg
0601047	0601047-15	TMSB-120-01	Soil	Th-230	0.0823		1.34		J+	b, e	pCi/g
0601047	0601047-15	TMSB-120-01	Soil	Perchlorate	8.4	4.8	70		J+	e	mg/kg
0601047	0601047-16	TMSB-120-05	Soil	Antimony	2.1	0.16	1.9	B	J-	e	mg/kg
0601047	0601047-16	TMSB-120-05	Soil	Vanadium	1	0.045	21		J	e	mg/kg
0601047	0601047-16	TMSB-120-05	Soil	Th-230	0.0958		3.8		J+	b, e	pCi/g
0601047	0601047-16	TMSB-120-05	Soil	Perchlorate	0.21	0.12	2.9		J+	e	mg/kg
0601047	0601047-17	TMSB-120-10	Soil	Antimony	2.1	0.16	3.6		J-	e	mg/kg
0601047	0601047-17	TMSB-120-10	Soil	Vanadium	1.1	0.046	28		J	e	mg/kg
0601047	0601047-17	TMSB-120-10	Soil	Th-230	0.0996		8.1	Y2	J+	b, e	pCi/g
0601047	0601047-17	TMSB-120-10	Soil	Perchlorate	0.085	0.049	1.2		J+	e	mg/kg
0601047	0601047-18	TMSB-120-15	Soil	Perchlorate	0.043	0.025	1		J+	e	mg/kg
0601047	0601047-19	TMSB-120-20	Soil	Perchlorate	0.044	0.025	0.82		J+	e	mg/kg

TABLE B-9 (continued)
QUALIFICATIONS BASED ON MATRIX SPIKE OR CONTROL SAMPLE RECOVERY EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601047	0601047-20	TMSB-120-25	Soil	Perchlorate	0.043	0.025	0.62		J+	e	mg/kg
0601077	0601077-3	TMSB-123-01	Soil	Sulfate	10	3.5	170		J+	e	mg/kg
0601077	0601077-4	TMSB-123-05	Soil	Sulfate	110	37	1300		J+	e	mg/kg
0601077	0601077-5	TMSB-123-10	Soil	Sulfate	11	3.7	260		J+	e	mg/kg
0601077	0601077-6	TMSB-123-15	Soil	Sulfate	11	3.7	120		J+	e	mg/kg
0601077	0601077-7	TMSB-123-20	Soil	Sulfate	11	3.7	89		J+	e	mg/kg
0601059	0601059-1	TMSB-125-01	Soil	Antimony	2.2	0.17	0.9	B	J-	b, e	mg/kg
0601059	0601059-2	TMSB-125-05	Soil	Antimony	2.2	0.17	0.81	B	J-	b, e	mg/kg
0601059	0601059-3	TMSB-125-10	Soil	Antimony	2.2	0.17	0.67	B	J-	b, e	mg/kg
0601059	0601059-6	TMSB-126-01	Soil	Antimony	10	0.81	10	U	UJ	e	mg/kg
0601059	0601059-7	TMSB-126-05	Soil	Antimony	2.2	0.17	0.55	B	J-	b, e	mg/kg
0601059	0601059-8	TMSB-126-10	Soil	Antimony	2.2	0.17	0.73	B	J-	b, e	mg/kg

Notes:

1 For radionuclides, the SQL is equal to the minimum detectable concentration that is reported in the PQL field.

+ Result is possibly biased high
- Result is possibly biased low
µg/L Microgram per liter
B Result less than the practical quantitation limit for metals and inorganics, and detected in associated laboratory blank for organics
b Comment code representing qualification due to associated laboratory blank contamination
e Comment code representing qualification due to spike recovery
g Comment code representing qualification because results are less than the PQL
j Comment code representing qualification due to serial dilution results
J Value is estimated
M3 Requested MDC was not met, but the result is greater than the sample-specific MDC
MDC Minimum detectable concentration
mg/kg Milligram per kilogram
n Comment code representing qualification due to tracer yield
pCi/g PicoCurie per gram
PQL Practical quantitation limit
SDG Sample delivery group
SQL Sample quantitation limit
U Undetected
UJ Undetected at estimated quantitation limit
Y2 Tracer yield outside QC limit

TABLE B-10
QUALIFICATIONS BASED ON SURROGATE RECOVERY EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0604149	0604149-1	CLD1-R	Water	Gamma-BHC (Lindane)	0.048	0.0042	0.016	J	J+	a	µg/L
0604149	0604149-1	CLD1-R	Water	Delta-BHC	0.048	0.0041	0.008	J	J+	a	µg/L
0604149	0604149-1	CLD1-R	Water	Beta-BHC	0.048	0.0084	0.4		J+	a	µg/L
0604149	0604149-1	CLD1-R	Water	Alpha-BHC	0.048	0.006	0.079		J+	a	µg/L
0605040	0605040-2	PC40	Water	1,2,3-Trichlorobenzene	1	0.096	0.82	J	J	a, g	µg/L
0605040	0605040-2	PC40	Water	Trichloroethene	1	0.2	6		J	a	µg/L
0605040	0605040-2	PC40	Water	Tetrachloroethene	1	0.13	8.1		J	a	µg/L
0605040	0605040-2	PC40	Water	Chloroform	1	0.11	7.2		J	a	µg/L
0605040	0605040-2	PC40	Water	1,4-Dichlorobenzene	1	0.094	1.7		J	a	µg/L
0605040	0605040-2	PC40	Water	1,3-Dichlorobenzene	1	0.1	2.7		J	a	µg/L
0605040	0605040-2	PC40	Water	1,2-Dichloroethane	1	0.12	2.3		J	a	µg/L
0605040	0605040-2	PC40	Water	1,2-Dichlorobenzene	1	0.12	4		J	a	µg/L
0605040	0605040-2	PC40	Water	1,2,4-Trichlorobenzene	1	0.1	4		J	a	µg/L
0605040	0605040-2	PC40	Water	1,1-Dichloroethene	1	0.19	0.36	J	J	a, g	µg/L

Notes:

+	Result is possibly biased high
µg/L	Microgram per liter
a	Comment code representing qualification due to exceeded surrogate recovery
BHC	Benzene hexachloride
g	Comment code representing qualification because results are less than the PQL
J	Value is estimated
PQL	Practical quantitation limit
SDG	Sample delivery group
SQL	Sample quantitation limit

TABLE B-11
QUALIFICATIONS BASED ON RADIOCHEMISTRY TRACER YIELD CRITERIA EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512122	0512122-3	TMSB-101-10	Soil	Th-232	0.0575		1.52	Y2	J-	n	pCi/g
0512122	0512122-3	TMSB-101-10	Soil	Th-230	0.0959		1.43	Y2	J-	n	pCi/g
0512122	0512122-3	TMSB-101-10	Soil	Th-228	0.162		1.61	Y2M3	J-	n	pCi/g
0512100	0512100-16	TMSB-112-05	Soil	Th-232	0.0177		1.52	Y2	J-	n	pCi/g
0512100	0512100-16	TMSB-112-05	Soil	Th-230	0.11		0.936	Y2M3	J-	n	pCi/g
0512100	0512100-16	TMSB-112-05	Soil	Th-228	0.148		1.48	Y2M3	J-	n	pCi/g
0601073	0601073-3	TMSB-115-01	Soil	Th-232	0.0341		1.65	Y2	J-	n	pCi/g
0601073	0601073-3	TMSB-115-01	Soil	Th-230	0.0831		1.51	Y2	J	b, e, n	pCi/g
0601073	0601073-3	TMSB-115-01	Soil	Th-228	0.147		1.87	Y2M3	J-	n	pCi/g
0601047	0601047-17	TMSB-120-10	Soil	Th-229	0.00924		17.6	Y2	J-	n	%Rec
0601059	0601059-7	TMSB-126-05	Soil	Th-232	0.041		1.53	Y2	J-	n	pCi/g
0601059	0601059-7	TMSB-126-05	Soil	Th-230	0.0954		1.33	Y2	J-	n	pCi/g
0601059	0601059-7	TMSB-126-05	Soil	Th-228	0.088		1.98	Y2	J-	n	pCi/g

Notes:

1 For radionuclides, the SQL is equal to the minimum detectable concentration that is reported in the PQL field.

- Result is possibly biased low
%Rec Percent recovery
b Comment code representing qualification due to associated laboratory blank contamination
e Comment code representing qualification due to matrix spike or laboratory control sample recovery exceedances
J Value is estimated
M3 Requested MDC was not met, but the result is greater than the sample-specific MDC
MDC Minimum detectable concentration
n Comment code representing qualification due to tracer yield
pCi/g PicoCurie per gram
PQL Practical quantitation limit
SDG Sample delivery group
SQL Sample quantitation limit
Y2 Tracer yield outside QC limits

TABLE B-12
QUALIFICATIONS BASED ON DUPLICATE PRECISION CRITERIA EXCEEDANCES
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604149	0604149-1	CLD1-R	Water	Pb-214	17.5		179	M3J	J-	d, o	pCi/L
0604149	0604149-1	CLD1-R	Water	Bi-214	27.7		178	M3J	J-	d, o	pCi/L
0604149	0604149-3	CLD2-R	Water	Pb-214	13.8		267	J	J-	d, o	pCi/L
0604149	0604149-3	CLD2-R	Water	Bi-214	27.8		256	M3J	J-	d, o	pCi/L

Notes:

1	For radionuclides, the SQL is equal to the minimum detectable concentration that is reported in the PQL field.
-	Result is possibly biased low
d	Comment code representing qualification due to duplicate precision criteria exceedances
J	Value is estimated
M3	Requested MDC was not met, but the result is greater than the sample-specific MDC
MDC	Minimum detectable concentration
o	Comment code representing qualification of radiochemistry data for reasons specified in table
pCi/L	PicoCurie per liter
PQL	Practical quantitation limit
SDG	Sample delivery group
SQL	Sample quantitation limit

TABLE B-13
QUALIFICATIONS BASED ON QUANTIFICATION BELOW PQL
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0604188	0604188-5	BRW-R1	Water	Selenium	5	3.1	4.3	B	J	g	µg/L
0604188	0604188-5	BRW-R1	Water	Bromodichloromethane	1	0.12	0.19	J	J	g	µg/L
0604149	0604149-1	CLD1-R	Water	1,2,4-Trichlorobenzene	1	0.1	0.84	J	J	g	µg/L
0604149	0604149-1	CLD1-R	Water	1,2-Dichlorobenzene	1	0.12	0.17	J	J	g	µg/L
0604149	0604149-1	CLD1-R	Water	1,4-Dichlorobenzene	1	0.094	0.2	J	J	g	µg/L
0604149	0604149-1	CLD1-R	Water	Bromodichloromethane	1	0.12	0.64	J	J	g	µg/L
0604149	0604149-3	CLD2-R	Water	Bromodichloromethane	1	0.12	0.54	J	J	g	µg/L
0604149	0604149-3	CLD2-R	Water	1,2,3-Trichlorobenzene	1	0.096	0.4	J	J	g	µg/L
0604149	0604149-3	CLD2-R	Water	Carbon Tetrachloride	1	0.064	0.74	J	J	g	µg/L
0604149	0604149-3	CLD2-R	Water	1,4-Dichlorobenzene	1	0.094	0.26	J	J	g	µg/L
0604149	0604149-3	CLD2-R	Water	1,2-Dichlorobenzene	1	0.12	0.2	J	J	g	µg/L
0604149	0604149-3	CLD2-R	Water	Cobalt	10	0.75	3.4	B	J	g	µg/L
0604149	0604149-3	CLD2-R	Water	Trichloroethene	1	0.2	0.26	J	J	g	µg/L
0604162	0604162-1	CLD3-R	Water	cis-1,2-Dichloroethene	1	0.19	0.39	J	J	g	µg/L
0604162	0604162-1	CLD3-R	Water	Barium	100	0.17	23	B	J	g	µg/L
0604162	0604162-1	CLD3-R	Water	Silver	10	1	3	B	J	g	µg/L
0604162	0604162-1	CLD3-R	Water	1,1-Dichloroethane	1	0.094	0.79	J	J	g	µg/L
0604215	0604215-3	CLD4-R	Water	Trichloroethene	1	0.2	0.3	J	J	g	µg/L
0604215	0604215-3	CLD4-R	Water	1,1-Dichloroethane	1	0.094	0.38	J	J	g	µg/L
0604215	0604215-3	CLD4-R	Water	1,1-Dichloroethene	1	0.19	0.93	J	J	g	µg/L
0604215	0604215-3	CLD4-R	Water	1,2-Dichloropropane	1	0.17	0.22	J	J	g	µg/L
0604215	0604215-3	CLD4-R	Water	Dibromochloromethane	1	0.13	0.84	J	J	g	µg/L
0604215	0604215-3	CLD4-R	Water	Tetrachloroethene	1	0.13	0.65	J	J	g	µg/L

TABLE B-13 (continued)
QUALIFICATIONS BASED ON QUANTIFICATION BELOW PQL
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0604181	0604181-1	J2D1-R2	Water	cis-1,2-Dichloroethene	1	0.19	0.24	J	J	g	µg/L
0604181	0604181-1	J2D1-R2	Water	1,1-Dichloroethane	1	0.094	0.64	J	J	g	µg/L
0604181	0604181-1	J2D1-R2	Water	Bromodichloromethane	1	0.12	0.17	J	J	g	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	cis-1,2-Dichloroethene	1	0.19	0.24	J	J	g	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Bromodichloromethane	1	0.12	0.17	J	J	g	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	1,1-Dichloroethane	1	0.094	0.64	J	J	g	µg/L
0604181	0604181-4	J2D2-R2	Water	Benzene	1	0.14	0.17	J	J	g	µg/L
0604181	0604181-4	J2D2-R2	Water	cis-1,2-Dichloroethene	1	0.19	0.19	J	J	g	µg/L
0604181	0604181-4	J2D2-R2	Water	1,1-Dichloroethane	1	0.094	0.55	J	J	g	µg/L
0604181	0604181-4	J2D2-R2	Water	Cobalt	10	0.75	2	B	J	g	µg/L
0604181	0604181-5	J2D3-R	Water	1,1-Dichloroethane	1	0.094	0.18	J	J	g	µg/L
0604181	0604181-5	J2D3-R	Water	Carbon Tetrachloride	1	0.064	0.72	J	J	g	µg/L
0604181	0604181-5	J2D3-R	Water	Trichloroethene	1	0.2	0.81	J	J	g	µg/L
0604181	0604181-5	J2D3-R	Water	1,1-Dichloroethene	1	0.19	0.75	J	J	g	µg/L
0604188	0604188-3	J2U1	Water	Tetrachloroethene	1	0.13	0.97	J	J	g	µg/L
0604215	0604215-1	MW-3	Water	Carbon Tetrachloride	1	0.064	0.4	J	J	g	µg/L
0604188	0604188-1	MW-4	Water	Trichloroethene	2	0.39	0.4	J	J	g	µg/L
0604188	0604188-1	MW-4	Water	1,1-Dichloroethane	2	0.19	0.38	J	J	g	µg/L
0604188	0604188-1	MW-4	Water	Bromodichloromethane	2	0.24	0.42	J	J	g	µg/L
0605007	0605007-3	PC12	Water	Methyl Tertiary Butyl Ether	1	0.12	0.48	J	J	g	µg/L
0605007	0605007-3	PC12	Water	Trichloroethene	1	0.2	0.24	J	J	g	µg/L
0605007	0605007-3	PC12	Water	Tetrachloroethene	1	0.13	0.26	J	J	g	µg/L
0605007	0605007-1	PC17	Water	1,2-Dichloroethane	1	0.12	0.79	J	J	g	µg/L

TABLE B-13 (continued)
QUALIFICATIONS BASED ON QUANTIFICATION BELOW PQL
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Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0605007	0605007-1	PC17	Water	Carbon Tetrachloride	1	0.064	0.12	J	J	g	µg/L
0605007	0605007-1	PC17	Water	1,1-Dichloroethene	1	0.19	0.28	J	J	g	µg/L
0605007	0605007-1	PC17	Water	1,2,3-Trichlorobenzene	1	0.096	0.25	J	J	g	µg/L
0605040	0605040-1	PC24	Water	1,1-Dichloroethane	1	0.094	0.44	J	J	g	µg/L
0605040	0605040-1	PC24	Water	Trichloroethene	1	0.2	0.9	J	J	g	µg/L
0604230	0604230-6	PC28	Water	Carbon Tetrachloride	12	0.8	11	J	J	g	µg/L
0605040	0605040-2	PC40	Water	1,1-Dichloroethene	1	0.19	0.36	J	J	a, g	µg/L
0605040	0605040-2	PC40	Water	1,2,3-Trichlorobenzene	1	0.096	0.82	J	J	a, g	µg/L
0605023	0605023-3	PC50	Water	1,2,3-Trichlorobenzene	1	0.096	0.15	J	J	g	µg/L
0605023	0605023-3	PC50	Water	Carbon Tetrachloride	1	0.064	0.12	J	J	g	µg/L
0605023	0605023-3	PC50	Water	1,3-Dichlorobenzene	1	0.1	0.73	J	J	g	µg/L
0605023	0605023-3	PC50	Water	1,2-Dichloroethane	1	0.12	0.65	J	J	g	µg/L
0605023	0605023-3	PC50	Water	Mercury	0.2	0.0047	0.0072	B	J	g	µg/L
0605023	0605023-3	PC50	Water	Cobalt	10	0.75	3.8	B	J	g	µg/L
0605023	0605023-4	PC54	Water	Methyl Tertiary Butyl Ether	1	0.12	0.22	J	J	g	µg/L
0605023	0605023-4	PC54	Water	Mercury	0.2	0.0047	0.014	B	J	g	µg/L
0605023	0605023-4	PC54	Water	Trichloroethene	1	0.2	0.21	J	J	g	µg/L
0605023	0605023-4	PC54	Water	1,4-Dichlorobenzene	1	0.094	0.88	J	J	g	µg/L
0605023	0605023-4	PC54	Water	Bromodichloromethane	1	0.12	0.72	J	J	g	µg/L
0604230	0604230-5	PC64	Water	Carbon Tetrachloride	16	1	6.4	J	J	g	µg/L
0604230	0604230-1	PC67	Water	Tetrachloroethene	40	5.4	12	J	J	g	µg/L
0604230	0604230-1	PC67	Water	Carbon Tetrachloride	40	2.6	9.6	J	J	g	µg/L
0604230	0604230-2	PC67Dup	Water	Tetrachloroethene	40	5.4	12	J	J	g	µg/L

TABLE B-13 (continued)
QUALIFICATIONS BASED ON QUANTIFICATION BELOW PQL
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0605023	0605023-1	PC72	Water	Tetrachloroethene	1	0.13	0.84	J	J	g	µg/L
0605023	0605023-1	PC72	Water	Mercury	0.2	0.0047	0.2	U	J	g	µg/L
0605023	0605023-1	PC72	Water	Trichloroethene	1	0.2	0.51	J	J	g	µg/L
0512095	0512095-2	Rinsate 01	Water	Thallium	0.2	0.015	0.028	B	J	g	µg/L
0512095	0512095-2	Rinsate 01	Water	Titanium	20	0.37	5.1	B	J	g	µg/L
0512095	0512095-1	Source Water	Water	Molybdenum	10	1.2	7.8	B	J	g	µg/L
0512095	0512095-1	Source Water	Water	Titanium	20	0.37	3.3	B	J	g	µg/L
0604161	0604161-1	TMMW-101	Water	Chromium	10	1.8	2.5	B	J	g	µg/L
0604161	0604161-1	TMMW-101	Water	Dibromochloromethane	1	0.13	0.84	J	J	g	µg/L
0604161	0604161-3	TMMW-102	Water	Bromodichloromethane	1	0.12	0.56	J	J	g	µg/L
0604161	0604161-3	TMMW-102	Water	Chromium	10	1.8	4.7	B	J	g	µg/L
0604161	0604161-4	TMMW-103	Water	Bromodichloromethane	1	0.12	0.49	J	J	g	µg/L
0604161	0604161-4	TMMW-103	Water	Selenium	5	3.1	4.4	B	J	g	µg/L
0604178	0604178-1	TMMW-104	Water	Chromium	10	1.8	2	B	J	g	µg/L
0512122	0512122-1	TMSB-101-01	Soil	Antimony	2.1	0.44	0.94	B	J	g	mg/kg
0512122	0512122-2	TMSB-101-05	Soil	Antimony	2.2	0.46	1	B	J	g	mg/kg
0512122	0512122-3	TMSB-101-10	Soil	Antimony	2.1	0.45	0.74	B	J	g	mg/kg
0512045	0512045-3	TMSB-105-10	Soil	Antimony	2.3	0.47	0.76	B	J	g	mg/kg
0512045	0512045-3	TMSB-105-10	Soil	Molybdenum	1.1	0.14	0.34	B	J	g	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Beryllium	0.54	0.0031	0.53	B	J	g	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Beryllium	0.54	0.0031	0.53	B	J	g	mg/kg
0512057	0512057-1	TMSB-106-01	Soil	Antimony	2.1	0.44	1	B	J	g	mg/kg
0512057	0512057-2	TMSB-106-05	Soil	Antimony	2.2	0.46	0.89	B	J	g	mg/kg

TABLE B-13 (continued)
QUALIFICATIONS BASED ON QUANTIFICATION BELOW PQL
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Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0512057	0512057-3	TMSB-106-10	Soil	Antimony	2.2	0.47	0.61	B	J	g	mg/kg
0512057	0512057-7	TMSB-107-01	Soil	Antimony	2.1	0.44	0.65	B	J	g	mg/kg
0512057	0512057-8	TMSB-107-05	Soil	4,4'-DDE	1.7	0.2	7.1		J	g	µg/kg
0512057	0512057-8	TMSB-107-05	Soil	Beta-BHC	1.7	0.36	9.5		J	g	µg/kg
0512057	0512057-9	TMSB-107-10	Soil	Antimony	2.2	0.46	0.94	B	J	g	mg/kg
0512083	0512083-9	TMSB-108-01	Soil	Antimony	2.1	0.44	0.99	B	J	e, g	mg/kg
0512083	0512083-10	TMSB-108-05	Soil	Antimony	2.2	0.45	0.74	B	J	e, g	mg/kg
0512083	0512083-11	TMSB-108-10D	Soil	Antimony	2.21	0.461	0.989	B	J	g	mg/kg
0512083	0512083-11	TMSB-108-10D	Soil	Molybdenum	1.11	0.138	0.227	B	J	g	mg/kg
0512083	0512083-16	TMSB-109-01	Soil	Silver	1.1	0.11	0.49	B	J	g	mg/kg
0512083	0512083-17	TMSB-109-05	Soil	Antimony	4.3	0.9	1.3	B	J	e, g	mg/kg
0512083	0512083-18	TMSB-109-10	Soil	Antimony	2.2	0.45	0.77	B	J	e, g	mg/kg
0512083	0512083-1	TMSB-110-01	Soil	Antimony	2.1	0.43	0.64	B	J	e, g	mg/kg
0512083	0512083-2	TMSB-110-05	Soil	Antimony	2.1	0.45	0.79	B	J	e, g	mg/kg
0512083	0512083-3	TMSB-110-10	Soil	Antimony	2.1	0.45	0.95	B	J	e, g	mg/kg
0601077	0601077-8	TMSB-116-01	Soil	Antimony	2.1	0.16	1.6	B	J	g	mg/kg
0601077	0601077-9	TMSB-116-05	Soil	Antimony	2.1	0.16	0.54	B	J	g	mg/kg
0601058	0601058-1	TMSB-121-01	Soil	Antimony	2.1	0.16	0.59	B	J-	b, g	mg/kg
0601058	0601058-2	TMSB-121-05	Soil	Antimony	2.2	0.17	0.79	B	J-	b, g	mg/kg
0601058	0601058-3	TMSB-121-10	Soil	Antimony	2.2	0.17	1.1	B	J-	b, g	mg/kg
0601058	0601058-6	TMSB-124-01	Soil	Silver	1.1	0.069	0.098	B	J-	b, g	mg/kg
0601058	0601058-6	TMSB-124-01	Soil	Antimony	6.3	0.49	0.54	B	J-	b, g	mg/kg
0601058	0601058-7	TMSB-124-05	Soil	Antimony	2.2	0.17	0.55	B	J-	b, g	mg/kg

TABLE B-13 (continued)
QUALIFICATIONS BASED ON QUANTIFICATION BELOW PQL
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0601058	0601058-8	TMSB-124-10	Soil	Molybdenum	1.1	0.096	0.28	B	J	g	mg/kg
0601058	0601058-8	TMSB-124-10	Soil	Antimony	2.3	0.17	0.25	B	J-	b, g	mg/kg
0604181	0604181-3	Trip Blank	Water	Toluene	1	0.13	0.81	J	J	g	µg/L
0601077	0601077-1	TRW-1	Water	Nickel	20	0.7	2.2	B	J	g	µg/L

Notes:

-	Result is possibly biased low
µg/L	Microgram per liter
a	Comment code representing qualification due to surrogate recovery exceedance
B	Result less than the practical quantitation limit for metals and inorganics, and detected in associated laboratory blank for organics
b	Comment code representing qualification due to associated laboratory blank contamination
e	Comment code representing qualification due to spike recovery
g	Comment code representing qualification because results are less than the PQL
J	Value is estimated
mg/kg	Milligram per kilogram
PQL	Practical quantitation limit
SDG	Sample delivery group
SQL	Sample quantitation limit
U	Undetected

TABLE B-14
OTHER STABLE CHEMISTRY QUALIFICATIONS
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Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
Results qualified due to percent difference between dual column responses.											
0604162	0604162-1	CLD3-R	Water	Gamma-BHC (Lindane)	0.047	0.0041	0.015	J	J	j	µg/L
0604162	0604162-1	CLD3-R	Water	Alpha-BHC	0.047	0.006	0.024	J	J	j	µg/L
0512057	0512057-7	TMSB-107-01	Soil	4,4'-DDE	1.7	0.2	3.2		J	j	µg/kg
0512083	0512083-9	TMSB-108-01	Soil	4,4'-DDE	1.8	0.2	1.7	J	J	j	mg/kg
Results qualified due to matrix interference identified in serial dilution analysis.											
0604181	0604181-1	J2D1-R2	Water	Potassium	1000	74	29000		J	j	µg/L
0604181	0604181-1	J2D1-R2	Water	Magnesium	1000	6.8	300000		J	j	µg/L
0604181	0604181-1	J2D1-R2	Water	Vanadium	10	0.8	68		J	j	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Magnesium	1000	6.8	310000		J	j	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Vanadium	10	0.8	69		J	j	µg/L
0604181	0604181-2	J2D1-R2DUP	Water	Potassium	1000	74	29000		J	j	µg/L
0604181	0604181-4	J2D2-R2	Water	Vanadium	10	0.8	31		J	j	µg/L
0604181	0604181-4	J2D2-R2	Water	Potassium	1000	74	30000		J	j	µg/L
0604181	0604181-4	J2D2-R2	Water	Magnesium	1000	6.8	480000		J	j	µg/L
0604181	0604181-5	J2D3-R	Water	Vanadium	10	0.8	22		J	j	µg/L
0604181	0604181-5	J2D3-R	Water	Magnesium	1000	6.8	260000		J	j	µg/L
0604181	0604181-5	J2D3-R	Water	Potassium	1000	74	18000		J	j	µg/L
0604230	0604230-3	J2U2	Water	Barium	100	0.17	25	B	UJ	b, e, j	µg/L
0604230	0604230-3	J2U2	Water	Chromium	10	1.8	47		J	j	µg/L
0604230	0604230-3	J2U2	Water	Molybdenum	10	1.4	34		J	j	µg/L
0604230	0604230-3	J2U2	Water	Iron	100	14	140		J	j	µg/L
0604230	0604230-6	PC28	Water	Molybdenum	10	1.4	41		J	j	µg/L

TABLE B-14 (continued)
OTHER STABLE CHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0604230	0604230-6	PC28	Water	Chromium	10	1.8	980		J	j	µg/L
0604230	0604230-6	PC28	Water	Iron	100	14	480		J	j	µg/L
0604230	0604230-6	PC28	Water	Barium	100	0.17	17	B	UJ	b, e, j	µg/L
0604230	0604230-5	PC64	Water	Molybdenum	10	1.4	41		J	j	µg/L
0604230	0604230-5	PC64	Water	Iron	100	14	1100		J	j	µg/L
0604230	0604230-5	PC64	Water	Chromium	10	1.8	3200		J	j	µg/L
0604230	0604230-5	PC64	Water	Barium	100	0.17	27	B	UJ	b, e, j	µg/L
0604230	0604230-1	PC67	Water	Chromium	10	1.8	350		J	j	µg/L
0604230	0604230-1	PC67	Water	Iron	100	14	1700		J	j	µg/L
0604230	0604230-1	PC67	Water	Barium	100	0.17	52	B	UJ	b, e, j	µg/L
0604230	0604230-1	PC67	Water	Molybdenum	10	1.4	210		J	j	µg/L
0604230	0604230-2	PC67Dup	Water	Chromium	10	1.8	360		J	j	µg/L
0604230	0604230-2	PC67Dup	Water	Molybdenum	10	1.4	220		J	j	µg/L
0604230	0604230-2	PC67Dup	Water	Barium	100	0.17	49	B	UJ	b, e, j	µg/L
0604230	0604230-2	PC67Dup	Water	Iron	100	14	1500		J	j	µg/L
0512108	0512108-1	TMSB-102-01	Soil	Nickel	2.1	0.095	16		J-	j	mg/kg
0512108	0512108-1	TMSB-102-01	Soil	Arsenic	0.21	0.0075	2.9		J+	j	mg/kg
0512108	0512108-1	TMSB-102-01	Soil	Sodium	110	0.61	450		J+	j	mg/kg
0512108	0512108-2	TMSB-102-05	Soil	Arsenic	0.22	0.0077	3.4		J+	j	mg/kg
0512108	0512108-2	TMSB-102-05	Soil	Sodium	110	0.63	530		J+	j	mg/kg
0512108	0512108-2	TMSB-102-05	Soil	Nickel	2.2	0.099	15		J-	j	mg/kg
0512108	0512108-3	TMSB-102-10	Soil	Nickel	2.2	0.097	14		J-	j	mg/kg
0512108	0512108-3	TMSB-102-10	Soil	Arsenic	0.22	0.0076	3.7		J+	j	mg/kg

TABLE B-14 (continued)
OTHER STABLE CHEMISTRY QUALIFICATIONS
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0512108	0512108-3	TMSB-102-10	Soil	Sodium	110	0.62	880		J+	j	mg/kg
0512108	0512108-15	TMSB-103-01	Soil	Sodium	100	0.6	940		J+	j	mg/kg
0512108	0512108-15	TMSB-103-01	Soil	Nickel	2.1	0.095	16		J-	j	mg/kg
0512108	0512108-15	TMSB-103-01	Soil	Arsenic	0.21	0.0074	2.4		J+	j	mg/kg
0512108	0512108-16	TMSB-103-05	Soil	Arsenic	0.21	0.0075	3.8		J+	j	mg/kg
0512108	0512108-16	TMSB-103-05	Soil	Nickel	2.1	0.096	14		J-	j	mg/kg
0512108	0512108-16	TMSB-103-05	Soil	Sodium	110	0.61	600		J+	j	mg/kg
0512108	0512108-17	TMSB-103-10	Soil	Sodium	110	0.62	740		J+	j	mg/kg
0512108	0512108-17	TMSB-103-10	Soil	Nickel	2.1	0.097	15		J-	j	mg/kg
0512108	0512108-17	TMSB-103-10	Soil	Arsenic	0.21	0.0075	2.8		J+	j	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Beryllium	0.54	0.0031	0.53	B	T	J	mg/kg
0606030	0606030-1	TMSB-105-25	Soil	Beryllium	0.54	0.0031	0.53	B	T	J	mg/kg
0512083	0512083-9	TMSB-108-01	Soil	Uranium	0.011	0.0005	1.4		J+	j	mg/kg
0512083	0512083-9	TMSB-108-01	Soil	Beryllium	0.53	0.0027	0.68		J-	j	mg/kg
0512083	0512083-9	TMSB-108-01	Soil	Cobalt	1.1	0.056	11		J-	j	mg/kg
0512083	0512083-10	TMSB-108-05	Soil	Cobalt	1.1	0.057	8.3		J-	j	mg/kg
0512083	0512083-10	TMSB-108-05	Soil	Beryllium	0.54	0.0028	0.67		J-	j	mg/kg
0512083	0512083-10	TMSB-108-05	Soil	Uranium	0.011	0.00052	0.84		J+	j	mg/kg
0512083	0512083-11	TMSB-108-10	Soil	Uranium	0.011	0.00053	1.4		J+	j	mg/kg
0512083	0512083-11	TMSB-108-10	Soil	Antimony	2.2	0.46	0.6	B	J	e, j	mg/kg
0512083	0512083-11	TMSB-108-10	Soil	Cobalt	1.1	0.059	8.2		J-	j	mg/kg
0512083	0512083-11	TMSB-108-10	Soil	Beryllium	0.55	0.0028	0.74		J-	j	mg/kg
0512083	0512083-16	TMSB-109-01	Soil	Sodium	110	0.62	530		J-	j	mg/kg

TABLE B-14 (continued)
OTHER STABLE CHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0512083	0512083-16	TMSB-109-01	Soil	Zinc	4.3	0.14	28		J-	j	mg/kg
0512083	0512083-16	TMSB-109-01	Soil	Beryllium	0.54	0.0028	0.61		J-	j	mg/kg
0512083	0512083-17	TMSB-109-05	Soil	Zinc	4.3	0.14	40		J-	j	mg/kg
0512083	0512083-17	TMSB-109-05	Soil	Sodium	110	0.62	1000		J-	j	mg/kg
0512083	0512083-17	TMSB-109-05	Soil	Beryllium	0.54	0.0028	0.75		J-	j	mg/kg
0512083	0512083-18	TMSB-109-10	Soil	Zinc	2.2	0.071	35		J-	j	mg/kg
0512083	0512083-18	TMSB-109-10	Soil	Sodium	110	0.63	650		J-	j	mg/kg
0512083	0512083-18	TMSB-109-10	Soil	Beryllium	0.54	0.0028	0.7		J-	j	mg/kg
0512083	0512083-1	TMSB-110-01	Soil	Zinc	2.1	0.067	36		J-	j	mg/kg
0512083	0512083-1	TMSB-110-01	Soil	Sodium	100	0.59	450		J-	j	mg/kg
0512083	0512083-1	TMSB-110-01	Soil	Beryllium	0.51	0.0026	0.67		J-	j	mg/kg
0512083	0512083-1	TMSB-110-01	Soil	Uranium	0.01	0.00049	1.3		J+	j	mg/kg
0512083	0512083-2	TMSB-110-05	Soil	Uranium	0.011	0.00051	0.86		J+	j	mg/kg
0512083	0512083-2	TMSB-110-05	Soil	Zinc	2.1	0.07	37		J-	j	mg/kg
0512083	0512083-2	TMSB-110-05	Soil	Sodium	110	0.62	740		J-	j	mg/kg
0512083	0512083-2	TMSB-110-05	Soil	Beryllium	0.53	0.0027	0.71		J-	j	mg/kg
0512083	0512083-3	TMSB-110-10	Soil	Beryllium	0.54	0.0027	0.74		J-	j	mg/kg
0512083	0512083-3	TMSB-110-10	Soil	Uranium	0.011	0.00051	1.2		J+	j	mg/kg
0512083	0512083-3	TMSB-110-10	Soil	Zinc	2.1	0.07	32		J-	j	mg/kg
0512083	0512083-3	TMSB-110-10	Soil	Sodium	110	0.62	940		J-	j	mg/kg
0601047	0601047-1	TMSB-118-01	Soil	Cobalt	2.1	0.1	10		J-	j	mg/kg
0601047	0601047-1	TMSB-118-01	Soil	Sodium	100	0.18	570		J+	j	mg/kg
0601047	0601047-1	TMSB-118-01	Soil	Beryllium	0.52	0.0021	0.7		J-	j	mg/kg

TABLE B-14 (continued)
OTHER STABLE CHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0601047	0601047-1	TMSB-118-01	Soil	Nickel	2.1	0.073	27		J-	j	mg/kg
0601047	0601047-2	TMSB-118-05	Soil	Beryllium	0.52	0.0021	0.49	B	UJ	b, j	mg/kg
0601047	0601047-2	TMSB-118-05	Soil	Cobalt	3.1	0.15	7		J-	j	mg/kg
0601047	0601047-2	TMSB-118-05	Soil	Nickel	2.1	0.072	21		J-	j	mg/kg
0601047	0601047-2	TMSB-118-05	Soil	Sodium	310	0.53	15000		J+	j	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Beryllium	0.52	0.0021	0.12	B	UJ	b, j	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Cobalt	2.1	0.099	1.6	B	UJ	b, j	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Nickel	2.1	0.072	5.3		J-	j	mg/kg
0601047	0601047-3	TMSB-118-10	Soil	Sodium	1000	1.7	59000		J+	j	mg/kg
0601047	0601047-12	TMSB-119-01	Soil	Cobalt	2.1	0.099	12		J-	j	mg/kg
0601047	0601047-12	TMSB-119-01	Soil	Beryllium	0.52	0.0021	0.58		J-	j	mg/kg
0601047	0601047-12	TMSB-119-01	Soil	Nickel	2.1	0.072	84		J-	j	mg/kg
0601047	0601047-12	TMSB-119-01	Soil	Sodium	100	0.17	920		J+	j	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Beryllium	0.53	0.0021	0.43	B	UJ	b, j	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Cobalt	1.1	0.051	7.8		J-	j	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Nickel	2.1	0.074	19		J-	j	mg/kg
0601047	0601047-14	TMSB-119-10	Soil	Sodium	110	0.18	4800		J+	j	mg/kg

TABLE B-14 (continued)
OTHER STABLE CHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Notes:

+	Result is possibly biased high
-	Result is possibly biased low
µg/L	Microgram per liter
B	Result less than the practical quantitation limit for metals and inorganics, and detected in associated laboratory blank for organics
b	Comment code representing qualification due to associated laboratory blank contamination
BHC	Benzene hexachloride
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethene
e	Comment code representing qualification due to spike recovery
j	Comment code representing qualification due to serial dilution results
J	Value is estimated
mg/kg	Milligram per kilogram
PQL	Practical quantitation limit
SDG	Sample delivery group
SQL	Sample quantitation limit
U	Undetected
UJ	Undetected at estimated quantitation limit

TABLE B-15
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604188	0604188-5	BRW-R1	Water	Bi-214	15.6		4.38	UJ	UJ	o	pCi/L
0604188	0604188-5	BRW-R1	Water	Pb-214	14		1.24	UJ	UJ	o	pCi/L
0604215	0604215-3	CLD4-R	Water	Pb-214	9.14		5.26	UJ	UJ	o	pCi/L
0604215	0604215-3	CLD4-R	Water	Bi-214	9.6		6.8	UJ	UJ	o	pCi/L
0604181	0604181-1	J2D1-R2	Water	Bi-214	21.6		4.8	UJ	UJ	o	pCi/L
0604181	0604181-2	J2D1-R2DUP	Water	Pb-214	17.3		12.3	UMJ	UJ	o	pCi/L
0604181	0604181-2	J2D1-R2DUP	Water	Bi-214	19.6		9.66	UJ	UJ	o	pCi/L
0604181	0604181-4	J2D2-R2	Water	Bi-214	14.7		-24.9	UJ	UJ	o	pCi/L
0604181	0604181-4	J2D2-R2	Water	Pb-214	12.2		6.97	UJ	UJ	o	pCi/L
0604181	0604181-5	J2D3-R	Water	Bi-214	23.6		14.7	UJ	UJ	o	pCi/L
0604230	0604230-3	J2U2	Water	Bi-214	24.2		-0.48	UJ	UJ	o	pCi/L
0604230	0604230-3	J2U2	Water	Pb-214	9.36		4.71	UJ	UJ	o	pCi/L
0604215	0604215-1	MW-3	Water	Pb-214	7.96		7.59	UJ	UJ	o	pCi/L
0604188	0604188-1	MW-4	Water	Bi-214	9.98		9.74	UJ	UJ	o	pCi/L
0604188	0604188-1	MW-4	Water	Pb-214	8.21		6.7	UJ	UJ	o	pCi/L
0604188	0604188-4	MW-5	Water	Bi-214	15.8		1.58	UJ	UJ	o	pCi/L
0604188	0604188-4	MW-5	Water	Pb-214	13.6		0.535	UJ	UJ	o	pCi/L
0604215	0604215-2	MW-6R	Water	Pb-214	13		1.44	UJ	UJ	o	pCi/L
0604215	0604215-2	MW-6R	Water	Bi-214	15.5		8.74	UJ	UJ	o	pCi/L
0605007	0605007-3	PC12	Water	Pb-214	13.6		0.636	UJ	J	b, o	pCi/L
0605007	0605007-3	PC12	Water	Bi-214	17		3.44	UJ	UJ	b, o	pCi/L
0605007	0605007-1	PC17	Water	Pb-214	8.77		9.67	LTJTI	J	b, o	pCi/L
0605007	0605007-1	PC17	Water	Bi-214	9.6		7.2	UJ	UJ	o	pCi/L

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0605040	0605040-1	PC24	Water	Pb-214	15.8		7.28	UMJ	UJ	o	pCi/L
0605040	0605040-1	PC24	Water	Bi-214	16.6		14.3	UJ	UJ	o	pCi/L
0604230	0604230-6	PC28	Water	Pb-214	13.5		0.708	UJ	UJ	o	pCi/L
0604230	0604230-6	PC28	Water	Bi-214	21.9		10.2	UJ	UJ	o	pCi/L
0605040	0605040-2	PC40	Water	Bi-214	20.9		5	UJ	UJ	o	pCi/L
0605040	0605040-2	PC40	Water	Pb-214	18.4		7.4	UMJ	UJ	o	pCi/L
0605023	0605023-3	PC50	Water	Bi-214	16.9		14.4	UJ	UJ	o	pCi/L
0605023	0605023-3	PC50	Water	Pb-214	15.8		5.5	UMJ	UJ	o	pCi/L
0605023	0605023-4	PC54	Water	Pb-214	18.3		10.9	UMJ	UJ	o	pCi/L
0605023	0605023-4	PC54	Water	Bi-214	19.8		7.95	UJ	UJ	o	pCi/L
0604230	0604230-5	PC64	Water	Bi-214	17.6		-2.4	UJ	UJ	o	pCi/L
0604230	0604230-5	PC64	Water	Pb-214	15.3		-3.35	UMJ	UJ	o	pCi/L
0604230	0604230-1	PC67	Water	Pb-214	7.03		7.27	LTJTI	J	b, o	pCi/L
0604230	0604230-1	PC67	Water	Bi-214	7.78		6.76	UJ	UJ	o	pCi/L
0604230	0604230-2	PC67Dup	Water	Bi-214	18.2		-0.389	UJ	UJ	o	pCi/L
0604230	0604230-2	PC67Dup	Water	Pb-214	15.9		-3.23	UMJ	UJ	o	pCi/L
0605023	0605023-1	PC72	Water	Bi-214	20.6		8.29	UJ	UJ	o	pCi/L
0605023	0605023-1	PC72	Water	Pb-214	17.9		7.89	UMJ	UJ	o	pCi/L
0604161	0604161-3	TMMW-102	Water	Pb-214	9.04		8.51	UJ	UJ	o	pCi/L
0604178	0604178-1	TMMW-104	Water	Pb-214	6.1		4.7	UJ	UJ	o	pCi/L
0606031	0606031-8	TMSB-101-40	Soil	Pb-214	0.265		1.29	GJ	J	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Bi-214	0.298		1.29	GJ	J	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Pa-234M	24.5		19.5	UG	J+	o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-8	TMSB-101-40	Soil	Tl-208	0.185		0.565	G	J+	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Th-234	1.62		2.12	LTG	J+	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Ac-228	0.606		1.36	G	J+	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Ra-224	0.261		2.13	G	J+	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Ra-228	0.606		1.36	G	J+	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Pb-212	0.261		2.13	G	J+	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	K-40	2.03		25.4	G	J+	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Co-60	0.205		0.0439	UG	UJ	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Co-57	0.11		-0.017	UG	UJ	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Bi-212	2.8		2.38	UG	UJ	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Cs-137	0.173		0.0411	UG	UJ	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Th-227	18		-0.0308	UG	UJ	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	Cs-134	0.181		0.0112	UG	UJ	o	pCi/g
0606031	0606031-8	TMSB-101-40	Soil	U-235	0.587		0.274	UG	UJ	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Bi-214	0.39		1.07	GJ	J	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Pb-214	0.306		1.42	GJ	J	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Ra-228	0.705		2.29	G	J+	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Ac-228	0.705		2.29	G	J+	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Bi-212	1.83		1.84	LTG	J+	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	K-40	2.32		27.6	G	J+	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Pb-212	0.309		2.43	G	J+	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Tl-208	0.235		0.8	G	J+	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Ra-224	0.309		2.43	G	J+	o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-9	TMSB-101-70	Soil	Cs-134	0.188		0.00103	UG	UJ	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Th-227	1.09		-0.097	UG	UJ	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Pa-234M	33		14.3	UG	UJ	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Cs-137	0.168		0.059	UG	UJ	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	U-235	0.737		0.0498	UG	UJ	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Co-60	0.201		-0.0043	UG	UJ	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Th-234	3.24		2.6	UG	UJ	o	pCi/g
0606031	0606031-9	TMSB-101-70	Soil	Co-57	0.145		0.0875	UG	UJ	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Pb-214	0.32		1.16	GJ	J	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Bi-214	0.374		1.13	GJ	J	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Tl-208	0.198		0.59	G	J+	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	K-40	2.8		23.4	G	J+	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Ra-228	0.792		1.92	G	J+	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Pb-212	0.389		2.21	G	J+	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Ac-228	0.792		1.92	G	J+	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Ra-224	0.389		2.21	G	J+	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Cs-134	0.208		-0.0236	UG	UJ	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Th-234	2.92		1.29	UG	UJ	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Co-60	0.254		-0.0383	UG	UJ	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Co-57	0.182		-0.0495	UG	UJ	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	U-235	0.742		0.247	UG	UJ	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Pa-234M	27.5		9.36	UG	UJ	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Cs-137	0.171		0.0198	UG	UJ	o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-3	TMSB-102-65	Soil	Th-227	1.5		-0.495	UG	UJ	o	pCi/g
0606031	0606031-3	TMSB-102-65	Soil	Bi-212	2.98		2.08	UG	UJ	o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Bi-214	0.349		1.14	GJ	J	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Pb-214	0.295		0.948	GJ	J	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Ac-228	0.687		1.71	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Ra-228	0.687		1.71	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Pb-212	0.304		2.29	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Ra-224	0.304		2.29	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Tl-208	0.191		0.627	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	K-40	2.18		18.9	G	J+	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Th-227	1.07		0.178	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Bi-212	2.81		2.29	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	U-235	0.72		-0.0673	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Pa-234M	31.2		11.9	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Cs-137	0.179		0.0118	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Co-60	0.229		-0.0261	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Cs-134	0.269		0.0454	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Th-234	2.34		2.17	UG	UJ	h, o	pCi/g
0606031	0606031-6	TMSB-103-65	Soil	Co-57	0.142		0.00969	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-214	0.237		1.37	GJ	J	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-214	0.237		1.37	GJ	J	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Bi-214	0.26		1.07	GJ	J	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Bi-214	0.26		1.07	GJ	J	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-9	TMSB-104-20	Soil	Ra-228	0.565		1.67	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ra-228	0.565		1.67	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	K-40	1.5		24	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	K-40	1.5		24	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-212	0.24		2.36	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-234	1.67		2.06	LTG	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-234	1.67		2.06	LTG	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ac-228	0.565		1.67	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Tl-208	0.129		0.728	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ra-224	0.24		2.36	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ra-224	0.24		2.36	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pb-212	0.24		2.36	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Tl-208	0.129		0.728	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Ac-228	0.565		1.67	G	J+	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Bi-212	1.97		1.92	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Cs-137	0.129		-0.0155	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-227	16.1		-2.47	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Th-227	16.1		-2.47	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pa-234M	22.7		-1.04	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Pa-234M	22.7		-1.04	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Cs-137	0.129		-0.0155	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Cs-134	0.13		0.0148	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Cs-134	0.13		0.0148	UG	UJ	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
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Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-9	TMSB-104-20	Soil	Co-60	0.125		0.0304	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	U-235	0.679		-0.0754	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Bi-212	1.97		1.92	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Co-60	0.125		0.0304	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	U-235	0.679		-0.0754	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Co-57	0.109		0.055	UG	UJ	h, o	pCi/g
0606030	0606030-9	TMSB-104-20	Soil	Co-57	0.109		0.055	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Bi-214	0.305		1.05	GJ	J	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-214	0.276		1.26	GJ	J	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-214	0.276		1.26	GJ	J	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Bi-214	0.305		1.05	GJ	J	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ac-228	0.719		2.27	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Bi-212	2.61		2.9	LTGTI	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ra-224	0.274		2.54	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Tl-208	0.218		0.738	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-212	0.274		2.54	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ac-228	0.719		2.27	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ra-224	0.274		2.54	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Tl-208	0.218		0.738	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pb-212	0.274		2.54	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	K-40	1.54		25.8	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Bi-212	2.61		2.9	LTGTI	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	K-40	1.54		25.8	G	J+	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-10	TMSB-104-40	Soil	Ra-228	0.719		2.27	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Ra-228	0.719		2.27	G	J+	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Cs-137	0.17		0.00901	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Co-57	0.154		-0.0582	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Co-57	0.154		-0.0582	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Cs-137	0.17		0.00901	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	U-235	0.763		0.346	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	U-235	0.763		0.346	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-234	1.9		1.62	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-234	1.9		1.62	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pa-234M	28.7		12.9	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Cs-134	0.193		-0.0551	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Cs-134	0.193		-0.0551	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Co-60	0.173		0.0763	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Co-60	0.173		0.0763	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-227	0.825		0.22	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Th-227	0.825		0.22	UG	UJ	h, o	pCi/g
0606030	0606030-10	TMSB-104-40	Soil	Pa-234M	28.7		12.9	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Bi-214	0.34		1.12	GJ	J	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Bi-214	0.34		1.12	GJ	J	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pb-214	0.274		1.3	GJ	J	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pb-214	0.274		1.3	GJ	J	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ac-228	0.719		1.58	G	J+	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-11	TMSB-104-65	Soil	Pb-212	0.318		1.96	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	K-40	1.3		25.3	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pb-212	0.318		1.96	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Tl-208	0.172		0.79	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Tl-208	0.172		0.79	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-224	0.318		1.96	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-224	0.318		1.96	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	K-40	1.3		25.3	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-228	0.719		1.58	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ac-228	0.719		1.58	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Ra-228	0.719		1.58	G	J+	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	U-235	0.664		0.0238	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Co-60	0.169		0.009	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Co-60	0.169		0.009	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Co-57	0.121		-0.0169	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Co-57	0.121		-0.0169	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Bi-212	2.41		2.33	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Cs-134	0.159		0.0466	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Cs-137	0.115		0	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Cs-137	0.115		0	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Bi-212	2.41		2.33	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Cs-134	0.159		0.0466	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pa-234M	24.7		2.45	UG	UJ	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-11	TMSB-104-65	Soil	U-235	0.664		0.0238	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-234	1.8		1.7	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-234	1.8		1.7	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-227	18.2		-1.54	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Th-227	18.2		-1.54	UG	UJ	h, o	pCi/g
0606030	0606030-11	TMSB-104-65	Soil	Pa-234M	24.7		2.45	UG	UJ	h, o	pCi/g
0512045	0512045-1	TMSB-105-01	Soil	Bi-214	0.248		1.15	GJ	J	b, o	pCi/g
0512045	0512045-1	TMSB-105-01	Soil	Pb-214	0.26		1.26	GJ	J	b, o	pCi/g
0512045	0512045-2	TMSB-105-05	Soil	Pb-214	0.299		1.1	GJ	J	b, o	pCi/g
0512045	0512045-2	TMSB-105-05	Soil	Bi-214	0.234		1.3	GJ	J	b, o	pCi/g
0512045	0512045-3	TMSB-105-10	Soil	Bi-214	0.298		1.14	GJ	J	b, o	pCi/g
0512045	0512045-3	TMSB-105-10	Soil	Pb-214	0.327		1.29	GJ	J	b, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Tl-208	0.0939		0.796		J+	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Tl-208	0.0939		0.796		J+	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-234	1.53		3.5	LTTI	J+	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Th-234	1.53		3.5	LTTI	J+	h, o	pCi/g
0512057	0512057-1	TMSB-106-01	Soil	Pb-214	0.261		1.22	J	J	o	pCi/g
0512057	0512057-1	TMSB-106-01	Soil	Bi-214	0.255		1.29	J	J	o	pCi/g
0512057	0512057-2	TMSB-106-05	Soil	Bi-214	0.279		0.96	GJ	J	o	pCi/g
0512057	0512057-2	TMSB-106-05	Soil	Pb-214	0.276		1	GJ	J	o	pCi/g
0512057	0512057-3	TMSB-106-10	Soil	Bi-214	0.283		1.41	GJ	J	o	pCi/g
0512057	0512057-3	TMSB-106-10	Soil	Pb-214	0.302		1.35	GJ	J	o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pb-214	0.261		1.6	GJ	J	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
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Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-2	TMSB-106-25	Soil	Pb-214	0.261		1.6	GJ	J	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Bi-214	0.27		1.42	GJ	J	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Bi-214	0.27		1.42	GJ	J	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Tl-208	0.123		0.726	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pb-212	0.237		2.3	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	K-40	1.45		23.4	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	K-40	1.45		23.4	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pb-212	0.237		2.3	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-234	1.82		3.09	LTG	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-228	0.503		1.81	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-234	1.82		3.09	LTG	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-224	0.237		2.3	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-224	0.237		2.3	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Tl-208	0.123		0.726	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ra-228	0.503		1.81	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ac-228	0.503		1.81	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Ac-228	0.503		1.81	G	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Bi-212	2.01		2.84	LTG	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Bi-212	2.01		2.84	LTG	J+	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Co-60	0.169		0.0194	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Cs-134	0.151		-0.0205	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Co-60	0.169		0.0194	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Co-57	0.128		-0.0177	UG	UJ	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
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Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-2	TMSB-106-25	Soil	Co-57	0.128		-0.0177	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Cs-134	0.151		-0.0205	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Cs-137	0.132		0.0107	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-227	0.955		0.118	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Th-227	0.955		0.118	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pa-234M	22.9		1.08	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Cs-137	0.132		0.0107	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	U-235	0.718		0.163	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	U-235	0.718		0.163	UG	UJ	h, o	pCi/g
0606030	0606030-2	TMSB-106-25	Soil	Pa-234M	22.9		1.08	UG	UJ	h, o	pCi/g
0512057	0512057-7	TMSB-107-01	Soil	Bi-214	0.264		1.22	GJ	J	o	pCi/g
0512057	0512057-7	TMSB-107-01	Soil	Pb-214	0.268		1.2	GJ	J	o	pCi/g
0512057	0512057-8	TMSB-107-05	Soil	Pb-214	0.257		1.78	J	J	o	pCi/g
0512057	0512057-9	TMSB-107-10	Soil	Bi-214	0.305		1.27	GJ	J	o	pCi/g
0512057	0512057-9	TMSB-107-10	Soil	Pb-214	0.293		1.21	GJ	J	o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-214	0.275		1.56	GJ	J	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-214	0.275		1.56	GJ	J	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Bi-214	0.321		1.53	GJ	J	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Bi-214	0.321		1.53	GJ	J	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	K-40	1.85		22.1	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-212	0.273		2.25	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pb-212	0.273		2.25	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	K-40	1.85		22.1	G	J+	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
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Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-3	TMSB-107-25	Soil	Tl-208	0.184		0.853	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Tl-208	0.184		0.853	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ra-228	0.693		1.83	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ra-228	0.693		1.83	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ac-228	0.693		1.83	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ac-228	0.693		1.83	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Bi-212	2.14		2.2	LTG	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Bi-212	2.14		2.2	LTG	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ra-224	0.273		2.25	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Ra-224	0.273		2.25	G	J+	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Co-57	0.191		-0.039	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Co-57	0.191		-0.039	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Co-60	0.169		0.0189	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Co-60	0.169		0.0189	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Cs-134	0.147		0.09	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Cs-134	0.147		0.09	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-234	2.46		1.98	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pa-234M	28.1		-2.5	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Cs-137	0.164		-0.0189	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-227	22.2		-0.783	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Cs-137	0.164		-0.0189	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Pa-234M	28.1		-2.5	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	U-235	0.926		-0.0355	UG	UJ	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-3	TMSB-107-25	Soil	U-235	0.926		-0.0355	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-227	22.2		-0.783	UG	UJ	h, o	pCi/g
0606030	0606030-3	TMSB-107-25	Soil	Th-234	2.46		1.98	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Bi-214	0.21		1.28	GJ	J	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Bi-214	0.21		1.28	GJ	J	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pb-214	0.164		1.37	GJ	J	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pb-214	0.164		1.37	GJ	J	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ac-228	0.433		2.24	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ac-228	0.433		2.24	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Bi-212	1.7		2.46	LTG	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Bi-212	1.7		2.46	LTG	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-224	0.194		2.88	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-224	0.194		2.88	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Tl-208	0.117		0.764	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Tl-208	0.117		0.764	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-234	1.9		3.24	LTGTI	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pb-212	0.194		2.88	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	K-40	1.09		25.2	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	K-40	1.09		25.2	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-234	1.9		3.24	LTGTI	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-228	0.433		2.24	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Ra-228	0.433		2.24	G	J+	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pb-212	0.194		2.88	G	J+	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-5	TMSB-108-30	Soil	U-235	0.542		-0.156	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Cs-137	0.108		0.017	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Cs-137	0.108		0.017	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pa-234M	22.4		-10.4	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Co-57	0.109		-0.0264	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Pa-234M	22.4		-10.4	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	U-235	0.542		-0.156	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Co-57	0.109		-0.0264	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Cs-134	0.0831		0.0725	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Co-60	0.153		-0.0248	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-227	14.1		1.41	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Cs-134	0.0831		0.0725	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Co-60	0.153		-0.0248	UG	UJ	h, o	pCi/g
0606030	0606030-5	TMSB-108-30	Soil	Th-227	14.1		1.41	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Bi-214	0.269		1.18	GJ	J	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Bi-214	0.269		1.18	GJ	J	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-214	0.262		1.23	GJ	J	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-214	0.262		1.23	GJ	J	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Co-57	0.141		0.164	GTI	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Co-57	0.141		0.164	GTI	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-228	0.499		2.12	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-228	0.499		2.12	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ac-228	0.499		2.12	G	J+	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-6	TMSB-109-20	Soil	Ac-228	0.499		2.12	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Tl-208	0.163		0.864	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-224	0.273		2.35	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Tl-208	0.163		0.864	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-212	0.273		2.35	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pb-212	0.273		2.35	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	K-40	1.81		25.5	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	K-40	1.81		25.5	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Ra-224	0.273		2.35	G	J+	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pa-234M	26.8		-2.45	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Co-60	0.152		0.00724	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-227	23.7		-2.04	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Co-60	0.152		0.00724	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Pa-234M	26.8		-2.45	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Cs-137	0.157		0.00617	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Cs-137	0.157		0.00617	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-235	0.767		0.296	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	U-235	0.767		0.296	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Bi-212	1.74		1.34	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Bi-212	1.74		1.34	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-227	23.7		-2.04	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-234	2.86		0.354	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Th-234	2.86		0.354	UG	UJ	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-6	TMSB-109-20	Soil	Cs-134	0.168		-0.0529	UG	UJ	h, o	pCi/g
0606030	0606030-6	TMSB-109-20	Soil	Cs-134	0.168		-0.0529	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Bi-214	0.355		1.45	GJ	J	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-214	0.322		1.5	GJ	J	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Bi-214	0.355		1.45	GJ	J	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-214	0.322		1.5	GJ	J	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	K-40	1.81		25.8	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	K-40	1.81		25.8	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-228	0.574		2.23	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ac-228	0.574		2.23	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Bi-212	2.72		3.88	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-212	0.286		3	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Bi-212	2.72		3.88	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pb-212	0.286		3	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-228	0.574		2.23	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-224	0.286		3	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Tl-208	0.176		0.842	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Tl-208	0.176		0.842	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ra-224	0.286		3	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Ac-228	0.574		2.23	G	J+	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Cs-134	0.18		0.0653	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Co-57	0.214		0.0724	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Co-57	0.214		0.0724	UG	UJ	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-7	TMSB-109-30	Soil	Co-60	0.231		-0.0554	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Cs-134	0.18		0.0653	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Co-60	0.231		-0.0554	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-227	23.1		2.33	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	U-235	1.06		-0.178	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	U-235	1.06		-0.178	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Cs-137	0.184		-0.0122	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Cs-137	0.184		-0.0122	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pa-234M	30.4		2.39	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Pa-234M	30.4		2.39	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-234	2.85		2.22	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-234	2.85		2.22	UG	UJ	h, o	pCi/g
0606030	0606030-7	TMSB-109-30	Soil	Th-227	23.1		2.33	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Bi-214	0.288		1.08	GJ	J	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Bi-214	0.288		1.08	GJ	J	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pb-214	0.231		1.04	GJ	J	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pb-214	0.231		1.04	GJ	J	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ac-228	0.706		1.84	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ac-228	0.706		1.84	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-228	0.706		1.84	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-228	0.706		1.84	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-224	0.312		2.03	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Ra-224	0.312		2.03	G	J+	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-4	TMSB-110-30	Soil	Tl-208	0.178		0.745	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Tl-208	0.178		0.745	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pb-212	0.312		2.03	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pb-212	0.312		2.03	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	K-40	1.61		19.3	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	K-40	1.61		19.3	G	J+	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Cs-137	0.157		-0.0216	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Co-57	0.139		0.0179	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Bi-212	2.66		1.33	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Bi-212	2.66		1.33	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-235	0.712		0.2	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Co-60	0.194		0.00994	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Cs-137	0.157		-0.0216	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pa-234M	23.9		12.3	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Pa-234M	23.9		12.3	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-227	22.3		-0.184	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-227	22.3		-0.184	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	U-235	0.712		0.2	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Th-234	1.74		1.46	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Co-57	0.139		0.0179	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Co-60	0.194		0.00994	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Cs-134	0.174		-0.0382	UG	UJ	h, o	pCi/g
0606030	0606030-4	TMSB-110-30	Soil	Cs-134	0.174		-0.0382	UG	UJ	h, o	pCi/g

TABLE B-15 (continued)
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-4	TMSB-110-30	Soil	Th-234	1.74		1.46	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Bi-214	0.293		1.25	GJ	J	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Bi-214	0.293		1.25	GJ	J	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-214	0.294		1.36	GJ	J	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-214	0.294		1.36	GJ	J	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Bi-212	2.79		4.33	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Tl-208	0.21		0.706	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	K-40	1.48		25	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	K-40	1.48		25	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-212	0.257		2.23	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pb-212	0.257		2.23	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Bi-212	2.79		4.33	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Tl-208	0.21		0.706	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-224	0.257		2.23	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-224	0.257		2.23	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ac-228	0.577		2.12	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-228	0.577		2.12	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ac-228	0.577		2.12	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Ra-228	0.577		2.12	G	J+	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Cs-134	0.168		-0.0915	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Cs-134	0.168		-0.0915	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Co-60	0.126		0.0141	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Co-60	0.126		0.0141	UG	UJ	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-8	TMSB-111-35	Soil	Co-57	0.175		-0.0112	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Co-57	0.175		-0.0112	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-234	2.59		2.04	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-234	2.59		2.04	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	U-235	0.86		0.0508	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	U-235	0.86		0.0508	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Cs-137	0.164		-0.048	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Cs-137	0.164		-0.048	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pa-234M	28.7		1.19	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Pa-234M	28.7		1.19	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-227	23.2		-4.8	UG	UJ	h, o	pCi/g
0606030	0606030-8	TMSB-111-35	Soil	Th-227	23.2		-4.8	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Bi-214	0.28		1.29	GJ	J	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Bi-214	0.28		1.29	GJ	J	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-214	0.231		1.2	GJ	J	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-214	0.231		1.2	GJ	J	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	K-40	1.35		25.5	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Bi-212	2.02		2.59	LTG	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Bi-212	2.02		2.59	LTG	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ac-228	0.566		1.63	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	K-40	1.35		25.5	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ac-228	0.566		1.63	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ra-228	0.566		1.63	G	J+	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606030	0606030-12	TMSB-112-35	Soil	Ra-228	0.566		1.63	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-212	0.232		2.44	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ra-224	0.232		2.44	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Ra-224	0.232		2.44	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Tl-208	0.174		0.787	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Tl-208	0.174		0.787	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pb-212	0.232		2.44	G	J+	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Cs-134	0.159		-0.0158	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Cs-134	0.159		-0.0158	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Co-60	0.165		-0.00722	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Co-60	0.165		-0.00722	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Co-57	0.164		-0.0092	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-234	3.67		2.72	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Co-57	0.164		-0.0092	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-227	1.08		-0.404	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-227	1.08		-0.404	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pa-234M	21.4		-1.1E-06	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Pa-234M	21.4		-1.1E-06	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Cs-137	0.136		-0.0277	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Cs-137	0.136		-0.0277	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	U-235	0.814		-0.437	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	Th-234	3.67		2.72	UG	UJ	h, o	pCi/g
0606030	0606030-12	TMSB-112-35	Soil	U-235	0.814		-0.437	UG	UJ	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606032	0606032-9	TMSB-113-40	Soil	Bi-212	1.99		2.66	LTTI	J	h, o	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Cs-134	0.101		0.131	TI	J	h, o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Pb-214	0.321		1.52	GJ	J	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Bi-214	0.362		1.18	GJ	J	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Ra-224	0.253		2.52	G	J+	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Tl-208	0.209		0.627	G	J+	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Pb-212	0.253		2.52	G	J+	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	K-40	2.3		29.1	G	J+	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Ac-228	0.749		1.58	G	J+	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Ra-228	0.749		1.58	G	J+	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Th-234	1.72		2.29	LTG	UJ	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Cs-134	0.201		-0.0172	UG	UJ	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Co-60	0.191		0.000865	UG	UJ	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Co-57	0.108		-0.0424	UG	UJ	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Bi-212	2.72		2.69	UG	UJ	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	U-235	0.713		0.0532	UG	UJ	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Cs-137	0.172		-0.0124	UG	UJ	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Th-227	21.1		-0.518	UG	UJ	o	pCi/g
0606031	0606031-12	TMSB-118-45	Soil	Pa-234M	25.1		20.6	UG		o	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Bi-212	2.65		2.88	LTTI	J	h, o	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Th-234	1.94		2.53	LTTI	J	h, o	pCi/g
0604149	0604149-1	CLD1-R	Water	Bi-214	27.7		178	M3J	J-	d, o	pCi/L
0604149	0604149-1	CLD1-R	Water	Pb-214	17.5		179	M3J	J-	d, o	pCi/L

TABLE B-15 (continued)
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0604149	0604149-3	CLD2-R	Water	Pb-214	13.8		267	J	J-	d, o	pCi/L
0604149	0604149-3	CLD2-R	Water	Bi-214	27.8		256	M3J	J-	d, o	pCi/L
0604162	0604162-1	CLD3-R	Water	Bi-214	22.9		42.6	J	J-	o	pCi/L
0604162	0604162-1	CLD3-R	Water	Pb-214	18		57.2	M3J	J-	o	pCi/L
0604181	0604181-1	J2D1-R2	Water	Pb-214	16		4.89	UMJ	J-	o	pCi/L
0604181	0604181-5	J2D3-R	Water	Pb-214	7.28		11.9	LTJ	J-	o	pCi/L
0604215	0604215-1	MW-3	Water	Bi-214	9.6		13	LTJTI	J-	o	pCi/L
0512095	0512095-2	Rinsate 01	Water	Bi-214	15.8		-27.7	UJ	J-	o	pCi/L
0512095	0512095-2	Rinsate 01	Water	Pb-214	13.5		-6.28	UJ	J-	o	pCi/L
0512095	0512095-1	Source Water	Water	Bi-214	16.9		-11.1	UJ	J-	o	pCi/L
0604161	0604161-1	TMMW-101	Water	Pb-214	14		38.4	J	J-	o	pCi/L
0604161	0604161-1	TMMW-101	Water	Bi-214	15.7		36.7	J	J-	o	pCi/L
0604161	0604161-3	TMMW-102	Water	Bi-214	10.2		13	LTJTI	J-	o	pCi/L
0604161	0604161-4	TMMW-103	Water	Pb-214	13.6		21	J	J-	o	pCi/L
0604161	0604161-4	TMMW-103	Water	Bi-214	15.6		22	LTJ	J-	o	pCi/L
0604178	0604178-1	TMMW-104	Water	Bi-214	10.1		13.5	LTJ	J-	o	pCi/L
0512122	0512122-1	TMSB-101-01	Soil	Bi-214	0.266		0.943	GJ	J-	o	pCi/g
0512122	0512122-1	TMSB-101-01	Soil	Pb-214	0.248		1.14	GJ	J-	o	pCi/g
0512122	0512122-2	TMSB-101-05	Soil	Bi-214	0.271		1.14	GJ	J-	o	pCi/g
0512122	0512122-2	TMSB-101-05	Soil	Pb-214	0.301		1.3	GJ	J-	o	pCi/g
0512122	0512122-3	TMSB-101-10	Soil	Bi-214	0.234		1.24	GJ	J-	o	pCi/g
0512122	0512122-3	TMSB-101-10	Soil	Pb-214	0.233		1.47	GJ	J-	o	pCi/g
0606031	0606031-7	TMSB-101-20	Soil	Pb-214	0.299		2.14	J	J-	o	pCi/g

TABLE B-15 (continued)
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SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-7	TMSB-101-20	Soil	Bi-214	0.354		1.86	J	J-	o	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	Bi-214	0.298		1.43	J	J-	h, o	pCi/g
0606031	0606031-1	TMSB-102-20	Soil	Pb-214	0.252		1.61	J	J-	h,o	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	Pb-214	0.273		1.33	J	J-	h, o	pCi/g
0606031	0606031-2	TMSB-102-40	Soil	Bi-214	0.351		1.02	J	J-	h, o	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Pb-214	0.284		1.28	J	J-	h, o	pCi/g
0606031	0606031-4	TMSB-103-20	Soil	Bi-214	0.294		1.12	J	J-	h, o	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Bi-214	0.327		1.11	J	J-	h, o	pCi/g
0606031	0606031-5	TMSB-103-40	Soil	Pb-214	0.246		1.4	J	J-	h, o	pCi/g
0512100	0512100-1	TMSB-104-01	Soil	Bi-214	0.241		1.08	GJ	J-	o	pCi/g
0512100	0512100-1	TMSB-104-01	Soil	Pb-214	0.297		1.1	GJ	J-	o	pCi/g
0512100	0512100-2	TMSB-104-05	Soil	Pb-214	0.274		0.931	J	J-	o	pCi/g
0512100	0512100-2	TMSB-104-05	Soil	Bi-214	0.246		0.986	J	J-	o	pCi/g
0512100	0512100-3	TMSB-104-10	Soil	Pb-214	0.248		1.34	GJ	J-	o	pCi/g
0512100	0512100-3	TMSB-104-10	Soil	Bi-214	0.244		1.19	GJ	J-	o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pb-214	0.146		2.14	J	J-	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Bi-214	0.137		1.99	J	J-	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Pb-214	0.146		2.14	J	J-	h, o	pCi/g
0606030	0606030-1	TMSB-105-25	Soil	Bi-214	0.137		1.99	J	J-	h, o	pCi/g
0512083	0512083-9	TMSB-108-01	Soil	Bi-214	0.271		0.992	GJ	J-	o	pCi/g
0512083	0512083-9	TMSB-108-01	Soil	Pb-214	0.269		1.4	GJ	J-	o	pCi/g
0512083	0512083-10	TMSB-108-05	Soil	Pb-214	0.263		1.39	GJ	J-	o	pCi/g
0512083	0512083-10	TMSB-108-05	Soil	Bi-214	0.3		1.16	GJ	J-	o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512083	0512083-11	TMSB-108-10	Soil	Pb-214	0.279		1.4	GJ	J-	o	pCi/g
0512083	0512083-11	TMSB-108-10	Soil	Bi-214	0.276		1.36	GJ	J-	o	pCi/g
0512083	0512083-16	TMSB-109-01	Soil	Pb-214	0.43		10.2	GJ	J-	o	pCi/g
0512083	0512083-16	TMSB-109-01	Soil	Bi-214	1.26		8.44	M3GJ	J-	o	pCi/g
0512083	0512083-17	TMSB-109-05	Soil	Bi-214	0.284		1.1	GJ	J-	o	pCi/g
0512083	0512083-17	TMSB-109-05	Soil	Pb-214	0.263		1.27	GJ	J-	o	pCi/g
0512083	0512083-18	TMSB-109-10	Soil	Pb-214	0.248		1.15	GJ	J-	o	pCi/g
0512083	0512083-18	TMSB-109-10	Soil	Bi-214	0.279		1.12	GJ	J-	o	pCi/g
0512083	0512083-1	TMSB-110-01	Soil	Bi-214	0.312		1.32	GJ	J-	o	pCi/g
0512083	0512083-1	TMSB-110-01	Soil	Pb-214	0.257		1.3	GJ	J-	o	pCi/g
0512083	0512083-2	TMSB-110-05	Soil	Pb-214	0.279		1.22	GJ	J-	o	pCi/g
0512083	0512083-2	TMSB-110-05	Soil	Bi-214	0.3		1.11	GJ	J-	o	pCi/g
0512083	0512083-3	TMSB-110-10	Soil	Bi-214	0.317		1.24	GJ	J-	o	pCi/g
0512083	0512083-3	TMSB-110-10	Soil	Pb-214	0.231		1.3	GJ	J-	o	pCi/g
0512095	0512095-4	TMSB-111-01	Soil	Pb-214	0.231		1.07	J	J-	o	pCi/g
0512095	0512095-4	TMSB-111-01	Soil	Bi-214	0.304		0.967	J	J-	o	pCi/g
0512095	0512095-5	TMSB-111-05	Soil	Bi-214	0.275		1.05	GJ	J-	o	pCi/g
0512095	0512095-5	TMSB-111-05	Soil	Pb-214	0.311		1.12	GJ	J-	o	pCi/g
0512095	0512095-6	TMSB-111-10	Soil	Pb-214	0.254		1.23	GJ	J-	o	pCi/g
0512095	0512095-6	TMSB-111-10	Soil	Bi-214	0.28		1.2	GJ	J-	o	pCi/g
0512100	0512100-15	TMSB-112-01	Soil	Pb-214	0.277		1.24	GJ	J-	o	pCi/g
0512100	0512100-15	TMSB-112-01	Soil	Bi-214	0.282		1.13	GJ	J-	o	pCi/g
0512100	0512100-16	TMSB-112-05	Soil	Pb-214	0.243		0.976	GJ	J-	o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0512100	0512100-16	TMSB-112-05	Soil	Bi-214	0.248		0.826	GJ	J-	o	pCi/g
0512100	0512100-17	TMSB-112-10	Soil	Bi-214	0.245		1.13	GJ	J-	o	pCi/g
0512100	0512100-17	TMSB-112-10	Soil	Pb-214	0.289		1.2	GJ	J-	o	pCi/g
0601073	0601073-12	TMSB-113-01	Soil	Pb-214	0.264		1.06	J	J-	o	pCi/g
0601073	0601073-12	TMSB-113-01	Soil	Bi-214	0.322		0.988	J	J-	o	pCi/g
0601073	0601073-13	TMSB-113-05	Soil	Pb-214	0.281		1.03	J	J-	o	pCi/g
0601073	0601073-13	TMSB-113-05	Soil	Bi-214	0.294		0.726	J	J-	o	pCi/g
0601073	0601073-14	TMSB-113-10	Soil	Bi-214	0.44		0.857	J	J-	o	pCi/g
0601073	0601073-14	TMSB-113-10	Soil	Pb-214	0.337		1.03	J	J-	o	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Pb-214	0.282		1.07	J	J-	h, o	pCi/g
0606032	0606032-8	TMSB-113-20	Soil	Bi-214	0.302		0.983	J	J-	h, o	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Pb-214	0.228		1.16	J	J-	h, o	pCi/g
0606032	0606032-9	TMSB-113-40	Soil	Bi-214	0.238		0.796	J	J-	h, o	pCi/g
0601073	0601073-3	TMSB-115-01	Soil	Pb-214	0.261		2.65	J	J-	o	pCi/g
0601073	0601073-3	TMSB-115-01	Soil	Bi-214	0.274		2.28	J	J-	o	pCi/g
0601073	0601073-4	TMSB-115-05	Soil	Pb-214	0.272		0.83	J	J-	o	pCi/g
0601073	0601073-4	TMSB-115-05	Soil	Bi-214	0.286		0.971	J	J-	o	pCi/g
0601073	0601073-5	TMSB-115-10	Soil	Bi-214	0.396		0.917	GJ	J-	o	pCi/g
0601073	0601073-5	TMSB-115-10	Soil	Pb-214	0.28		0.916	GJ	J-	o	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Pb-214	0.251		0.872	J	J-	h, o	pCi/g
0606032	0606032-6	TMSB-115-20	Soil	Bi-214	0.275		1.01	J	J-	h, o	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Pb-214	0.258		0.991	J	J-	h, o	pCi/g
0606032	0606032-7	TMSB-115-40	Soil	Bi-214	0.263		0.802	J	J-	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601077	0601077-8	TMSB-116-01	Soil	Bi-214	0.34		2.06	J	J-	o	pCi/g
0601077	0601077-8	TMSB-116-01	Soil	Pb-214	0.304		2.24	J	J-	o	pCi/g
0601077	0601077-9	TMSB-116-05	Soil	Pb-214	0.247		1.19	GJ	J-	o	pCi/g
0601077	0601077-9	TMSB-116-05	Soil	Bi-214	0.289		1.02	GJ	J-	o	pCi/g
0601077	0601077-10	TMSB-116-10	Soil	Bi-214	0.369		0.602	J	J-	o	pCi/g
0601077	0601077-10	TMSB-116-10	Soil	Pb-214	0.278		0.969	J	J-	o	pCi/g
0601077	0601077-13	TMSB-117-01	Soil	Bi-214	0.328		1.37	J	J-	o	pCi/g
0601077	0601077-13	TMSB-117-01	Soil	Pb-214	0.286		1.38	J	J-	o	pCi/g
0601077	0601077-14	TMSB-117-05	Soil	Pb-214	0.418		22.8	GJ	J-	o	pCi/g
0601077	0601077-14	TMSB-117-05	Soil	Bi-214	0.389		20.8	GJ	J-	o	pCi/g
0601077	0601077-15	TMSB-117-10	Soil	Bi-214	0.386		2.31	GJ	J-	o	pCi/g
0601077	0601077-15	TMSB-117-10	Soil	Pb-214	0.299		2.71	GJ	J-	o	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Bi-214	0.314		1.05	J	J-	h, o	pCi/g
0606032	0606032-12	TMSB-117-20	Soil	Pb-214	0.268		1.04	J	J-	h, o	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Bi-214	0.241		1.01	J	J-	h, o	pCi/g
0606032	0606032-13	TMSB-117-30	Soil	Pb-214	0.2		0.918	J	J-	h, o	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Pb-214	0.26		0.955	J	J-	h, o	pCi/g
0606032	0606032-11	TMSB-117-45	Soil	Bi-214	0.266		1.13	J	J-	h, o	pCi/g
0606031	0606031-10	TMSB-118-20	Soil	Pb-214	0.328		2.18	J	J-	o	pCi/g
0606031	0606031-10	TMSB-118-20	Soil	Bi-214	0.33		1.94	J	J-	o	pCi/g
0606031	0606031-11	TMSB-118-30	Soil	Pb-214	0.226		1.12	J	J-	o	pCi/g
0606031	0606031-11	TMSB-118-30	Soil	Bi-214	0.287		1.24	J	J-	o	pCi/g
0606031	0606031-13	TMSB-120-20	Soil	Bi-214	0.284		0.904	J	J-	o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0606031	0606031-13	TMSB-120-20	Soil	Pb-214	0.238		0.973	J	J-	o	pCi/g
0606031	0606031-14	TMSB-120-30	Soil	Pb-214	0.229		1.1	J	J-	o	pCi/g
0606031	0606031-14	TMSB-120-30	Soil	Bi-214	0.304		0.979	J	J-	o	pCi/g
0606031	0606031-15	TMSB-120-40	Soil	Pb-214	0.284		1.43	J	J-	o	pCi/g
0606031	0606031-15	TMSB-120-40	Soil	Bi-214	0.293		1.28	J	J-	o	pCi/g
0601058	0601058-1	TMSB-121-01	Soil	Bi-214	0.368		0.914	GJ	J-	o	pCi/g
0601058	0601058-1	TMSB-121-01	Soil	Pb-214	0.328		0.994	GJ	J-	o	pCi/g
0601058	0601058-2	TMSB-121-05	Soil	Pb-214	0.35		0.759	GJ	J-	o	pCi/g
0601058	0601058-2	TMSB-121-05	Soil	Bi-214	0.423		0.699	GJ	J-	o	pCi/g
0601058	0601058-3	TMSB-121-10	Soil	Bi-214	0.342		0.926	J	J-	o	pCi/g
0601058	0601058-3	TMSB-121-10	Soil	Pb-214	0.331		0.848	J	J-	o	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Bi-214	0.315		1.37	J	J-	h, o	pCi/g
0606032	0606032-1	TMSB-121-20	Soil	Pb-214	0.282		1.27	J	J-	h, o	pCi/g
0601077	0601077-3	TMSB-123-01	Soil	Pb-214	0.316		2.61	GJ	J-	o	pCi/g
0601077	0601077-3	TMSB-123-01	Soil	Bi-214	0.378		2.31	GJ	J-	o	pCi/g
0601077	0601077-4	TMSB-123-05	Soil	Bi-214	0.403		0.824	GJ	J-	o	pCi/g
0601077	0601077-4	TMSB-123-05	Soil	Pb-214	0.327		1.16	GJ	J-	o	pCi/g
0601077	0601077-5	TMSB-123-10	Soil	Pb-214	0.285		1.15	GJ	J-	o	pCi/g
0601077	0601077-5	TMSB-123-10	Soil	Bi-214	0.299		1.21	GJ	J-	o	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Bi-214	0.255		1.3	J	J-	h, o	pCi/g
0606032	0606032-10	TMSB-123-20	Soil	Pb-214	0.217		1.36	J	J-	h, o	pCi/g
0601058	0601058-6	TMSB-124-01	Soil	Pb-214	0.299		1.61	J	J-	o	pCi/g
0601058	0601058-6	TMSB-124-01	Soil	Bi-214	0.327		1.72	J	J-	o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL [1]	Result		Qualifier	Comment	Unit
0601058	0601058-7	TMSB-124-05	Soil	Bi-214	0.427		0.975	GJ	J-	o	pCi/g
0601058	0601058-7	TMSB-124-05	Soil	Pb-214	0.331		1.09	GJ	J-	o	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Pb-214	0.232		1.34	J	J-	h, o	pCi/g
0606032	0606032-2	TMSB-124-20	Soil	Bi-214	0.268		1.21	J	J-	h, o	pCi/g
0601059	0601059-1	TMSB-125-01	Soil	Bi-214	0.349		1.28	GJ	J-	o	pCi/g
0601059	0601059-1	TMSB-125-01	Soil	Pb-214	0.335		1.25	GJ	J-	o	pCi/g
0601059	0601059-2	TMSB-125-05	Soil	Bi-214	0.366		0.997	GJ	J-	o	pCi/g
0601059	0601059-2	TMSB-125-05	Soil	Pb-214	0.303		1.1	GJ	J-	o	pCi/g
0601059	0601059-3	TMSB-125-10	Soil	Pb-214	0.336		1.29	GJ	J-	o	pCi/g
0601059	0601059-3	TMSB-125-10	Soil	Bi-214	0.452		0.766	GJ	J-	o	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Bi-214	0.239		1.05	J	J-	h, o	pCi/g
0606032	0606032-3	TMSB-125-15	Soil	Pb-214	0.235		1.11	J	J-	h, o	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Bi-214	0.316		1.36	J	J-	h, o	pCi/g
0606032	0606032-4	TMSB-125-20	Soil	Pb-214	0.282		1.83	J	J-	h, o	pCi/g
0601059	0601059-6	TMSB-126-01	Soil	Bi-214	0.318		1.82	J	J-	o	pCi/g
0601059	0601059-6	TMSB-126-01	Soil	Pb-214	0.356		2.15	J	J-	o	pCi/g
0601059	0601059-7	TMSB-126-05	Soil	Bi-214	0.372		1.08	J	J-	o	pCi/g
0601059	0601059-7	TMSB-126-05	Soil	Pb-214	0.321		1.13	J	J-	o	pCi/g
0601059	0601059-8	TMSB-126-10	Soil	Bi-214	0.303		1.21	J	J-	o	pCi/g
0601059	0601059-8	TMSB-126-10	Soil	Pb-214	0.259		1.07	J	J-	o	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Bi-214	0.255		1	J	J-	h, o	pCi/g
0606032	0606032-5	TMSB-126-25	Soil	Pb-214	0.244		1.14	J	J-	h, o	pCi/g

TABLE B-15 (continued)
OTHER RADIOCHEMISTRY QUALIFICATIONS
HYDROGEOLOGIC CHARACTERIZATION DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Notes:

+	Result is possibly biased high
-	Result is possibly biased low
b	Comment code representing qualification due to laboratory method blank and common blank contamination
d	Comment code representing qualification due to duplicate precision criteria exceedences
G	Sample density differs by more than 15 percent of laboratory control sample density
h	Comment code representing qualification due to holding time exceedences
J	Value is estimated
LT	Result is less than the requested MDA, but greater than the sample MDA; result is acceptable with no qualification.
M	Requested MDC was not met.
M3	Requested MDC was not met, but the result is greater than the sample-specific MDC
MDC	Minimum detectable concentration
o	Comment code representing qualification of radiochemistry data for reasons specified in table
pCi/g	PicoCurie per gram
pCi/L	PicoCurie per liter
PQL	Practical quantitation limit
SDG	Sample delivery group
SQL	Sample quantitation limit
TI	Tentatively identified peak
U	Undetected
UJ	Undetected at estimated quantitation limit

TABLE B-16
REJECTED DATA POINTS IN GROUNDWATER DATABASE
HYDROGEOLOGIC CHARACTERIZATION VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0512045	0512045-4	TMSB-105-15	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512045	0512045-6	TMSB-105-25	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512057	0512057-11	TMSB-107-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512057	0512057-12	TMSB-107-25	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512057	0512057-6	TMSB-106-25	Soil	Acetone	23	7.5	23	U	R	c	µg/kg
0512083	0512083-11	TMSB-108-10	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512083	0512083-12	TMSB-108-15	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-13	TMSB-108-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512083	0512083-14	TMSB-108-25	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512083	0512083-15	TMSB-108-30	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-18	TMSB-109-10	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-20	TMSB-109-20	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-22	TMSB-109-30	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512083	0512083-5	TMSB-110-20	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-6	TMSB-110-25	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512083	0512083-8	TMSB-110-35	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512095	0512095-10	TMSB-111-30	Soil	Acetone	22	7.4	22	U	R	c	µg/kg
0512095	0512095-5	TMSB-111-05	Soil	Acetone	22	7.1	22	U	R	c	µg/kg
0512095	0512095-6	TMSB-111-10	Soil	Acetone	22	7.4	22	U	R	c	µg/kg
0512100	0512100-13	TMSB-104-60	Soil	Acetone	23	7.6	23	U	R	c	µg/kg
0512100	0512100-18	TMSB-112-15	Soil	Acetone	22	7.1	22	U	R	c	µg/kg
0512100	0512100-19	TMSB-112-20	Soil	Acetone	21	7	21	U	R	c	µg/kg
0512100	0512100-20	TMSB-112-25	Soil	Acetone	21	7	21	U	R	c	µg/kg

TABLE B-16 (continued)
REJECTED DATA POINTS IN GROUNDWATER DATABASE
HYDROGEOLOGIC CHARACTERIZATION VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0512100	0512100-5	TMSB-104-20	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512100	0512100-6	TMSB-104-25	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0512100	0512100-8	TMSB-104-35	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512108	0512108-10	TMSB-102-45	Soil	Acetone	22	7.4	22	U	R	c	µg/kg
0512108	0512108-18	TMSB-103-15	Soil	Acetone	22	7.1	22	U	R	c	µg/kg
0512108	0512108-20	TMSB-103-25	Soil	Acetone	21	7	21	U	R	c	µg/kg
0512108	0512108-21	TMSB-103-30	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512108	0512108-6	TMSB-102-25	Soil	Acetone	23	7.6	23	U	R	c	µg/kg
0512108	0512108-7	TMSB-102-30	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512122	0512122-15	TMSB-101-70	Soil	Acetone	26	8.4	26	U	R	c	µg/kg
0601047	0601047-18	TMSB-120-15	Soil	Acetone	22	7.1	22	U	R	c	µg/kg
0601047	0601047-2	TMSB-118-05	Soil	Acetone	21	6.9	21	U	R	c	µg/kg
0601047	0601047-4	TMSB-118-15	Soil	Acetone	21	7.1	21	U	R	c	µg/kg
0601047	0601047-7	TMSB-118-30	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0601058	0601058-10	TMSB-124-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601058	0601058-5	TMSB-121-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601059	0601059-11	TMSB-126-25	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601059	0601059-3	TMSB-125-10	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601059	0601059-5	TMSB-125-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601073	0601073-10	TMSB-115-35	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0601073	0601073-11	TMSB-115-40	Soil	Acetone	21	7.1	21	U	R	c	µg/kg
0601073	0601073-2	TMSB-113-43	Soil	Acetone	22	7.2	22	U	R	c	µg/kg
0601077	0601077-10	TMSB-116-10	Soil	Acetone	22	7.1	22	U	R	c	µg/kg

TABLE B-16 (continued)
REJECTED DATA POINTS IN GROUNDWATER DATABASE
HYDROGEOLOGIC CHARACTERIZATION VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0601077	0601077-12	TMSB-117-45	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601077	0601077-14	TMSB-117-05	Soil	Acetone	24	8.1	24	U	R	c	µg/kg
0601077	0601077-15	TMSB-117-10	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601077	0601077-16	TMSB-117-15	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601077	0601077-6	TMSB-123-15	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0601077	0601077-7	TMSB-123-20	Soil	Acetone	22	7.3	22	U	R	c	µg/kg
0512095	0512095-1	Source Water	Water	Acetone	10	1.4	10	U	R	c	µg/L
0512095	0512095-2	Rinsate 01	Water	Acetone	10	1.4	10	U	R	c	µg/L
0512095	0512095-3	TB-01	Water	Acetone	10	1.4	10	U	R	c	µg/L
0601077	0601077-1	TRW-1	Water	Acetone	10	1.4	10	U	R	c	µg/L
0601077	0601077-2	TB-1	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604149	0604149-1	CLD1-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604149	0604149-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604149	0604149-3	CLD2-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604161	0604161-1	TMMW-101	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604161	0604161-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604161	0604161-3	TMMW-102	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604161	0604161-4	TMMW-103	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604162	0604162-1	CLD3-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604162	0604162-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604178	0604178-1	TMMW-104	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604178	0604178-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604181	0604181-1	J2D1-R2	Water	Acetone	10	1.4	10	U	R	c	µg/L

TABLE B-16 (continued)
REJECTED DATA POINTS IN GROUNDWATER DATABASE
HYDROGEOLOGIC CHARACTERIZATION VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0604181	0604181-2	J2D1-R2DUP	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604181	0604181-3	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604181	0604181-4	J2D2-R2	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604181	0604181-5	J2D3-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604188	0604188-1	MW-4	Water	Acetone	20	2.9	20	U	R	c	µg/L
0604188	0604188-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604188	0604188-3	J2U1	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604188	0604188-4	MW-5	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604188	0604188-5	BRW-R1	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604188	0604188-6	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604215	0604215-1	MW-3	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604215	0604215-2	MW-6R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604215	0604215-3	CLD4-R	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604215	0604215-4	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604230	0604230-1	PC67	Water	Acetone	400	57	400	U	R	c	µg/L
0604230	0604230-2	PC67Dup	Water	Acetone	400	57	400	U	R	c	µg/L
0604230	0604230-3	J2U2	Water	Acetone	25	3.6	25	U	R	c	µg/L
0604230	0604230-4	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0604230	0604230-5	PC64	Water	Acetone	160	23	160	U	R	c	µg/L
0604230	0604230-6	PC28	Water	Acetone	120	18	120	U	R	c	µg/L
0604230	0604230-7	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605007	0605007-1	PC17	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605007	0605007-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L

TABLE B-16 (continued)
REJECTED DATA POINTS IN GROUNDWATER DATABASE
HYDROGEOLOGIC CHARACTERIZATION VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

SDG	Laboratory ID No.	Sample ID No.	Matrix	Analyte	PQL	SQL	Result		Qualifier	Comment	Unit
0605007	0605007-3	PC12	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605007	0605007-5	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605023	0605023-1	PC72	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605023	0605023-2	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605023	0605023-3	PC50	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605023	0605023-4	PC54	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605023	0605023-5	Trip Blank	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605040	0605040-1	PC24	Water	Acetone	10	1.4	10	U	R	c	µg/L
0605040	0605040-2	PC40	Water	Acetone	10	1.4	10	U	R	c	µg/L

Notes:

µg/kg Microgram per kilogram
µg/L Microgram per liter
c Comment code representing exceedances of calibration criteria
PQL Practical quantitation limit
R Rejected
SDG Sample delivery group
SQL Sample quantitation limit

APPENDIX B1
XRF SUMMARY AND FINDINGS

APPENDIX B1
XRF SUMMARY AND FINDINGS

1.0 PURPOSE

Soil samples were collected and analyzed for total metals as part of the hydrogeologic characterization conducted at the Titanium Metals Corporation (TIMET) facility in Henderson, Nevada. In an effort to streamline and focus the investigation, all 169 soil samples were analyzed for metals using field-portable x-ray fluorescence (XRF) spectroscopy. This technique has gained widespread acceptance as a method of determining the nature and extent of select metals in soils, and data obtained from XRF have successfully been used in decision-making on many environmental sites. The primary purpose for analyzing the soil samples using XRF was to limit the number of soil samples analyzed by the off-site fixed laboratory, thus reducing the overall expense of shipment, analysis, and management of fixed-laboratory data for all soil samples. A secondary objective was to determine if XRF can be effectively used to guide subsequent soil investigations based on correlations between XRF data and fixed-laboratory analytical data. The fixed-laboratory conducted all other analyses was Paragon Analytics, Inc. (Paragon), of Fort Collins, Colorado (a Nevada Division of Environmental Protection-approved laboratory).

2.0 INSTRUMENT AND TECHNOLOGY

XRF spectroscopy is an analytical technique that exposes a sample (in this case, soil) to an x-ray source that has the appropriate excitation energy to cause elements in the sample to emit characteristic x-rays. A qualitative elemental analysis is possible from the characteristic energy, or wavelength, of the fluorescent x-rays emitted. A quantitative elemental analysis is possible from the number (intensity) of x-rays at a given wavelength.

The XRF used during the TIMET hydrogeologic characterization was a Model 722S hand-held XRF analyzer manufactured and distributed by Thermo Scientific (Niton). The XRF analyzer consisted of three major components: (1) a source that generates x-rays (radioisotope or x-ray tube); (2) a detector that converts x-rays emitted from the sample into measurable electronic signals; and (3) a data processing unit that records the emission or fluorescence energy signals and calculates the elemental concentrations in the sample. The Model 722S used two radioactive sources to generate the x-rays for excitation: Am-241 and Cd-109. The combination of these sources allows for a wider suite of metals to be analyzed.

The TIMET site-related chemicals list is a comprehensive list of metals that may or may not be effectively measured by XRF. The following 16 metals were measured by the XRF and by laboratory

inductively coupled plasma (ICP) and ICP/mass spectrometer in soil samples: antimony, arsenic, barium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, uranium, and zinc.

3.0 SAMPLE PREP AND ANALYSIS

Soil samples from the hydrogeologic characterization were homogenized by mixing at the sample staging location, after sampling for volatile organic compounds was completed. About 100 grams of homogenized soil was collected and put into individual zippered plastic baggies and labeled with the field ID number.

Preparation of samples for XRF analysis can be as simple as no preparation (in-situ analysis) or extensive preparation that may include drying, particle size reduction, homogenization, and sieving. To determine the level of preparation required for the soil samples, the condition of the soil matrix was evaluated. The soil matrix was generally a dry, sandy matrix with little clay and few cobbles, so no additional drying or particle size reduction was required. Because the project objectives were to measure total metals and not respirable metals (60-mesh or smaller particles), no sieving was required. As such, homogenization was the only preparation step conducted on the soil samples. The final sample container used during XRF analysis was the plastic zippered baggie.

The Niton-722S instrument was factory calibrated for the suite of analytes of interest. At the start of each day of operation, the instrument was turned on and allowed to warm up for at least 30 minutes prior to conducting the auto-calibration check. A Teflon® block (blank matrix) and high and low check samples were analyzed initially and periodically during the daily run. Samples were analyzed by placing the instrument window against the flattened baggie containing the soil sample. Two successive measurements were taken for each sample (one for each of the radioactivity sources). The readings were recorded in an electronic file imported to Microsoft Excel®. The records were subsequently loaded into the TIMET database for the hydrogeologic characterization.

4.0 DATA EVALUATION

XRF data are often considered screening-level data, in part due to limitations in conducting data validation; however, when good correlations between XRF data and fixed-laboratory data exist, the level of usability may be increased beyond screening. For the hydrogeologic characterization, the primary purpose was to screen the entire soil boring column from the surface to the groundwater and identify depths where apparent concentrations changed (sharply increased or decreased). The objective was to

identify the “bottom” of the soil column where concentrations decreased sharply and to identify any other depth where concentrations changed. These identified depth intervals were subsequently submitted for analysis of total metals at Paragon.

The second part of the XRF data evaluation included the calculation of relative percent difference (RPD) and correlations between XRF and Paragon results for the same samples. These correlations were derived using Microsoft Excel™ software. RPDs and correlation coefficients (r^2) between paired XRF and ICP results were calculated. In total, 99 samples were analyzed in the laboratory and 169 samples were analyzed with the XRF. The following paragraphs summarize the XRF/ICP correlations for the major metals of interest at TIMET. Table B1-1 presents the average RPDs and correlation coefficients.

Antimony

All the XRF antimony data were nondetect, and there are no data that may be used for correlation. All the XRF reporting limits were greater than the corresponding laboratory, indicating that the XRF did not have any false negative results.

Arsenic

The XRF detected arsenic in five samples, however, none of the detected XRF results were paired with laboratory data. All the XRF reporting limits were greater than the corresponding laboratory, indicating that the XRF did not have any false negative results.

Barium

The XRF detected barium in 79 samples that corresponded to detected ICP results. The mean RPD was 138 percent with the XRF data biased high. The plot of all data resulted in an r^2 of 0.95, which was well above the acceptance criterion of 0.8; however, the slope is 0.65 when ideally the slope would be 1 and the y-intercept is -481 when it should be 0.

Both the laboratory and XRF barium data have large degrees of uncertainty. Laboratory data for barium are greatly affected by extraction efficiency. The XRF data are generally greater than the laboratory data because it measures total barium, while the ICP only measures dissolvable barium.

Cadmium

All the XRF cadmium data were nondetect, and there are no data that may be used for correlation. All the XRF reporting limits were greater than the corresponding laboratory, indicating that the XRF did not have any false negative results.

Chromium

Sixteen samples had detected chromium results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 169 percent, much higher than the quality control (QC) criterion of 35 percent. All the XRF data appear to be biased high. The plot of all the data resulted in an r^2 of 0.13, well below the acceptance criterion of 0.8. The slope equaled 0.36 when ideally the slope would be 1, and the y-intercept is -120 when it should be 0. Since iron is a documented interferent of chromium in the XRF analysis, the lack of correlation may be due to iron interference (Method 6200). A typical XRF detection limit for chromium is between 50 and 100 milligrams per kilogram (mg/kg). The laboratory data suggest that all but two XRF results should be nondetect.

Cobalt

Six samples had detected cobalt results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 190 percent, much higher than the QC criterion of 35 percent. All the XRF data appear to be biased high. A plot of all the data resulted in an r^2 of 0.001, well below the acceptance criterion of 0.8. The slope equaled -0.005 when ideally the slope would be 1, and the y-intercept is 12.6 when it should be 0. A typical XRF detection limit for cobalt is between 50 and 100 mg/kg. The laboratory data suggest that all the XRF results should be nondetect.

Copper

Sixty-eight samples had detected copper results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 160 percent, much higher than the QC criterion of 35 percent. All the XRF data appear to be biased high. A plot of all the data resulted in an r^2 of 0.002, well below the acceptance criterion of 0.8. The slope equaled 0.002 when ideally the slope would be 1, and the y-intercept is 28.5 when it should be 0. A typical XRF detection limit for copper is between 20 and 50 mg/kg. The laboratory data suggest that between 34 and 62 of the XRF results should be nondetect. The XRF data are always greater than the laboratory data.

Iron

Sixty-eight samples had detected iron results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 27.1 percent, below the QC criterion of 35 percent. There is no consistent bias in the XRF data. A plot of all the data resulted in an r^2 of 0.39, well below the acceptance criterion of 0.8. The slope equaled 0.47 when ideally the slope would be 1, and the y-intercept is 7,640 when it should be 0. The acceptable mean RPD coupled with an unacceptable r^2 value indicate that the iron data may approximate the laboratory data. The lack of a consistent bias in the XRF data suggests that the sample matrix may not be homogeneous.

Lead

Twenty-three samples had detected lead results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 65.3 percent, much higher than the QC criterion of 35 percent. There is no consistent bias in the XRF data. A plot of all the data resulted in an r^2 of 0.77, just below the acceptance criterion of 0.8. The slope equaled 0.51 when ideally the slope would be 1, and the y-intercept is 11.3 when it should be 0. A typical XRF detection limit for lead is between 20 and 50 mg/kg. The laboratory data suggest that between 15 and 18 of the XRF results should be nondetect. The lack of correlation in the samples with elevated lead concentrations may be due to sample heterogeneity.

Manganese

Fifteen samples had detected manganese results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 29.0 percent, below the QC criterion of 35 percent. There is no consistent bias in the XRF data. A plot of all the data resulted in an r^2 of 0.86, above the acceptance criterion of 0.8. The slope is 1.1, close to the ideal slope of 1, and the y-intercept is 1,410 when it should be 0. The acceptable mean RPD coupled with an acceptable r^2 value indicate that the manganese data are comparable to the laboratory data. The lack of a consistent bias in the XRF data suggests that the sample matrix may not be homogeneous.

Mercury

Sixty-six samples had detected mercury results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 199 percent, much higher than the QC criterion of 35 percent. All the XRF data appear to be biased high. A plot of all the data resulted in an r^2 of 0.006, well below the acceptance criterion of 0.8. The slope equaled -0.0001 when ideally the slope would be 1, and

the y-intercept is 0.051 when it should be 0. A typical XRF detection limit for mercury is between 20 and 50 mg/kg. The laboratory data suggest that all the XRF results should be nondetect.

Selenium

Only two samples had detected selenium results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 193 percent, much higher than the QC criterion of 35 percent. All the XRF data appear to be biased high. No plot was prepared for the selenium data because there are only two data points. A typical XRF detection limit for selenium is between 20 and 50 mg/kg. The laboratory data suggest that all the XRF results should be nondetect.

Nickel

Five samples had detected nickel results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 138 percent, much higher than the QC criterion of 35 percent. All the XRF data appear to be biased high. The plot of all the data resulted in an r^2 of 0.27, well below the acceptance criterion of 0.8. The slope equaled 1.09 close to the ideal the slope of 1 and the y-intercept is 215 when it should be 0. A typical XRF detection limit for nickel is between 40 and 60 mg/kg. The laboratory data suggest that all but two of the XRF results should be nondetect.

Silver

The XRF detected three silver concentrations; however, none of the detected XRF results were paired with laboratory data. All the XRF reporting limits were greater than the corresponding laboratory, indicating that the XRF did not have any false negative results.

Uranium

Twenty-six samples had detected uranium results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 190 percent, much higher than the QC criterion of 35 percent. All the XRF data appear to be biased high. A plot of all the data resulted in an r^2 of 0.70, below the acceptance criterion of 0.80. The slope equaled 0.02 when ideally the slope would be 1, and the y-intercept is 0.50 when it should be 0. A typical XRF detection limit for uranium is between 20 and 50 mg/kg. The laboratory data suggest that all the XRF results should be nondetect.

Zinc

Seventy-four samples had detected zinc results from both the XRF and laboratory analysis. The mean RPD between the XRF and laboratory data is 129 percent, much higher than the QC criterion of 35 percent. All the XRF data appear to be biased high. A plot of all the data resulted in an r^2 of 0.005, well below the acceptance criterion of 0.8. The slope is 0.0045 when ideally the slope would be 1, and the y-intercept is 40.7 when it should be 0. A typical XRF detection limit for zinc is between 20 and 50 mg/kg. The laboratory data suggest that between 1 and 61 of the XRF results should be nondetect. The XRF data are always greater than the laboratory data.

5.0 SUMMARY

The paragraphs above describe the results of XRF versus ICP comparisons. The most significant factors that lead to poor agreement between field and laboratory results generally are: (1) difference in analytical sensitivity—detection limit; (2) sample heterogeneity; (3) incomplete dissolution of the metals during laboratory acid digestion; (4) inherent matrix interferences that are dissolved into the acid digest in the laboratory; and (5) inherent chemical interference in the XRF.

The first cause of discrepancy is the difference in detection limits between the XRF and laboratory instrumentation. In all cases above, the XRF detection limit is 10 to 100 times higher as compared to the laboratory instrumentation. As such, for most of the metals, the XRF was not sensitive enough to measure the concentrations detected in samples; and for several of the metals (antimony, arsenic, cadmium, selenium, and silver), the XRF results were nondetect.

Heterogeneity (the second cause of discrepancy) can be minimized by ensuring that the sample matrix has been sufficiently dried, ground, and sieved to a standard grain size and that the laboratory analyzes exactly the same prepared soil sample as was tested in the field by XRF. Based on the friability of the sandy matrix (as compared to stiff clays) and the ease in which mixing was accomplished, this cause is not considered as significant as other possible causes.

Incomplete dissolution of metals in an acid matrix coupled with the dissolution of matrix interferents can create discrepancies between results. These two factors become important when dealing with materials that have a significant percentage of the metal bound in very insoluble forms (such as lead in silicate mineral lattice). These factors may explain the higher concentrations reported by XRF as compared to laboratory methods.

According to U.S. Environmental Protection Agency SW-846 Method 6200, the fifth factor (chemical interference in XRF analysis) can be controlled in some cases, but not in others. Chemical matrix effects result from differences in the concentrations of interfering elements. These effects occur as either spectral (peak overlaps) or as x-ray absorption and enhancement phenomena. Both effects are common in soils contaminated with heavy metals. Examples of spectral overlap include the following:

- Iron present in thousands of parts per million have a significant enhancement effect on the measurement of cobalt because the instrument cannot resolve the measured energies (Kα and Kβ) between the elements.
- Lead present in samples can interfere with the accurate measurement of arsenic because the spectral lines (K/L, K/M, or L/M) overlap, causing low or nondetect results for arsenic.

Examples of absorption and enhancement effects include the following:

- Iron tends to absorb copper x-rays, thereby reducing the intensity of copper measured by the detector
- Chromium measurements tend to be enhanced at the expense of iron because the absorption edge of chromium is slightly lower in energy than the fluorescence peak of iron.

Based on the fact that most of the metals were present at concentrations less than the detection limit of the XRF coupled with the poor correlation between measured concentrations between XRF and laboratory results, the conclusion is that the XRF data collected were sufficient for screening purposes only and not valid for any further use (for example site characterization or risk assessment). The XRF results were very useful as a screening tool to determine which intervals of the soil column were submitted for further metals and radionuclide laboratory analysis. This screening was successful at reducing the total number of laboratory analyses warranted (from 169 to 99) and thereby reducing the cost of sample testing and data management.

TABLE B1-1
XRF/LABORATORY CORRELATION DATA SUMMARY

Analyte	Mean Relative Percent Difference	r^2
Antimony	NA	NA
Arsenic	NA	NA
Barium	138%	0.95[a]
Cadmium	NA	NA
Chromium	169%	0.13
Cobalt	190%	0.001
Copper	160%	0.002
Iron	27%	0.39
Lead	65.3%	0.77
Manganese	29%	0.86
Mercury	199%	0.006
Selenium	193%	NA
Silver	NA	NA
Uranium	190%	0.70
Zinc	129%	0.005

Notes:

a When two very high concentration samples are omitted from the linear correlation the r^2 value is 0.08

NC Not completed

NA Not applicable

APPENDIX B2
TIMET HYDROGEOLOGIC CHARACTERIZATION ANALYTICAL DATABASE
(CONTAINED ON CD)

APPENDIX C
AQUIFER TESTING REPORT

AQUIFER PUMPING TESTS AND ANALYSIS SUMMARY
Titanium Metals Corporation Facility
Henderson, Nevada

INTRODUCTION

Golder Associates Inc. (Golder), has prepared this report detailing analysis of 12 short-term aquifer tests completed at the Titanium Metals Corporation (TIMET) Henderson, Nevada facility during the period of March 8 through 17, 2006. Field data collection was completed by Broadbent & Associates Inc. (Broadbent), in accordance with the final hydrogeologic characterization sampling and analysis plan (Tetra Tech 2005).

The overall groundwater characterization objective is to establish representative hydraulic parameters that can support ongoing environmental investigations and refinement of the conceptual site model (CSM). Data collection efforts were focused primarily on characterization of the TIMET Plant Site and downgradient areas represented by monitor wells that are generally screened in the alluvial aquifer.

Aquifer test data consist of the following: (1) specific capacity (step test) data used to establish critical times (t_c) for constant rate pumping tests and sustainable pumping rates; (2) drawdown and recovery data from 11 constant rate pumping tests, and (3) rising head data from a near-instantaneous groundwater withdrawal from a low permeability monitor well.

This aquifer pumping test and analysis summary is divided into the following sections:

- Field methods
- Methods of analysis
- Results

Supporting appendices include:

- Appendix A – Calculations
- Appendix B – Recovery Plots
- Appendix C – Recovery Data Tables
- Appendix D – Drawdown/Recovery Plots
- Appendix E – Step Test Results

FIELD METHODS

During each test, water-level drawdown was monitored as a function of time while pumping, and recovery was monitored as a function of time after the pump was shut off. Optimal pumping rates were selected based on the results of specific capacity tests. The pump and power unit were selected to operate at a constant pumping rate for 180 or more minutes at flow rates ranging from 0.5 to 5 gallons per minute (gpm). The Broadbent field crew monitored and controlled pumping rates using a ball valve and an inline flow meter. A calibrated container and stopwatch were used to periodically measure the accuracy of the inline flow meter readings. Data recorded during the tests included clock time, elapsed time since pumping started, depth to water, and the pumping rate.

During the drawdown phase of the specific capacity tests, the field crew reviewed and plotted water level data and evaluated results to derive target constant rate pumping test times necessary to obtain estimates of aquifer hydraulic properties. Quasi-stabilized drawdown was gauged relative to flow rate. Transmissivity was then estimated from the specific capacity data to establish the critical time necessary for the single well drawdown-recovery tests. These data, estimated transmissivities, and critical times (i.e., the pumping period necessary to ensure that casing storing effects are negligible) are provided in Appendix E. Constant rate pumping tests were then conducted for a period that exceeded the estimated critical times, thereby ensuring the tests were valid. The pumping duration required to meet this criteria ranged from about 30 to 180 minutes.

During testing, water levels were monitored using a Level Troll 700 pressure transducer connected to a data logger. The 30 pounds per square inch (psi) pressure transducer was capable of measuring water levels to within an accuracy of 0.01 foot. The transducer was set below the pump and was securely supported above the bottom of the well. The pump, installed near the bottom of the well, was equipped with a check valve to prevent backflow of water into the well after the pump was shut off.

After the pump, discharge line, and flow meter were installed, the transducer was calibrated against the water level as measured from the top of casing with the electric sounder, and the data logger was set to record water level measurements at an interval appropriate for analysis. Before the pump was started, water levels were monitored using the transducer to evaluate equilibration. The pump was turned on to start the test only after water levels had stabilized. The constant-rate test commenced by starting the pump and carefully monitoring pressure and flow. As the water level changed, flow rate was measured and recorded at frequent time intervals and adjustments in the discharge valve setting were made to maintain uniform discharge rates. After the drawdown phase, recovery was monitored until it was at least 90 percent complete with the transducer/data logger at the same frequency as during the drawdown phase.

A rising-head slug (e.g., rapid removal of casing storage) test was conducted at monitor well TMMW-102. The pump and transducer were installed as described above for a constant-rate pump test. The well was allowed to equilibrate, and then it was pumped out rapidly with the discharge valve fully open. Once the pump was shut off, rising water levels were monitored using an electronic pressure transducer and data logger programmed to make measurements at intervals similar to those described for the constant-rate pump tests.

DRAFT

METHODS OF ANALYSIS

The collected data were analyzed using solutions readily available for single-well tests. Single-well tests were conducted because points of observation open to the aquifer were not available within a reasonable distance of the pumped wells. The primary function of the specific capacity tests was to determine a suitable pumping rate and duration for the constant–rate pumping test to ensure test validity. Based on specific capacity results, constant-discharge rates between 0.5 and 5 gpm were determined to be ideal for the longer term constant-rate tests.

Drawdown in a pumped well is commonly influenced by well losses and well-bore storage, and therefore must be considered in analyzing the drawdown data. During the recovery of the pumped well, the effects of well losses are generally negligible; therefore, analysis of the late time recovery data is more reliable in evaluating aquifer properties over the full range of the test. The limitation of single-well tests is that only transmissivity, and not the storage coefficient, can be determined.

The constant rate pumping test data were analyzed based on the many simplifying assumptions of the analytical solutions used for confined aquifers. The methods of analysis are described in Driscoll (1986) and Kruseman and deRitter (1990). They consisted of the Theis method as modified by Cooper and Jacob. Because of the unconfined nature of the aquifer, only late time recovery data was analyzed to account for delayed yield effects.

Cooper and Jacob straight-line methods were applied to the analysis of the recovery data. The straight-line method can be used to evaluate transmissivity of the aquifer if a critical time (t_c) is exceeded during the constant rate pumping test. The critical time is a function of the well radius and the aquifer transmissivity; its physical significance is the time of pumping necessary to overcome the effects well bore storage. Results obtained by the analytical methods used to determine aquifer transmissivity are summarized below.

Observations from specific capacity test of monitor well TMMW-102 indicated that the well would not yield sufficient water to be tested using constant rate pumping methods. Bouwer and Rice (1976) developed a methodology for determining hydraulic conductivity from a sudden removal of a slug of water. The methodology is effective for evaluating wells completed in low permeability materials. The well was assumed to fully penetrate the aquifer for the purposes of analysis. A correction was also made to account for water level rising within the screened part of the well where the permeability of the surrounding gravel pack is likely significantly higher than the aquifer. Slug tests are limited by the ability to only test aquifer materials in the immediate vicinity of the well.

RESULTS

Table 1 provides a summary of the aquifer pumping, well completion, and the aquifer parameters derived from the analyses provided in the appendices. The Cooper-Jacob analyses directly yield a solution for transmissivity; hydraulic conductivities were estimated for an assumed aquifer thickness equivalent to the well screen length. The Bouwer-Rice solution directly yields a solution for hydraulic conductivity; transmissivity was estimated based on an assumed aquifer thickness also equivalent to the well screen length.

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Aquifer test analysis yielded transmissivity estimates ranging from 8.2 to 29,040 gallons per day/foot (gpd/ft). The following observations are offered based on the results of the aquifer test analysis:

- The hydraulic conductivity on the south side of the plant appears to be an order of magnitude lower than the north side.
- The north-central to northwest portion of the site has much higher permeability.
- Five off-site groundwater monitoring wells have similar permeability as the northern plant site.

REFERENCES

Driscoll, F.G. 1986. "Groundwater and Wells." 2nd Edition. Johnson Filtration Systems. St. Paul, Minnesota. p. 572.

Kruseman, G.P., and N.A. deRidder. 1991. "Analysis and Evaluation of Pumping Test Data." 2nd Edition, Publication 47. International Institute for Land Reclamation and Improvement. The Netherlands. pp. 232-233.

Shafer, D.C. 1978. "Casing Storage Can Affect Pumping Test Data." The Johnson Drillers Journal. January-February.

Tetra Tech. 2005. "Hydrogeologic Characterization Draft Final Sampling and Analysis Plan." Titanium Metals Corporation Facility. Henderson, Nevada. May 16.

DRAFT

TABLES

TABLE 1

AQUIFER TEST ANALYSIS
TIMET FACILITY, HENDERSON, NV

Well	Test Date	Total Discharge (gallons)	Pumping Duration (minutes)	Average Discharge Rate (gpm)	Depth to water (ft bgs)	Total Well depth (ft bgs)	Saturated Thickness (ft)	Transmissivity (gpd/ft)	Hydraulic Conductivity (ft/day)
CLD1-R	3/16/06	70	30.8	2.3	27.4	35	7.6	3,995	70
CLD3-R	3/15/06	150	61.9	2.4	32.6	43	10.4	968	12
J2D2-R2	3/16/06	180	30.0	6.0	41.1	50.5	9.4	8,800	125
M-95	3/17/06	70	30.4	2.3	10	--	--	29,040	--
PC-54	3/17/06	80	30.9	2.6	15.1	34.5	19.4	17,094	118
PC-65	3/16/06	40	31.0	1.3	6	19	13	1,892	19
PC-67	3/16/06	70	30.5	2.3	10.5	35.4	24.9	4,048	22
TMMW-101	3/16/06	190	90.1	2.1	70.2	95	24.8	427	2
TMMW-102	3/14/06	15	--	--	71.8	87	15.2	8.2	0.07
TMMW-103	3/14/06	180	181.1	1.0	73.4	87	13.6	145	1.4
TMMW-104	3/17/06	120	181.3	0.7	71.5	87	15.5	145	1.3
TMPZ-110	3/15/06	45	90.9	0.5	37.4	45	7.6	307	5

Notes:

ft	Feet
bgs	Below ground surface
gpd	Gallon per day
gpm	Gallon per minute

APPENDIX A
CALCULATIONS

Calculation of Transmissivity and Hydraulic Conductivity
CLD1 R Recovery Test
March 16, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	2.27
Delta s' (ft):	0.150
R (ft):	0.17
b (ft):	7.60

Calculations:

T =	3995	gal/ft/day	534	ft^2/day
tc =	0.002713	day	3.91	minutes
K =	70.3	ft/day		

Calculation of Transmissivity and Hydraulic Conductivity
CLD3 R Recovery Test
March 15, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	2.42
Delta s' (ft):	0.660
R (ft):	0.17
b (ft):	10.40

Calculations:

T =	968	gal/ft/day	129	ft^2/day
tc =	0.011196	day	16.12	minutes
K =	12.4	ft/day		

Calculation of Transmissivity and Hydraulic Conductivity
J2D2 R2 Recovery Test
March 16, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	6.00
Delta s' (ft):	0.180
R (ft):	0.17
b (ft):	9.40

Calculations:

T =	8800	gal/ft/day	1176	ft^2/day
tc =	0.001232	day	1.77	minutes
K =	125.2	ft/day		

Calculation of Transmissivity and Hydraulic Conductivity
M95 Recovery Test
March 17, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	2.31
Delta s' (ft):	0.021
R (ft):	0.17
b (ft):	

Calculations:

T =	29040	gal/ft/day	3882	ft^2/day
tc =	0.000373	day	0.54	minutes
K =		ft/day		

Calculation of Transmissivity and Hydraulic Conductivity
PC54 Recovery Test
March 17, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	2.59
Delta s' (ft):	0.040
R (ft):	0.17
b (ft):	19.40

Calculations:

T =	17094	gal/ft/day	2285	ft^2/day
tc =	0.000634	day	0.91	minutes
K =	117.8	ft/day		

Calculation of Transmissivity and Hydraulic Conductivity
PC65 Recovery Test
March 16, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	1.29
Delta s' (ft):	0.180
R (ft):	0.08
b (ft):	13.00

Calculations:

T =	1892	gal/ft/day	253	ft^2/day
tc =	0.001365	day	1.97	minutes
K =	19.5	ft/day		

Calculation of Transmissivity and Hydraulic Conductivity
PC67 Recovery Test
March 16, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	2.30
Delta s' (ft):	0.150
R (ft):	0.08
b (ft):	24.90

Calculations:

T =	4048	gal/ft/day	541	ft^2/day
tc =	0.000638	day	0.92	minutes
K =	21.7	ft/day		

Calculation of Transmissivity and Hydraulic Conductivity
TMMW 101 Recovery Test
March 16, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	2.10
Delta s' (ft):	1.300
R (ft):	0.17
b (ft):	24.80

Calculations:

T =	426	gal/ft/day	57	ft^2/day
tc =	0.025413	day	36.59	minutes
K =	2.3	ft/day		

Calculation of Hydraulic Conductivity and Transmissivity
TMMW 102 Rising Head Slug Test
March 14, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from slug test data

References:

Bouwer, H., and Rice, 1976, A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells, Water Resources Research, Vol 12, No.3.

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 244-247.

Equations:

$K = [r_c^2 \ln(R_e/r_w)/2d]*[1/t*(\ln h_o/h_t)]$

where:

r_c = radius of the unscreened part of the well where the head is rising

r_w = horizontal distance from the center to undisturbed aquifer

R_e = radial distance over which the difference in head, ho, is dissipated in the flow system of the aquifer

d = length of the well screen or open section of the well

h_o = head in the well at time $t_o = 0$

h_t = head in the well at time $t > t_o$

For fully penetrating wells:

$\ln(R_e/r_w) = [1.1/[\ln(b/r_w) + C/(d/r_w)]^{-1}$

where:

C is a dimensionless parameter which is a function of d/r_w

For head rising in the screened portion of the well the following correction r_c applies:

$r_c = [r_a^2 + n(r_w^2 - r_a^2)]^{0.5}$

where:

r_a = actual well radius

n = porosity of filter pack

Data

r_w =	0.35	ft	h_t =	5.0	ft	t =	90 minutes
b = d =	15.2	ft	r_a =	0.167	ft		0.0625 days
h_o =	11.56	ft	n =	0.3	dimensionless		

C = 2.3 dimensionless from Figure 3 (Bouwer and Rice, 1976)

Calculations:

$\ln(R_e/r_w)$ = 2.90

r_c = 0.24

Hydraulic Conductivity (K) = 0.072 ft/day

Transmissivity (T) = 1.09 ft^2/day or 8.19 gpd/ft

Calculation of Transmissivity and Hydraulic Conductivity
TMMW 103 Recovery Test
March 14, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	0.99
Delta s' (ft):	1.800
R (ft):	0.17
b (ft):	13.60

Calculations:

T =	145	gal/ft/day	19	ft^2/day
tc =	0.074638	day	107.48	minutes
K =	1.4	ft/day		

Calculation of Transmissivity and Hydraulic Conductivity
TMMW 104 Recovery Test
March 17, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

Data:

Q (gpm)	0.66
Delta s' (ft):	1.200
R (ft):	0.17
b (ft):	15.50

Calculations:

T =	145	gal/ft/day	19	ft^2/day
tc =	0.074638	day	107.48	minutes
K =	1.3	ft/day		

Calculation of Transmissivity and Hydraulic Conductivity
TMPZ 110 Recovery Test
March 15, 2006

Purpose:

Calculate hydraulic conductivity and transmissivity from drawdown data

References:

Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-235.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 252-260.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

T = (264*Q)/(delta s')
tc = (375*R^2)/T
Q = (ending meter - starting meter)/total time
K = T/b

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
K = hydraulic conductivity
tc = critical time in minutes
delta s' = drawdown between log cycles (ft)
R = well casing diameter (ft)
b = aquifer thickness (ft)

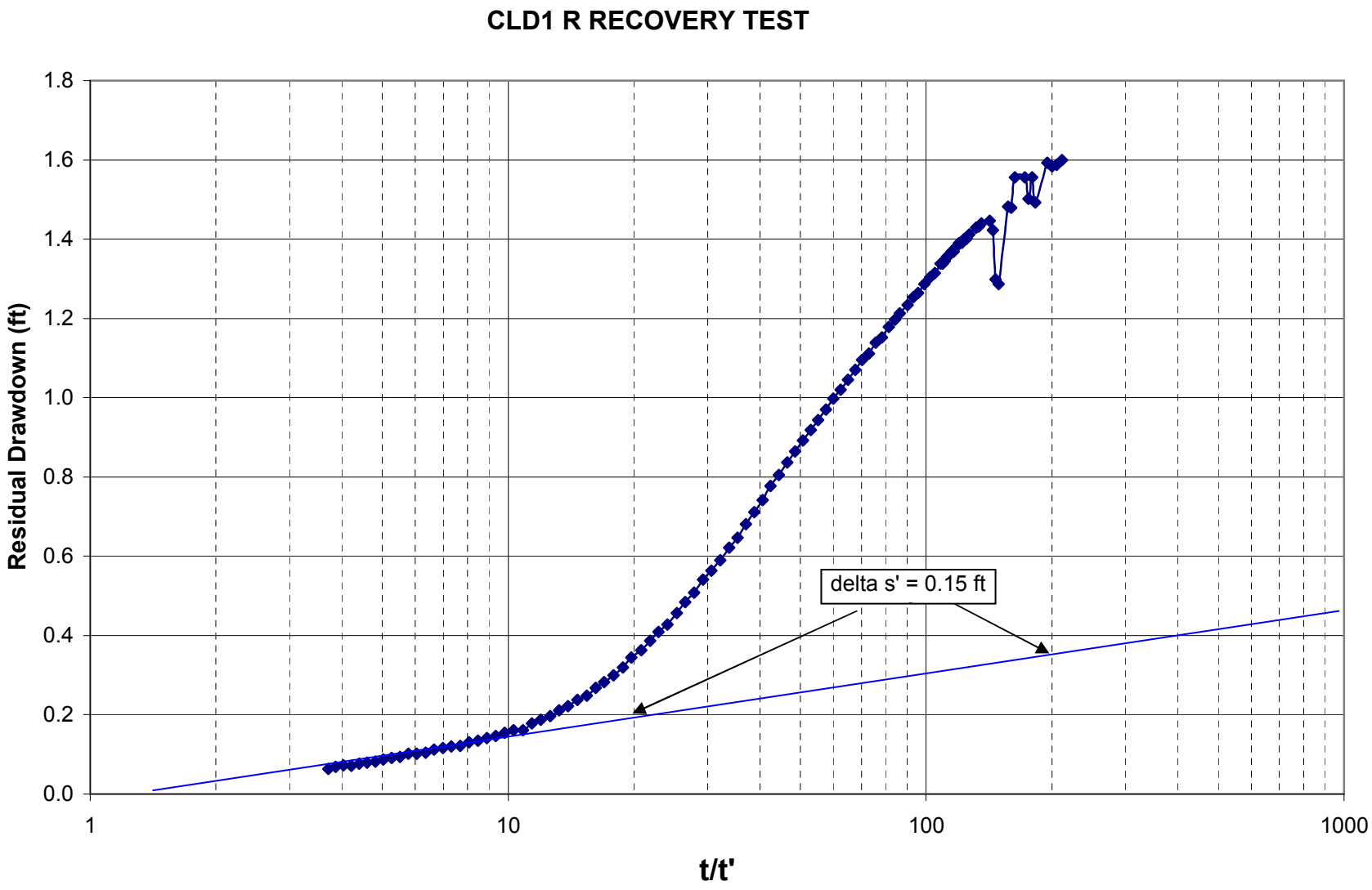
Data:

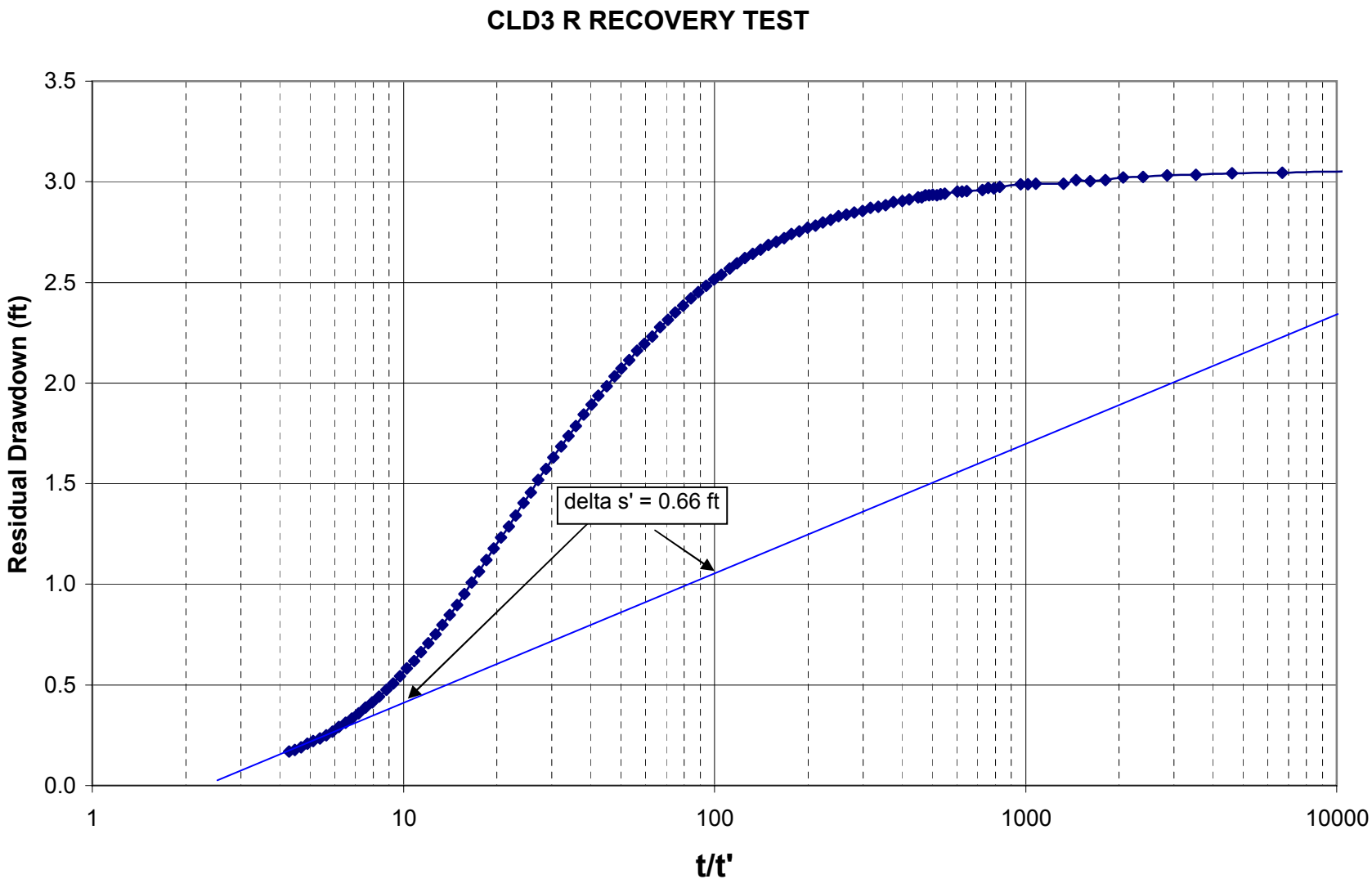
Q (gpm)	0.50
Delta s' (ft):	0.430
R (ft):	0.17
b (ft):	7.60

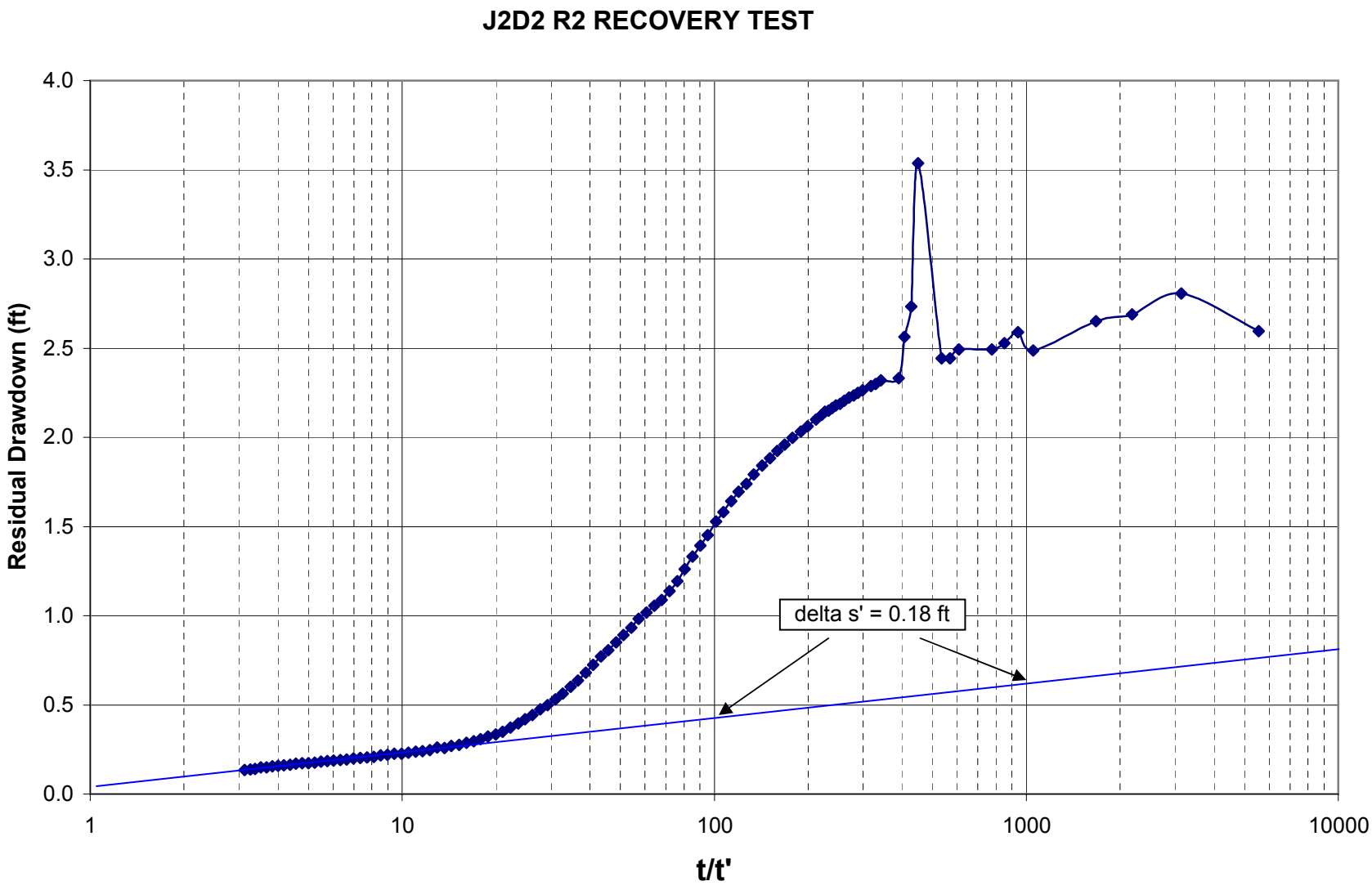
Calculations:

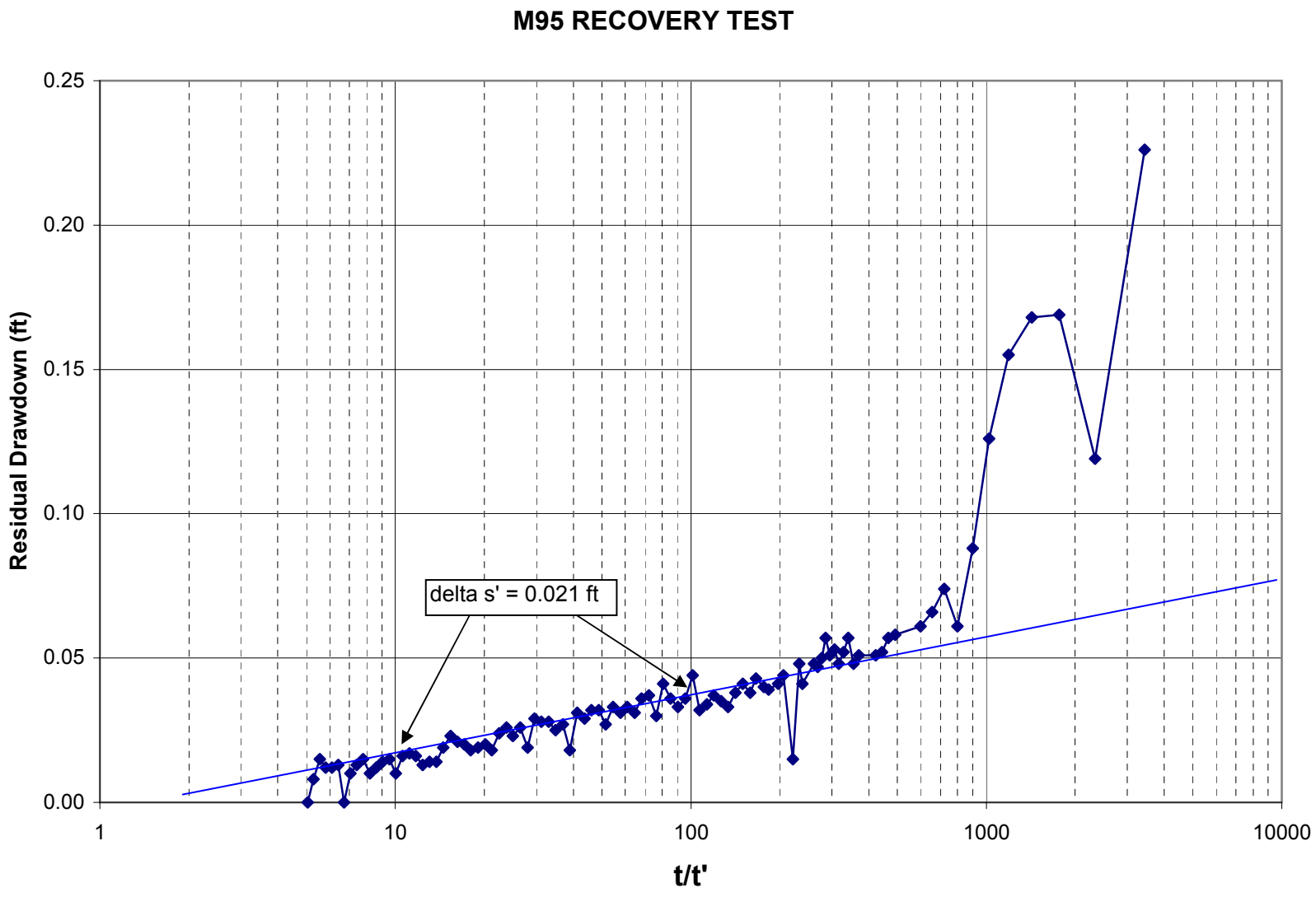
T =	307	gal/ft/day	41	ft^2/day
tc =	0.035304	day	50.84	minutes
K =	5.4	ft/day		

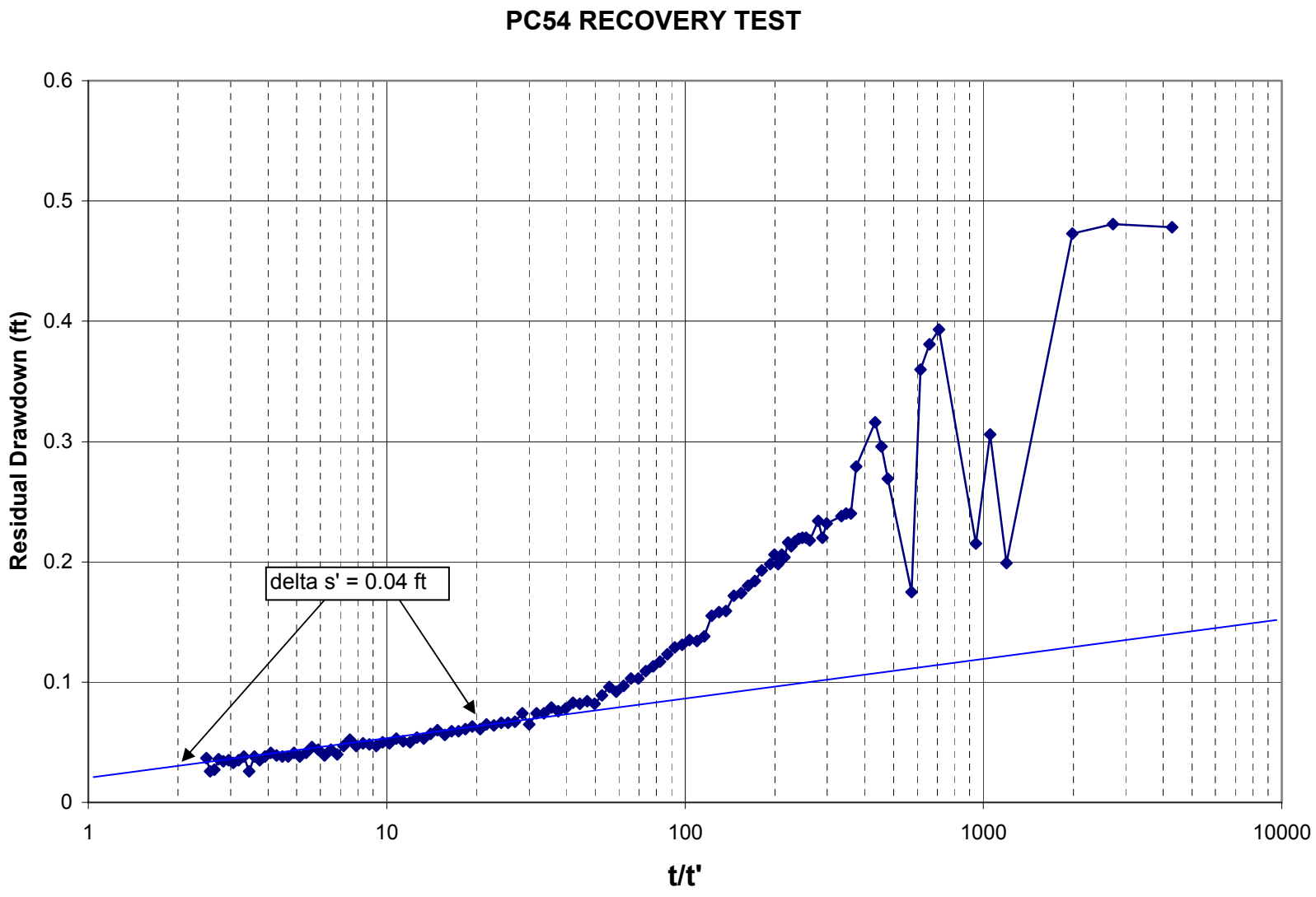
APPENDIX B
RECOVERY PLOTS

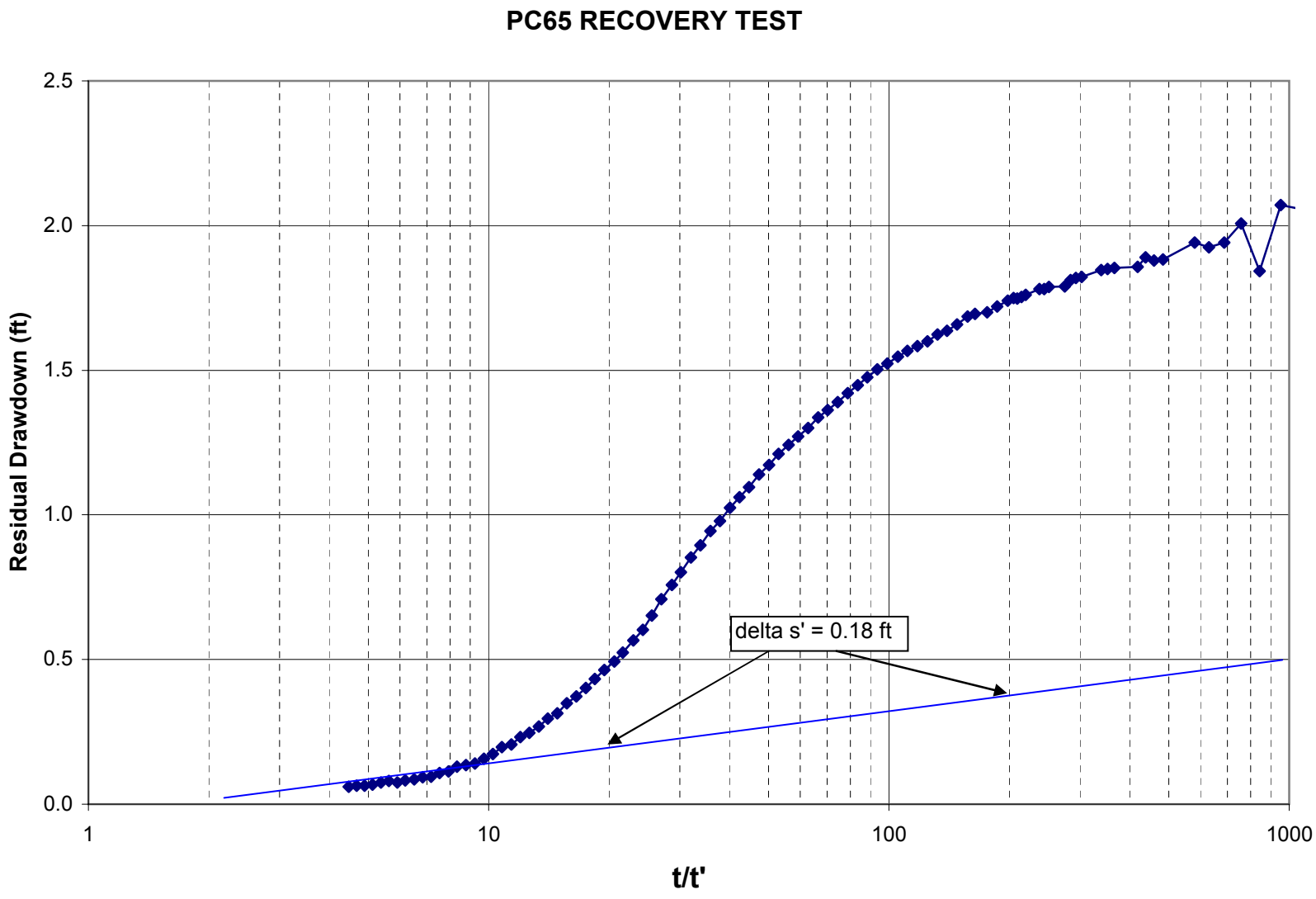

CLD1 R RECOVERY TEST
Residual Drawdown (ft)
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1
10
100
1000
t/t'
delta s' = 0.15 ft

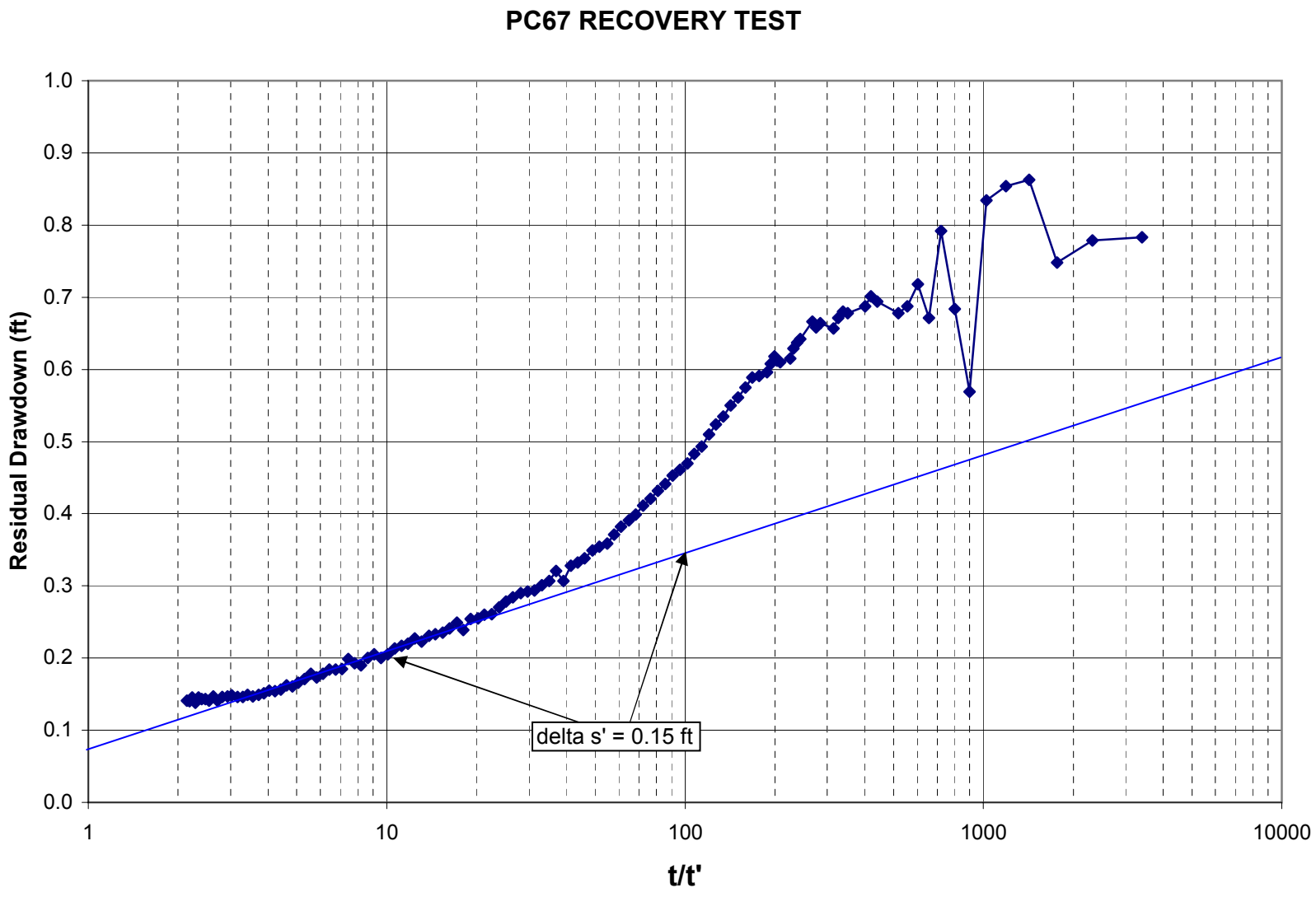

CLD3 R RECOVERY TEST
Residual Drawdown (ft)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1
10
100
1000
10000
t/t'
delta s' = 0.66 ft

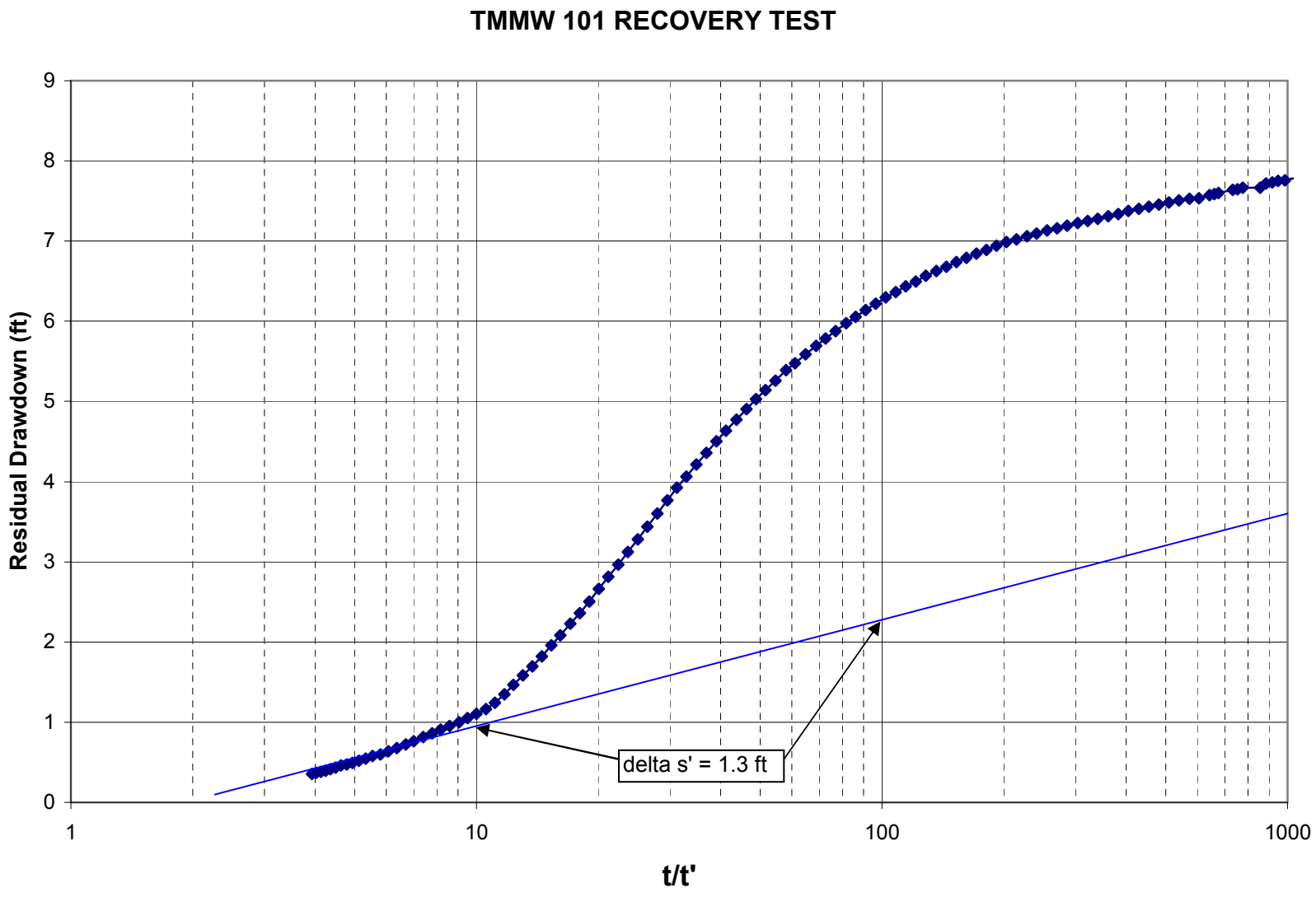

J2D2 R2 RECOVERY TEST
Residual Drawdown (ft)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1
10
100
1000
10000
t/t'
delta s' = 0.18 ft


M95 RECOVERY TEST
Residual Drawdown (ft)
0.25
0.20
0.15
0.10
0.05
0.00
1
10
100
1000
10000
t/t'
delta s' = 0.021 ft

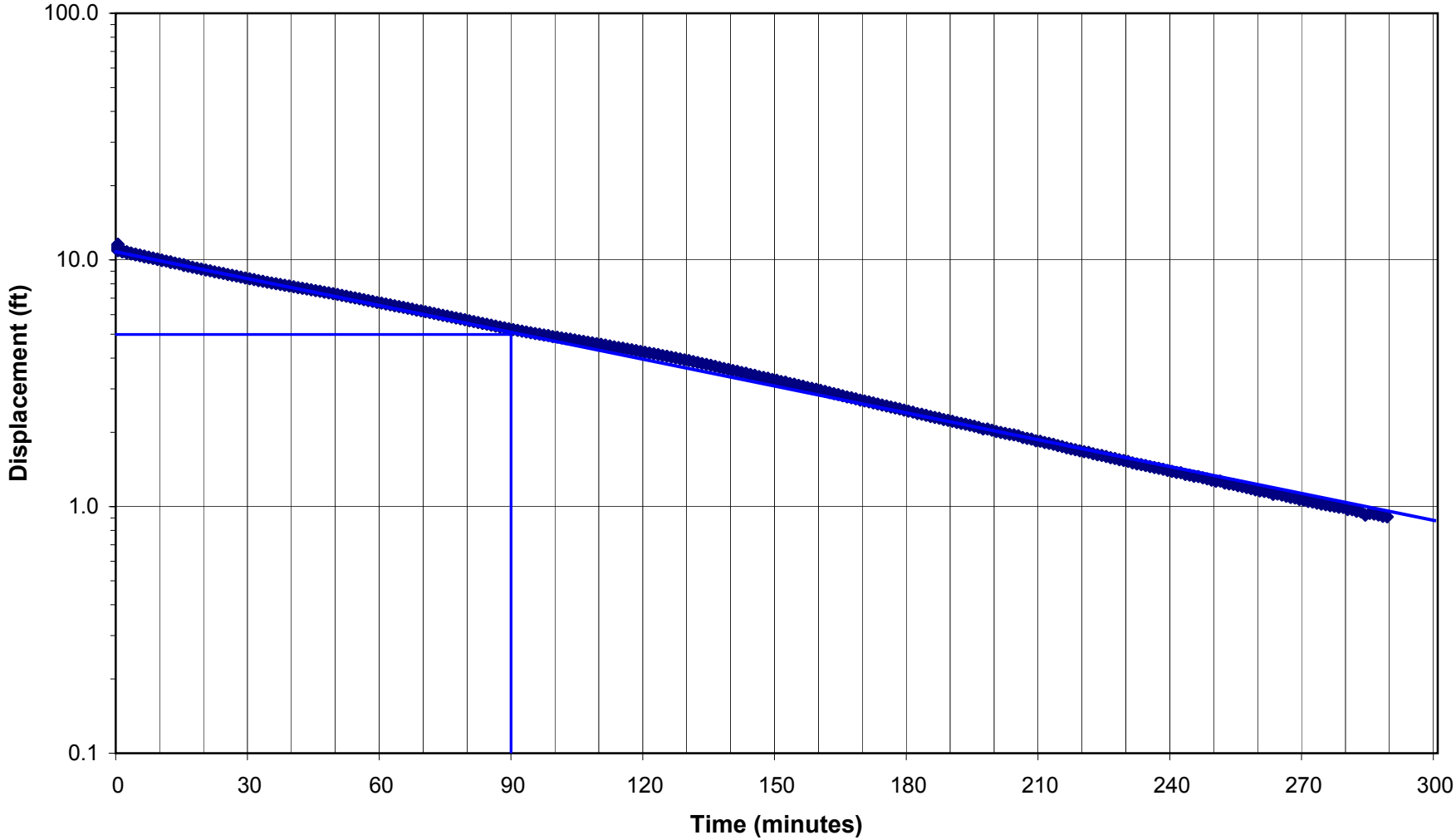

PC54 RECOVERY TEST
Residual Drawdown (ft)
0.6
0.5
0.4
0.3
0.2
0.1
0
1
10
100
1000
10000
t/t'
delta s' = 0.04 ft

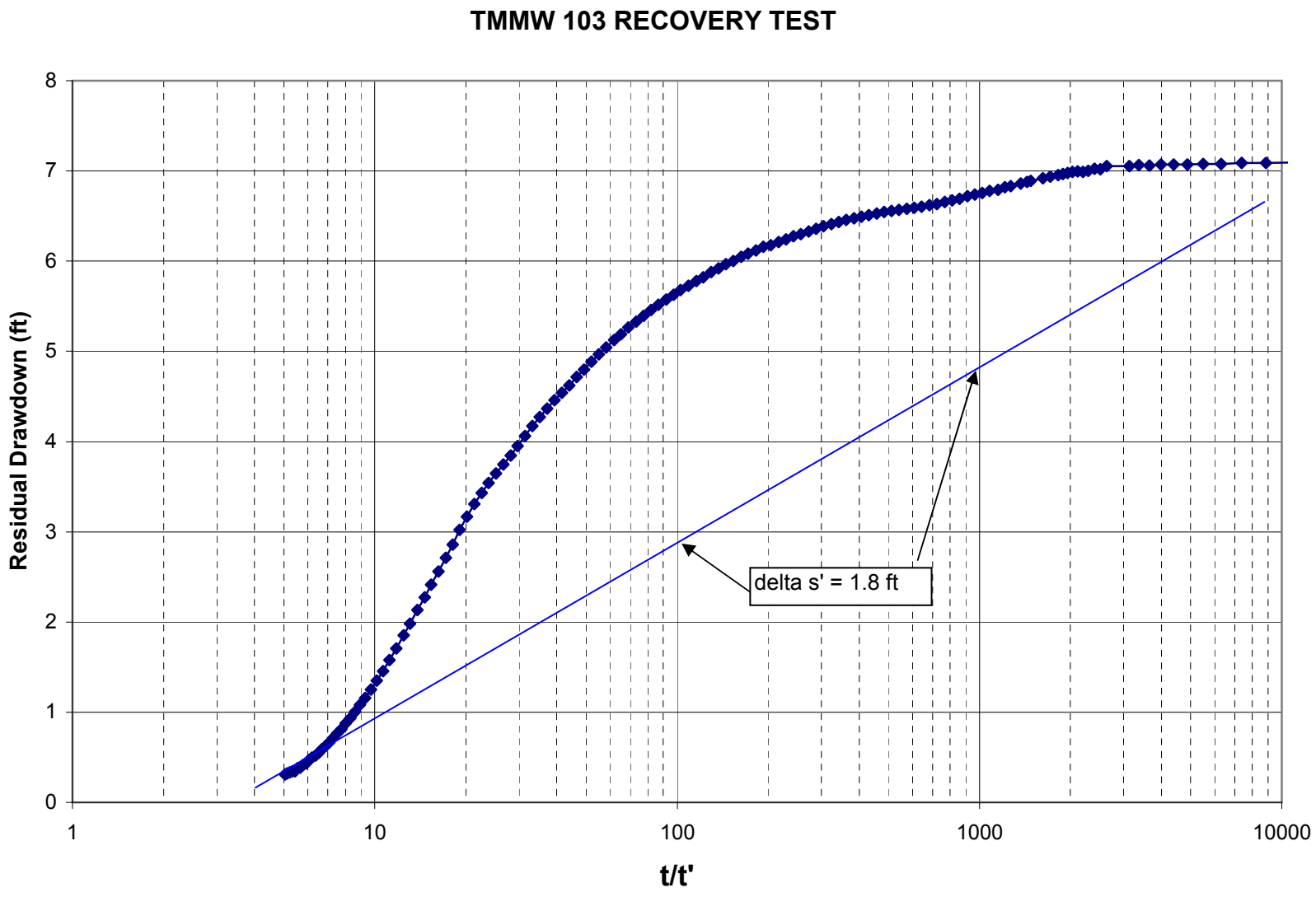

PC65 RECOVERY TEST
Residual Drawdown (ft)
2.5
2.0
1.5
1.0
0.5
0.0
1
10
100
1000
t/t'
delta s' = 0.18 ft

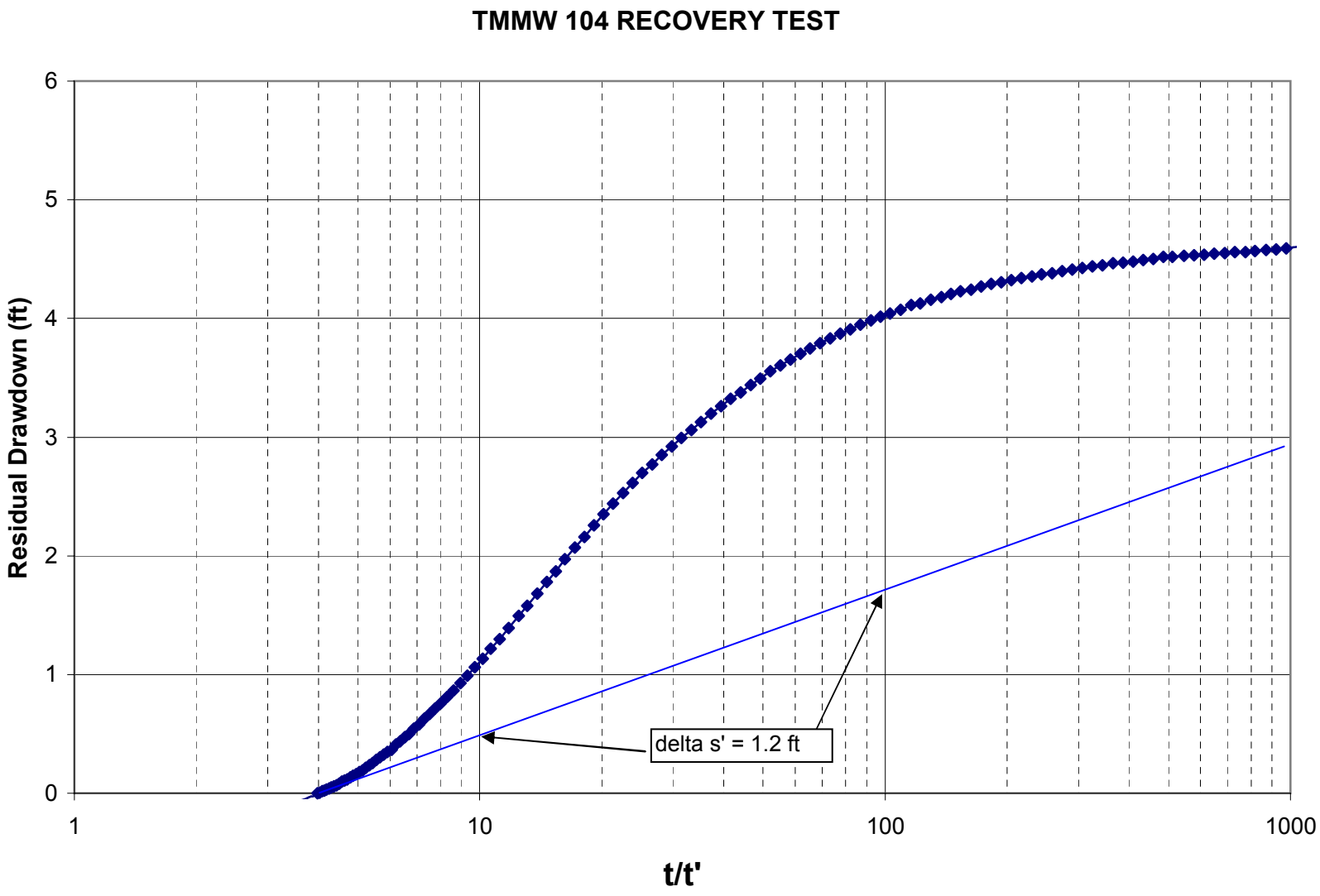

PC67 RECOVERY TEST
Residual Drawdown (ft)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1
10
100
1000
10000
t/t'
delta s' = 0.15 ft

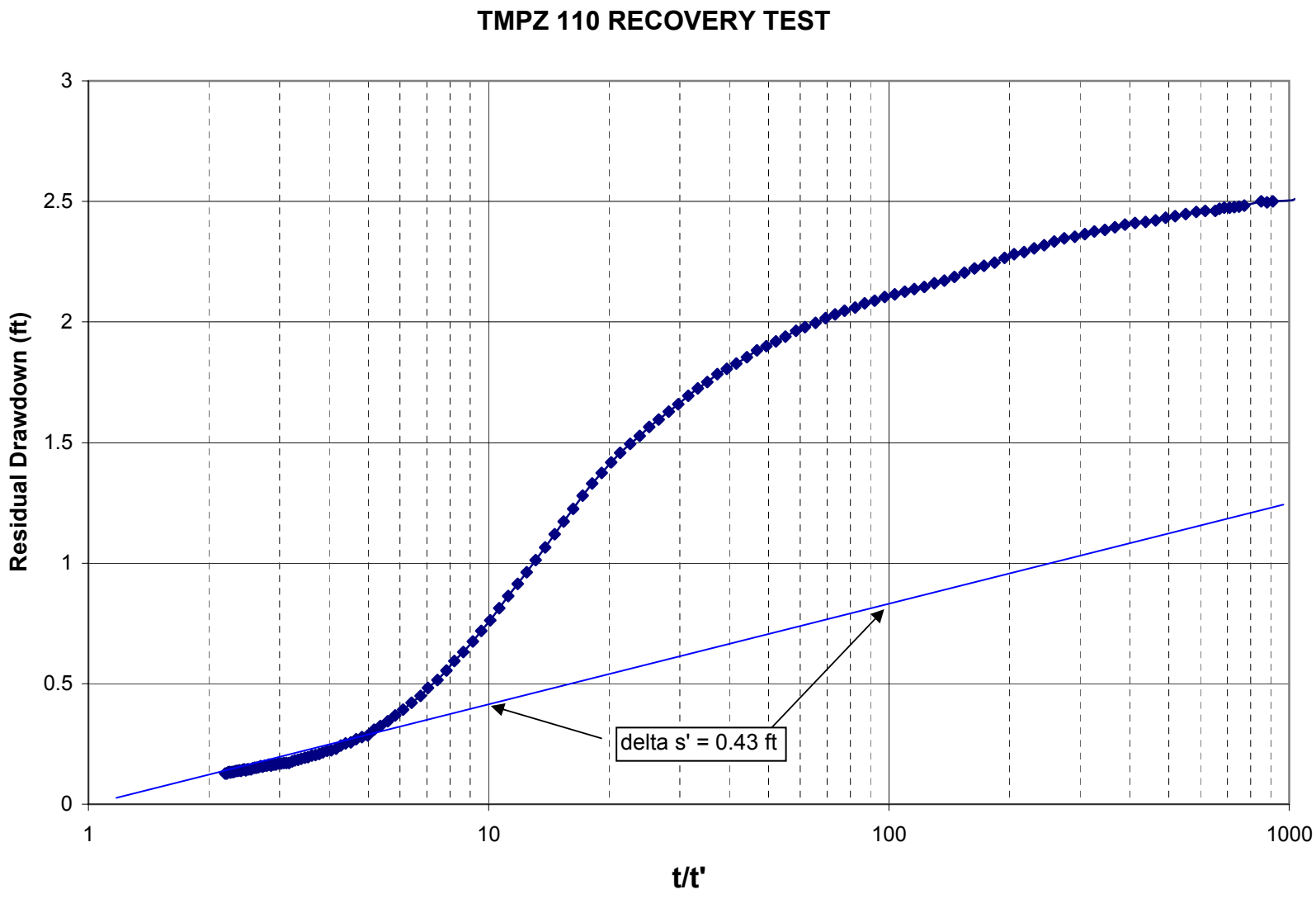

TMMW 101 RECOVERY TEST
Residual Drawdown (ft)
0
1
2
3
4
5
6
7
8
9
1
10
100
1000
t/t'
delta s' = 1.3 ft

TMMW 102 Rising Head
Slug Test




TMMW 103 RECOVERY TEST
Residual Drawdown (ft)
0
1
2
3
4
5
6
7
8
1
10
100
1000
10000
t/t'
delta s' = 1.8 ft


TMMW 104 RECOVERY TEST
Residual Drawdown (ft)
0
1
2
3
4
5
6
1
10
100
1000
t/t'
delta s' = 1.2 ft


TMPZ 110 RECOVERY TEST
Residual Drawdown (ft)
3
2.5
2
1.5
1
0.5
0
1
10
100
1000
t/t'
delta s' = 0.43 ft

APPENDIX C
RECOVERY DATA TABLES

CLD1 R
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
30.80	0.00	-	1.596
30.95	0.15	211.526	1.599
30.95	0.15	205.651	1.587
30.95	0.15	200.116	1.583
30.96	0.16	194.894	1.593
30.97	0.17	182.729	1.492
30.97	0.17	179.120	1.556
30.98	0.18	175.669	1.502
30.98	0.18	172.365	1.556
30.99	0.19	162.864	1.556
30.99	0.19	159.995	1.479
31.00	0.20	157.239	1.482
31.01	0.21	149.172	1.286
31.01	0.21	146.776	1.298
31.01	0.21	144.456	1.423
31.02	0.22	142.220	1.446
31.03	0.23	135.498	1.44
31.03	0.23	133.502	1.432
31.04	0.24	131.573	1.429
31.04	0.24	126.868	1.412
31.05	0.25	125.135	1.401
31.05	0.25	123.441	1.4
31.05	0.25	121.800	1.391
31.06	0.26	119.720	1.389
31.06	0.26	118.177	1.381
31.07	0.27	116.522	1.369
31.07	0.27	115.039	1.368
31.07	0.27	113.614	1.36
31.08	0.28	112.218	1.355
31.08	0.28	110.856	1.345
31.08	0.28	109.527	1.338
31.09	0.29	108.193	1.338
31.10	0.30	104.937	1.315
31.10	0.30	102.205	1.304
31.11	0.31	98.985	1.286
31.13	0.33	95.755	1.264
31.13	0.33	93.114	1.254
31.15	0.35	90.189	1.234
31.16	0.36	86.465	1.213
31.17	0.37	84.168	1.197
31.18	0.38	81.348	1.179
31.20	0.40	78.517	1.152
31.21	0.41	75.697	1.139
31.23	0.43	72.907	1.111
31.24	0.44	70.317	1.095
31.26	0.46	67.619	1.07
31.28	0.48	64.989	1.045
31.30	0.50	62.436	1.02

CLD1 R
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
31.32	0.52	59.966	0.998
31.34	0.54	57.545	0.97
31.37	0.57	55.194	0.944
31.39	0.59	52.910	0.919
31.42	0.62	50.731	0.892
31.45	0.65	48.580	0.865
31.48	0.68	46.472	0.836
31.51	0.71	44.482	0.805
31.54	0.74	42.491	0.777
31.58	0.78	40.623	0.741
31.61	0.81	38.822	0.711
31.65	0.85	37.052	0.681
31.70	0.90	35.362	0.647
31.74	0.94	33.754	0.622
31.79	0.99	32.195	0.59
31.84	1.04	30.612	0.564
31.89	1.09	29.248	0.541
31.95	1.15	27.868	0.508
32.01	1.21	26.522	0.484
32.07	1.27	25.322	0.457
32.14	1.34	24.048	0.428
32.21	1.41	22.901	0.409
32.28	1.48	21.862	0.386
32.36	1.56	20.790	0.363
32.45	1.65	19.708	0.344
32.53	1.73	18.841	0.319
32.63	1.83	17.864	0.299
32.73	1.93	16.989	0.283
32.83	2.03	16.200	0.268
32.94	2.14	15.417	0.248
33.06	2.26	14.650	0.237
33.19	2.39	13.907	0.222
33.32	2.52	13.240	0.211
33.46	2.66	12.595	0.196
33.61	2.81	11.975	0.188
33.77	2.97	11.383	0.178
33.93	3.13	10.852	0.161
34.11	3.31	10.315	0.161
34.30	3.50	9.809	0.155
34.50	3.70	9.333	0.146
34.71	3.91	8.885	0.141
34.93	4.13	8.464	0.134
35.17	4.37	8.054	0.131
35.42	4.62	7.672	0.122
35.68	4.88	7.314	0.12
35.96	5.16	6.973	0.116
36.26	5.46	6.645	0.112
36.57	5.77	6.341	0.104

CLD1 R
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
36.91	6.11	6.044	0.101
37.26	6.46	5.771	0.101
37.63	6.83	5.512	0.094
38.03	7.23	5.262	0.091
38.45	7.65	5.028	0.087
38.89	8.09	4.809	0.082
39.36	8.56	4.600	0.079
39.86	9.06	4.401	0.076
40.39	9.59	4.213	0.071
40.95	10.15	4.036	0.073
41.55	10.75	3.866	0.069
42.15	11.35	3.715	0.063

CLD3 R
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
61.91	0.00	-	3.059
61.91	0.00	68789.889	3.054
61.92	0.01	12180.016	3.052
61.92	0.01	6693.973	3.046
61.92	0.01	4615.410	3.043
61.93	0.02	3521.948	3.034
61.93	0.02	2847.437	3.032
61.94	0.03	2389.810	3.025
61.94	0.03	2058.950	3.021
61.94	0.03	1808.591	3.009
61.95	0.04	1612.540	3.004
61.95	0.04	1454.855	3.009
61.96	0.05	1326.223	2.99
61.97	0.06	1079.885	2.99
61.97	0.06	1019.257	2.988
61.97	0.06	965.080	2.988
61.98	0.07	826.650	2.976
61.99	0.08	790.501	2.968
61.99	0.08	757.538	2.97
62.00	0.09	727.217	2.96
62.01	0.10	647.017	2.954
62.01	0.10	624.778	2.951
62.01	0.10	604.117	2.952
62.02	0.11	549.848	2.942
62.03	0.12	533.636	2.938
62.03	0.12	518.282	2.934
62.03	0.12	503.448	2.935
62.04	0.13	489.506	2.932
62.04	0.13	476.621	2.933
62.04	0.13	463.879	2.924
62.05	0.14	450.437	2.922
62.06	0.15	422.874	2.913
62.06	0.15	401.108	2.904
62.07	0.16	376.781	2.899
62.08	0.17	355.278	2.885
62.09	0.18	336.101	2.877
62.11	0.20	317.298	2.87
62.12	0.21	299.026	2.856
62.13	0.22	281.474	2.848
62.14	0.23	265.875	2.836
62.16	0.25	250.889	2.829
62.17	0.26	236.638	2.811
62.19	0.28	223.112	2.799
62.20	0.29	211.054	2.782
62.22	0.31	198.964	2.772
62.24	0.33	187.616	2.755
62.26	0.35	177.006	2.74
62.28	0.37	167.090	2.721

CLD3 R
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
62.30	0.39	157.840	2.702
62.33	0.42	148.827	2.685
62.35	0.44	140.515	2.662
62.38	0.47	132.798	2.643
62.41	0.50	125.380	2.62
62.44	0.53	118.313	2.595
62.47	0.56	111.804	2.57
62.50	0.59	105.141	2.539
62.54	0.63	99.625	2.515
62.58	0.67	94.042	2.484
62.61	0.70	88.849	2.453
62.66	0.75	83.908	2.421
62.70	0.79	79.294	2.385
62.75	0.84	74.902	2.35
62.80	0.89	70.739	2.314
62.85	0.94	66.810	2.278
62.91	1.00	63.113	2.232
62.97	1.06	59.586	2.195
63.03	1.12	56.438	2.162
63.10	1.19	53.168	2.114
63.17	1.26	50.263	2.072
63.24	1.33	47.663	2.034
63.32	1.41	45.010	1.983
63.41	1.50	42.363	1.937
63.49	1.58	40.265	1.894
63.59	1.68	37.923	1.843
63.69	1.78	35.845	1.787
63.79	1.88	33.988	1.738
63.90	1.99	32.162	1.685
64.02	2.11	30.387	1.631
64.15	2.24	28.679	1.572
64.28	2.37	27.157	1.518
64.42	2.51	25.697	1.456
64.57	2.66	24.303	1.403
64.73	2.82	22.979	1.343
64.89	2.98	21.798	1.287
65.07	3.16	20.612	1.233
65.26	3.35	19.499	1.177
65.46	3.55	18.455	1.12
65.67	3.76	17.480	1.064
65.89	3.98	16.568	1.009
66.13	4.22	15.682	0.952
66.38	4.47	14.860	0.898
66.64	4.73	14.098	0.847
66.92	5.01	13.365	0.798
67.22	5.31	12.666	0.751
67.53	5.62	12.022	0.706
67.87	5.96	11.393	0.662

CLD3 R
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
68.22	6.31	10.816	0.62
68.59	6.68	10.272	0.582
68.99	7.08	9.748	0.544
69.41	7.50	9.258	0.508
69.85	7.94	8.800	0.476
70.32	8.41	8.364	0.442
70.82	8.91	7.951	0.414
71.35	9.44	7.561	0.388
71.91	10.00	7.193	0.358
72.51	10.60	6.842	0.332
73.11	11.20	6.529	0.312
73.81	11.90	6.204	0.291
74.51	12.60	5.915	0.269
75.21	13.30	5.656	0.25
76.01	14.10	5.391	0.235
76.91	15.00	5.128	0.221
77.71	15.80	4.919	0.207
78.71	16.80	4.686	0.189
79.71	17.80	4.479	0.177
80.71	18.80	4.294	0.169

J2D2 R2
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
29.98	0.00	-	3.846
29.99	0.01	5570.040	2.594
29.99	0.01	3134.798	2.806
29.99	0.01	2184.010	2.69
30.00	0.02	1675.860	2.651
30.01	0.03	1053.545	2.488
30.01	0.03	940.812	2.59
30.02	0.04	849.891	2.528
30.02	0.04	775.010	2.493
30.03	0.05	609.319	2.492
30.03	0.05	569.701	2.444
30.04	0.06	535.086	2.443
30.05	0.07	449.243	3.536
30.05	0.07	427.357	2.734
30.05	0.07	407.600	2.564
30.06	0.08	389.678	2.33
30.07	0.09	342.069	2.319
30.07	0.09	329.308	2.3
30.07	0.09	317.467	2.287
30.08	0.10	299.061	2.263
30.08	0.10	289.085	2.248
30.09	0.11	279.927	2.236
30.09	0.11	270.402	2.222
30.10	0.12	261.394	2.205
30.10	0.12	253.074	2.189
30.10	0.12	245.901	2.179
30.11	0.13	239.125	2.165
30.11	0.13	232.715	2.15
30.11	0.13	226.555	2.143
30.12	0.14	220.875	2.126
30.12	0.14	211.805	2.099
30.13	0.15	199.259	2.063
30.14	0.16	189.297	2.031
30.15	0.17	178.169	1.996
30.16	0.18	168.284	1.958
30.17	0.19	159.443	1.924
30.18	0.20	150.738	1.883
30.19	0.21	142.271	1.842
30.21	0.23	134.018	1.792
30.22	0.24	126.852	1.74
30.23	0.25	119.866	1.694
30.25	0.27	113.194	1.641
30.26	0.28	106.855	1.582
30.28	0.30	101.195	1.527
30.30	0.32	95.306	1.453
30.32	0.34	90.169	1.394
30.34	0.36	85.162	1.332
30.36	0.38	80.477	1.26

J2D2 R2
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
30.38	0.40	76.097	1.195
30.40	0.42	71.838	1.137
30.43	0.45	67.887	1.087
30.45	0.47	64.220	1.056
30.48	0.50	60.695	1.018
30.51	0.53	57.330	0.982
30.54	0.56	54.230	0.932
30.58	0.60	51.200	0.891
30.61	0.63	48.420	0.85
30.65	0.67	45.799	0.805
30.69	0.71	43.272	0.772
30.73	0.75	40.876	0.723
30.78	0.80	38.700	0.679
30.82	0.84	36.597	0.635
30.87	0.89	34.602	0.6
30.93	0.95	32.718	0.564
30.98	1.00	30.944	0.531
31.04	1.06	29.251	0.499
31.10	1.12	27.739	0.474
31.17	1.19	26.168	0.443
31.24	1.26	24.771	0.419
31.31	1.33	23.521	0.397
31.39	1.41	22.218	0.371
31.48	1.50	20.970	0.35
31.56	1.58	19.959	0.335
31.66	1.68	18.832	0.322
31.76	1.78	17.831	0.307
31.86	1.88	16.936	0.295
31.97	1.99	16.056	0.286
32.09	2.11	15.200	0.277
32.22	2.24	14.374	0.269
32.35	2.37	13.643	0.259
32.49	2.51	12.938	0.261
32.64	2.66	12.266	0.245
32.80	2.82	11.627	0.24
32.96	2.98	11.056	0.238
33.14	3.16	10.484	0.233
33.33	3.35	9.946	0.225
33.53	3.55	9.442	0.227
33.74	3.76	8.971	0.219
33.96	3.98	8.530	0.217
34.20	4.22	8.102	0.209
34.45	4.47	7.705	0.206
34.71	4.73	7.337	0.201
34.99	5.01	6.983	0.199
35.29	5.31	6.645	0.195
35.60	5.62	6.333	0.19
35.94	5.96	6.029	0.189

J2D2 R2
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
36.29	6.31	5.750	0.185
36.66	6.68	5.487	0.183
37.06	7.08	5.234	0.176
37.48	7.50	4.997	0.172
37.92	7.94	4.775	0.173
38.39	8.41	4.564	0.171
38.89	8.91	4.364	0.163
39.42	9.44	4.175	0.162
39.98	10.00	3.998	0.159
40.58	10.60	3.828	0.156
41.18	11.20	3.676	0.151
41.88	11.90	3.519	0.149
42.58	12.60	3.379	0.141
43.28	13.30	3.254	0.138
44.08	14.10	3.126	0.136

M95
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
30.36	0.00	-	0.201
30.37	0.01	3431.508	0.226
30.37	0.01	2333.394	0.119
30.38	0.02	1767.828	0.169
30.38	0.02	1423.014	0.168
30.39	0.03	1190.811	0.155
30.39	0.03	1023.796	0.126
30.39	0.03	897.898	0.088
30.40	0.04	799.597	0.061
30.40	0.04	720.716	0.074
30.41	0.05	655.781	0.066
30.41	0.05	597.659	0.061
30.42	0.06	492.395	0.058
30.43	0.07	466.644	0.057
30.43	0.07	443.458	0.052
30.43	0.07	422.179	0.051
30.44	0.08	369.596	0.051
30.45	0.09	354.846	0.048
30.45	0.09	341.295	0.057
30.45	0.09	328.744	0.052
30.46	0.10	316.921	0.048
30.46	0.10	305.972	0.053
30.46	0.10	295.757	0.051
30.47	0.11	286.204	0.057
30.47	0.11	277.251	0.05
30.47	0.11	268.725	0.047
30.48	0.12	260.783	0.048
30.49	0.13	238.683	0.041
30.49	0.13	232.461	0.048
30.50	0.14	221.506	0.015
30.51	0.15	205.422	0.044
30.51	0.15	197.272	0.041
30.53	0.17	183.196	0.039
30.53	0.17	176.813	0.04
30.54	0.18	165.985	0.043
30.55	0.19	158.564	0.038
30.56	0.20	150.055	0.041
30.58	0.22	141.762	0.038
30.59	0.23	133.760	0.033
30.60	0.24	126.619	0.035
30.62	0.26	119.741	0.037
30.63	0.27	113.161	0.034
30.65	0.29	106.901	0.032
30.66	0.30	101.303	0.044
30.68	0.32	95.673	0.036
30.70	0.34	90.377	0.033
30.72	0.36	85.408	0.036
30.74	0.38	80.751	0.041

M95
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
30.76	0.40	76.394	0.03
30.79	0.43	72.153	0.037
30.81	0.45	68.215	0.036
30.84	0.48	64.557	0.031
30.87	0.51	61.038	0.033
30.90	0.54	57.675	0.031
30.93	0.57	54.575	0.033
30.96	0.60	51.542	0.027
31.00	0.64	48.760	0.032
31.03	0.67	46.133	0.032
31.07	0.71	43.600	0.029
31.11	0.75	41.229	0.031
31.16	0.80	39.013	0.018
31.21	0.85	36.900	0.027
31.26	0.90	34.854	0.025
31.31	0.95	33.002	0.028
31.36	1.00	31.218	0.028
31.42	1.06	29.516	0.029
31.48	1.12	27.994	0.019
31.55	1.19	26.413	0.026
31.62	1.26	25.006	0.023
31.69	1.33	23.742	0.026
31.77	1.41	22.461	0.024
31.86	1.50	21.177	0.018
31.94	1.58	20.158	0.02
32.04	1.68	19.021	0.019
32.14	1.78	18.011	0.018
32.25	1.89	17.090	0.02
32.35	1.99	16.220	0.021
32.47	2.11	15.357	0.023
32.60	2.24	14.525	0.019
32.73	2.37	13.785	0.014
32.87	2.51	13.073	0.014
33.02	2.66	12.393	0.013
33.18	2.82	11.748	0.016
33.34	2.98	11.172	0.017
33.52	3.16	10.593	0.016
33.71	3.35	10.050	0.01
33.91	3.55	9.541	0.015
34.12	3.76	9.064	0.014
34.34	3.98	8.619	0.012
34.58	4.22	8.186	0.01
34.83	4.47	7.785	0.015
35.09	4.73	7.412	0.013
35.37	5.01	7.054	0.01
35.67	5.31	6.712	0
35.98	5.62	6.398	0.013
36.32	5.96	6.090	0.012

M95
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
36.67	6.31	5.808	0.012
37.04	6.68	5.542	0.015
37.44	7.08	5.285	0.008
37.86	7.50	5.045	0

PC54
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
30.92	0.00	-	0.486
30.93	0.01	4295.444	0.478
30.93	0.01	2717.252	0.481
30.94	0.02	1989.424	0.473
30.95	0.03	1193.288	0.199
30.95	0.03	1055.091	0.306
30.95	0.03	945.122	0.215
30.96	0.04	710.174	0.393
30.97	0.05	658.639	0.381
30.97	0.05	614.289	0.36
30.97	0.05	575.188	0.175
30.98	0.06	478.652	0.269
30.99	0.07	454.816	0.296
30.99	0.07	433.145	0.316
31.00	0.08	374.881	0.279
31.01	0.09	360.117	0.24
31.01	0.09	346.346	0.24
31.01	0.09	333.652	0.238
31.02	0.10	298.117	0.232
31.03	0.11	288.673	0.22
31.03	0.11	279.768	0.234
31.04	0.12	261.818	0.218
31.04	0.12	254.512	0.22
31.05	0.13	247.342	0.22
31.05	0.13	240.721	0.219
31.05	0.13	233.685	0.217
31.06	0.14	226.913	0.213
31.06	0.14	221.385	0.216
31.06	0.14	215.648	0.204
31.07	0.15	210.651	0.206
31.07	0.15	204.779	0.198
31.08	0.16	199.715	0.206
31.08	0.16	192.990	0.198
31.09	0.17	180.959	0.193
31.10	0.18	171.782	0.184
31.11	0.19	162.842	0.18
31.12	0.20	154.044	0.174
31.13	0.21	145.463	0.172
31.15	0.23	137.191	0.159
31.16	0.24	129.806	0.158
31.17	0.25	122.708	0.155
31.19	0.27	115.930	0.138
31.21	0.29	109.479	0.134
31.22	0.30	103.713	0.135
31.24	0.32	97.918	0.131
31.26	0.34	92.313	0.129
31.28	0.36	87.357	0.123
31.30	0.38	82.572	0.117

PC54
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
31.32	0.40	78.101	0.113
31.35	0.43	73.744	0.109
31.37	0.45	69.703	0.103
31.40	0.48	65.953	0.103
31.42	0.50	62.343	0.097
31.45	0.53	58.899	0.092
31.49	0.57	55.721	0.096
31.52	0.60	52.615	0.089
31.55	0.63	49.767	0.082
31.59	0.67	47.078	0.084
31.63	0.71	44.485	0.082
31.67	0.75	42.061	0.083
31.72	0.80	39.794	0.078
31.76	0.84	37.634	0.076
31.81	0.89	35.585	0.079
31.87	0.95	33.649	0.074
31.92	1.00	31.826	0.074
31.98	1.06	30.087	0.065
32.04	1.12	28.533	0.074
32.11	1.19	26.917	0.067
32.18	1.26	25.481	0.066
32.25	1.33	24.195	0.066
32.33	1.41	22.882	0.064
32.42	1.50	21.572	0.065
32.50	1.58	20.532	0.061
32.60	1.68	19.372	0.063
32.70	1.78	18.341	0.061
32.80	1.88	17.420	0.059
32.91	1.99	16.514	0.059
33.03	2.11	15.633	0.056
33.16	2.24	14.785	0.06
33.29	2.37	14.030	0.057
33.43	2.51	13.304	0.053
33.58	2.66	12.611	0.054
33.74	2.82	11.953	0.05
33.90	2.98	11.365	0.051
34.08	3.16	10.775	0.053
34.27	3.35	10.222	0.049
34.47	3.55	9.702	0.05
34.68	3.76	9.217	0.047
34.90	3.98	8.763	0.048
35.14	4.22	8.322	0.049
35.40	4.48	7.909	0.047
35.65	4.73	7.533	0.052
35.93	5.01	7.168	0.047
36.23	5.31	6.820	0.04
36.54	5.62	6.499	0.044
36.88	5.96	6.185	0.039

PC54
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
37.23	6.31	5.898	0.044
37.60	6.68	5.627	0.046
38.00	7.08	5.365	0.041
38.42	7.50	5.121	0.038
38.86	7.94	4.893	0.041
39.33	8.41	4.675	0.038
39.83	8.91	4.469	0.038
40.36	9.44	4.274	0.039
40.92	10.00	4.091	0.041
41.52	10.60	3.916	0.038
42.12	11.20	3.760	0.035
42.82	11.90	3.598	0.038
43.52	12.60	3.453	0.026
44.22	13.30	3.324	0.038
45.02	14.10	3.192	0.035
45.92	15.00	3.061	0.033
46.72	15.80	2.957	0.035
47.72	16.80	2.840	0.034
48.72	17.80	2.737	0.036
49.72	18.80	2.644	0.027
50.72	19.80	2.561	0.026
51.72	20.80	2.486	0.037

PC65
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
30.96	0.00	-	2.157
30.96	0.00	9106.882	2.166
30.97	0.01	4083.637	2.171
30.97	0.01	2635.894	2.136
30.98	0.02	1946.131	2.086
30.98	0.02	1542.577	2.08
30.98	0.02	1277.701	1.947
30.99	0.03	1090.501	2.055
30.99	0.03	951.179	2.071
31.00	0.04	843.449	1.843
31.00	0.04	757.660	2.007
31.01	0.05	687.728	1.942
31.01	0.05	629.629	1.925
31.01	0.05	580.233	1.941
31.02	0.06	484.247	1.883
31.03	0.07	459.780	1.88
31.03	0.07	437.774	1.89
31.03	0.07	417.689	1.857
31.04	0.08	365.736	1.854
31.05	0.09	351.623	1.85
31.05	0.09	338.623	1.847
31.06	0.10	302.754	1.822
31.07	0.11	293.075	1.818
31.07	0.11	283.912	1.811
31.07	0.11	275.346	1.79
31.08	0.12	251.216	1.788
31.09	0.13	244.428	1.781
31.09	0.13	237.999	1.781
31.10	0.14	219.515	1.761
31.11	0.15	214.346	1.753
31.11	0.15	209.368	1.748
31.11	0.15	204.640	1.749
31.12	0.16	197.905	1.741
31.13	0.17	186.131	1.72
31.14	0.18	175.685	1.7
31.15	0.19	163.947	1.695
31.16	0.20	157.180	1.685
31.17	0.21	147.939	1.658
31.18	0.22	139.689	1.636
31.20	0.24	132.057	1.623
31.21	0.25	124.725	1.599
31.23	0.27	117.727	1.583
31.24	0.28	111.087	1.566
31.26	0.30	105.161	1.547
31.28	0.32	99.213	1.523
31.29	0.33	93.630	1.503
31.31	0.35	88.400	1.476
31.34	0.38	83.509	1.449

PC65
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
31.36	0.40	78.939	1.42
31.38	0.42	74.498	1.39
31.41	0.45	70.381	1.363
31.43	0.47	66.561	1.336
31.46	0.50	62.891	1.301
31.49	0.53	59.389	1.271
31.52	0.56	56.164	1.242
31.56	0.60	53.013	1.21
31.59	0.63	50.125	1.172
31.63	0.67	47.401	1.139
31.67	0.71	44.776	1.095
31.71	0.75	42.322	1.061
31.75	0.79	40.030	1.025
31.80	0.84	37.847	0.979
31.85	0.89	35.777	0.944
31.90	0.94	33.817	0.894
31.96	1.00	31.984	0.853
32.02	1.06	30.229	0.802
32.08	1.12	28.662	0.757
32.15	1.19	27.034	0.708
32.22	1.26	25.586	0.652
32.29	1.33	24.292	0.602
32.37	1.41	22.960	0.567
32.46	1.50	21.651	0.525
32.54	1.58	20.604	0.493
32.64	1.68	19.437	0.464
32.74	1.78	18.401	0.433
32.84	1.88	17.475	0.402
32.95	1.99	16.564	0.372
33.07	2.11	15.673	0.349
33.20	2.24	14.826	0.314
33.33	2.37	14.068	0.296
33.47	2.51	13.338	0.268
33.62	2.66	12.642	0.247
33.78	2.82	11.982	0.232
33.94	2.98	11.392	0.206
34.12	3.16	10.800	0.197
34.31	3.35	10.244	0.173
34.51	3.55	9.723	0.157
34.72	3.76	9.236	0.14
34.94	3.98	8.780	0.135
35.18	4.22	8.338	0.129
35.43	4.47	7.927	0.114
35.69	4.73	7.547	0.107
35.97	5.01	7.181	0.095
36.27	5.31	6.831	0.093
36.58	5.62	6.510	0.085
36.92	5.96	6.195	0.082

PC65
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
37.27	6.31	5.907	0.075
37.64	6.68	5.635	0.081
38.04	7.08	5.373	0.075
38.46	7.50	5.128	0.068
38.90	7.94	4.900	0.064
39.37	8.41	4.682	0.064
39.87	8.91	4.475	0.061

PC67
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
30.48	0.00	-	0.817
30.49	0.01	3400.257	0.783
30.49	0.01	2321.812	0.779
30.50	0.02	1762.850	0.748
30.50	0.02	1420.876	0.863
30.51	0.03	1190.077	0.854
30.51	0.03	1023.819	0.834
30.51	0.03	898.350	0.569
30.52	0.04	800.301	0.684
30.52	0.04	721.567	0.792
30.53	0.05	656.014	0.671
30.53	0.05	602.975	0.718
30.53	0.05	555.350	0.687
30.54	0.06	518.048	0.678
30.55	0.07	440.510	0.694
30.55	0.07	419.969	0.701
30.56	0.08	401.175	0.687
30.57	0.09	351.681	0.678
30.57	0.09	338.417	0.68
30.57	0.09	326.062	0.671
30.58	0.10	314.634	0.657
30.59	0.11	283.615	0.664
30.59	0.11	274.936	0.658
30.59	0.11	266.814	0.666
30.61	0.13	243.579	0.642
30.61	0.13	237.096	0.637
30.61	0.13	230.980	0.629
30.62	0.14	225.145	0.615
30.63	0.15	208.394	0.61
30.63	0.15	203.660	0.612
30.63	0.15	199.137	0.618
30.64	0.16	193.444	0.608
30.64	0.16	188.224	0.596
30.65	0.17	177.389	0.591
30.66	0.18	167.740	0.589
30.67	0.19	159.091	0.575
30.68	0.20	150.558	0.561
30.70	0.22	142.242	0.55
30.71	0.23	134.217	0.535
30.72	0.24	127.055	0.524
30.74	0.26	120.156	0.51
30.75	0.27	113.555	0.493
30.77	0.29	107.276	0.483
30.78	0.30	101.661	0.47
30.80	0.32	96.012	0.461
30.82	0.34	90.700	0.453
30.84	0.36	85.714	0.441
30.86	0.38	81.042	0.432

PC67
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
30.88	0.40	76.670	0.421
30.91	0.43	72.415	0.411
30.93	0.45	68.463	0.399
30.96	0.48	64.792	0.391
30.99	0.51	60.910	0.382
31.02	0.54	57.887	0.371
31.05	0.57	54.776	0.359
31.08	0.60	51.704	0.354
31.12	0.64	48.940	0.349
31.16	0.68	46.134	0.338
31.19	0.71	43.761	0.332
31.23	0.75	41.382	0.328
31.28	0.80	39.157	0.307
31.33	0.85	37.037	0.321
31.38	0.90	35.025	0.307
31.43	0.95	33.125	0.301
31.48	1.00	31.334	0.294
31.54	1.06	29.625	0.292
31.60	1.12	28.098	0.29
31.67	1.19	26.511	0.284
31.74	1.26	25.099	0.278
31.81	1.33	23.835	0.27
31.89	1.41	22.544	0.261
31.98	1.50	21.255	0.26
32.06	1.58	20.233	0.255
32.16	1.68	19.091	0.254
32.26	1.78	18.078	0.239
32.36	1.88	17.171	0.249
32.48	2.00	16.263	0.241
32.59	2.11	15.413	0.235
32.72	2.24	14.578	0.233
32.85	2.37	13.835	0.231
32.99	2.51	13.120	0.223
33.14	2.66	12.438	0.227
33.30	2.82	11.790	0.22
33.46	2.98	11.212	0.217
33.64	3.16	10.631	0.213
33.83	3.35	10.085	0.205
34.03	3.55	9.574	0.2
34.24	3.76	9.096	0.205
34.46	3.98	8.649	0.2
34.70	4.22	8.215	0.19
34.95	4.47	7.811	0.193
35.21	4.73	7.437	0.199
35.49	5.01	7.078	0.185
35.79	5.31	6.735	0.184
36.10	5.62	6.419	0.184
36.44	5.96	6.110	0.178

PC67
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
36.79	6.31	5.827	0.173
37.16	6.68	5.560	0.178
37.56	7.08	5.302	0.171
37.99	7.51	5.060	0.166
38.42	7.94	4.836	0.161
38.89	8.41	4.622	0.162
39.39	8.91	4.419	0.156
39.92	9.44	4.227	0.154
40.49	10.01	4.046	0.155
41.08	10.60	3.874	0.151
41.68	11.20	3.720	0.149
42.38	11.90	3.560	0.147
43.08	12.60	3.418	0.149
43.78	13.30	3.291	0.146
44.58	14.10	3.161	0.146
45.49	15.01	3.031	0.148
46.28	15.80	2.929	0.147
47.28	16.80	2.814	0.146
48.28	17.80	2.712	0.141
49.28	18.80	2.621	0.147
50.28	19.80	2.539	0.141
51.28	20.80	2.465	0.143
52.28	21.80	2.398	0.143
53.28	22.80	2.337	0.145
54.28	23.80	2.280	0.138
55.28	24.80	2.229	0.145
56.28	25.80	2.181	0.14
57.28	26.80	2.137	0.141

TMMW 101
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
90.11	0.00	-	8.057
90.11	0.00	25746.714	8.075
90.12	0.01	11754.478	8.057
90.12	0.01	7615.930	8.073
90.13	0.02	3999.964	8.03
90.14	0.03	3473.447	8.036
90.14	0.03	3069.445	8.016
90.14	0.03	2749.653	8.051
90.15	0.04	2083.666	7.845
90.16	0.05	1931.239	7.847
90.16	0.05	1800.201	7.921
90.17	0.06	1479.021	7.9
90.17	0.06	1400.586	7.873
90.18	0.07	1329.729	7.854
90.18	0.07	1265.998	7.849
90.18	0.07	1208.100	7.832
90.19	0.08	1155.516	7.821
90.19	0.08	1107.097	7.805
90.19	0.08	1062.575	7.79
90.20	0.09	1021.691	7.779
90.20	0.09	983.839	7.759
90.21	0.10	948.695	7.748
90.21	0.10	915.977	7.734
90.21	0.10	885.298	7.721
90.22	0.11	856.745	7.664
90.23	0.12	774.919	7.666
90.23	0.12	752.752	7.645
90.23	0.12	731.720	7.637
90.24	0.13	675.560	7.601
90.25	0.14	658.577	7.584
90.25	0.14	642.505	7.572
90.26	0.15	604.415	7.537
90.27	0.16	573.733	7.527
90.28	0.17	539.506	7.506
90.29	0.18	509.139	7.484
90.30	0.19	482.014	7.457
90.31	0.20	455.336	7.43
90.32	0.21	429.415	7.403
90.33	0.22	404.478	7.373
90.35	0.24	382.283	7.34
90.36	0.25	360.960	7.313
90.38	0.27	340.611	7.276
90.39	0.28	321.296	7.253
90.41	0.30	304.061	7.226
90.43	0.32	286.023	7.195
90.44	0.33	270.521	7.162
90.46	0.35	255.309	7.135
90.49	0.38	240.167	7.096

TMMW 101
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
90.51	0.40	227.787	7.061
90.53	0.42	214.869	7.024
90.56	0.45	202.889	6.987
90.58	0.47	191.776	6.943
90.61	0.50	181.100	6.888
90.64	0.53	170.912	6.842
90.67	0.56	161.529	6.788
90.71	0.60	152.361	6.737
90.74	0.63	143.956	6.678
90.78	0.67	136.030	6.624
90.82	0.71	128.394	6.566
90.86	0.75	121.254	6.498
90.90	0.79	114.584	6.435
90.95	0.84	108.231	6.366
91.00	0.89	102.209	6.298
91.05	0.94	96.523	6.218
91.11	1.00	91.170	6.142
91.17	1.06	86.063	6.052
91.23	1.12	81.503	5.973
91.30	1.19	76.765	5.879
91.37	1.26	72.554	5.784
91.44	1.33	68.786	5.695
91.52	1.41	64.866	5.586
91.61	1.50	61.100	5.474
91.69	1.58	58.056	5.389
91.79	1.68	54.658	5.261
91.89	1.78	51.643	5.143
91.99	1.88	48.948	5.027
92.10	1.99	46.297	4.906
92.22	2.11	43.720	4.773
92.35	2.24	41.240	4.635
92.48	2.37	39.032	4.502
92.62	2.51	36.910	4.357
92.77	2.66	34.884	4.213
92.93	2.82	32.954	4.062
93.09	2.98	31.245	3.924
93.27	3.16	29.522	3.767
93.46	3.35	27.904	3.602
93.66	3.55	26.388	3.44
93.87	3.76	24.970	3.28
94.09	3.98	23.644	3.124
94.33	4.22	22.356	2.965
94.58	4.47	21.162	2.812
94.84	4.73	20.053	2.66
95.12	5.01	18.988	2.508
95.42	5.31	17.972	2.362
95.73	5.62	17.036	2.228
96.07	5.96	16.121	2.084

TMMW 101
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
96.42	6.31	15.282	1.957
96.79	6.68	14.491	1.821
97.19	7.08	13.729	1.696
97.61	7.50	13.016	1.585
98.05	7.94	12.350	1.469
98.52	8.41	11.714	1.347
99.02	8.91	11.113	1.24
99.55	9.44	10.546	1.161
100.11	10.00	10.012	1.104
100.71	10.60	9.501	1.054
101.31	11.20	9.046	1.001
102.01	11.90	8.573	0.952
102.71	12.60	8.152	0.906
103.41	13.30	7.776	0.858
104.21	14.10	7.391	0.813
105.11	15.00	7.008	0.764
105.91	15.80	6.703	0.724
106.91	16.80	6.364	0.675
107.91	17.80	6.063	0.637
108.91	18.80	5.793	0.596
109.91	19.80	5.551	0.578
110.91	20.80	5.332	0.546
111.91	21.80	5.134	0.521
112.91	22.80	4.952	0.496
113.91	23.80	4.786	0.475
114.91	24.80	4.634	0.459
115.91	25.80	4.493	0.434
116.91	26.80	4.362	0.417
117.91	27.80	4.241	0.394
118.91	28.80	4.129	0.381
119.91	29.80	4.024	0.367
120.91	30.80	3.926	0.354

TMMW 102
Rising Head Slug Data

Time (minutes)	Displacement (ft)
0.00	11.56
0.00	11.52
0.01	11.54
0.01	11.48
0.02	11.47
0.03	11.45
0.03	11.45
0.04	11.42
0.04	11.40
0.05	11.39
0.05	11.37
0.06	11.36
0.06	11.36
0.07	11.36
0.07	11.34
0.08	11.33
0.08	11.33
0.08	11.32
0.09	11.31
0.09	11.31
0.10	11.29
0.10	11.29
0.10	11.28
0.11	11.27
0.11	11.27
0.11	11.27
0.12	11.26
0.12	11.24
0.12	11.25
0.13	11.24
0.13	11.23
0.14	11.23
0.14	11.22
0.15	11.20
0.16	11.20
0.16	11.20
0.16	11.20
0.17	11.18
0.18	11.18
0.18	11.17
0.18	11.16
0.19	11.16
0.20	11.16
0.20	11.16
0.21	11.16
0.21	11.16
0.21	11.16
0.22	11.16

TMMW 102
Rising Head Slug Data

Time (minutes)	Displacement (ft)
0.22	11.15
0.23	11.15
0.23	11.15
0.23	11.15
0.24	11.15
0.24	11.15
0.24	11.15
0.25	11.15
0.25	11.14
0.26	11.14
0.27	11.14
0.28	11.14
0.29	11.14
0.30	11.13
0.31	11.13
0.32	11.13
0.33	11.13
0.34	11.13
0.36	11.12
0.37	11.12
0.39	11.11
0.40	11.11
0.42	11.11
0.44	11.11
0.46	11.10
0.48	11.10
0.50	11.09
0.52	11.09
0.54	11.08
0.57	11.05
0.59	11.03
0.62	11.03
0.65	11.02
0.68	11.01
0.72	11.01
0.75	11.00
0.79	10.99
0.83	10.96
0.87	10.95
0.91	10.94
0.96	10.93
1.01	10.92
1.06	10.91
1.12	10.89
1.18	10.89
1.24	10.88
1.31	10.87

TMMW 102
Rising Head Slug Data

Time (minutes)	Displacement (ft)
1.38	10.87
1.45	10.86
1.53	10.84
1.62	10.83
1.70	10.82
1.80	10.80
1.90	10.80
2.00	10.78
2.11	10.77
2.23	10.75
2.36	10.74
2.49	10.72
2.63	10.71
2.78	10.70
2.94	10.67
3.10	10.66
3.28	10.64
3.47	10.62
3.67	10.60
3.88	10.59
4.10	10.56
4.34	10.54
4.59	10.51
4.85	10.49
5.13	10.46
5.43	10.43
5.74	10.40
6.08	10.37
6.43	10.34
6.80	10.30
7.20	10.26
7.62	10.22
8.06	10.18
8.53	10.14
9.03	10.09
9.56	10.04
10.12	9.99
10.72	9.94
11.32	9.89
12.02	9.83
12.72	9.76
13.42	9.71
14.22	9.64
15.12	9.57
15.92	9.50
16.92	9.42
17.92	9.34

TMMW 102
Rising Head Slug Data

Time (minutes)	Displacement (ft)
18.92	9.26
19.92	9.19
20.92	9.11
21.92	9.03
22.92	8.95
23.92	8.88
24.92	8.81
25.92	8.73
26.92	8.66
27.92	8.60
28.92	8.52
29.92	8.45
30.92	8.39
31.92	8.32
32.92	8.24
33.92	8.19
34.92	8.12
35.92	8.07
36.92	8.01
37.92	7.95
38.92	7.89
39.92	7.84
40.92	7.78
41.92	7.72
42.92	7.67
43.92	7.62
44.92	7.56
45.92	7.51
46.92	7.46
47.92	7.40
48.92	7.36
49.92	7.30
50.92	7.24
51.92	7.19
52.92	7.13
53.92	7.07
54.92	7.01
55.92	6.96
56.92	6.90
57.92	6.84
58.92	6.79
59.92	6.73
60.92	6.68
61.92	6.63
62.92	6.57
63.92	6.52
64.92	6.47

TMMW 102
Rising Head Slug Data

Time (minutes)	Displacement (ft)
65.92	6.42
66.92	6.37
67.92	6.32
68.92	6.26
69.92	6.22
70.92	6.16
71.92	6.12
72.92	6.07
73.92	6.02
74.92	5.96
75.92	5.91
76.92	5.87
77.92	5.82
78.92	5.77
79.92	5.72
80.92	5.67
81.92	5.63
82.92	5.58
83.92	5.53
84.92	5.49
85.92	5.44
86.92	5.39
87.92	5.35
88.92	5.31
89.92	5.26
90.92	5.22
91.92	5.18
92.92	5.15
93.92	5.11
94.92	5.07
95.92	5.03
96.92	5.00
97.92	4.96
98.92	4.94
99.92	4.89
100.92	4.86
101.92	4.83
102.92	4.80
103.92	4.77
104.92	4.74
105.92	4.70
106.92	4.67
107.92	4.64
108.92	4.61
109.92	4.58
110.92	4.55
111.92	4.51

TMMW 102
Rising Head Slug Data

Time (minutes)	Displacement (ft)
112.92	4.48
113.92	4.44
114.92	4.41
115.92	4.39
116.92	4.35
117.92	4.32
118.92	4.29
119.92	4.26
120.92	4.22
121.92	4.19
122.92	4.16
123.92	4.13
124.92	4.09
125.92	4.07
126.92	4.03
127.92	4.01
128.92	3.97
129.92	3.93
130.92	3.91
131.92	3.87
132.92	3.84
133.92	3.80
134.92	3.77
135.92	3.74
136.92	3.70
137.92	3.67
138.92	3.63
139.92	3.60
140.92	3.56
141.92	3.53
142.92	3.50
143.92	3.47
144.92	3.43
145.92	3.41
146.92	3.37
147.92	3.34
148.92	3.32
149.92	3.27
150.92	3.25
151.92	3.22
152.92	3.20
153.92	3.15
154.92	3.13
155.92	3.10
156.92	3.08
157.92	3.04
158.92	3.02

TMMW 102
Rising Head Slug Data

Time (minutes)	Displacement (ft)
159.92	2.99
160.92	2.96
161.92	2.93
162.92	2.90
163.92	2.87
164.92	2.85
165.92	2.82
166.92	2.78
167.92	2.76
168.92	2.74
169.92	2.70
170.92	2.68
171.92	2.66
172.92	2.63
173.92	2.61
174.92	2.58
175.92	2.56
176.92	2.53
177.92	2.51
178.92	2.49
179.92	2.46
180.92	2.44
181.92	2.42
182.92	2.38
183.92	2.37
184.92	2.35
185.92	2.32
186.92	2.30
187.92	2.28
188.92	2.25
189.92	2.24
190.92	2.22
191.92	2.19
192.92	2.17
193.92	2.16
194.92	2.14
195.92	2.12
196.92	2.09
197.92	2.06
198.92	2.06
199.92	2.04
200.92	2.02
201.92	2.00
202.92	1.98
203.92	1.96
204.92	1.95
205.92	1.94

TMMW 102
Rising Head Slug Data

Time (minutes)	Displacement (ft)
206.92	1.91
207.92	1.89
208.92	1.88
209.92	1.85
210.92	1.84
211.92	1.82
212.92	1.80
213.92	1.79
214.92	1.77
215.92	1.75
216.92	1.73
217.92	1.71
218.92	1.70
219.92	1.68
220.92	1.67
221.92	1.66
222.92	1.64
223.92	1.62
224.92	1.61
225.92	1.60
226.92	1.58
227.92	1.57
228.92	1.55
229.92	1.54
230.92	1.52
231.92	1.50
232.92	1.49
233.92	1.48
234.92	1.47
235.92	1.45
236.92	1.44
237.92	1.43
238.92	1.42
239.92	1.40
240.92	1.39
241.92	1.38
242.92	1.37
243.92	1.35
244.92	1.34
245.92	1.33
246.92	1.32
247.92	1.31
248.92	1.30
249.92	1.28
250.92	1.27
251.92	1.27
252.92	1.25

TMMW 102
Rising Head Slug Data

Time (minutes)	Displacement (ft)
253.92	1.24
254.92	1.23
255.92	1.21
256.92	1.21
257.92	1.19
258.92	1.18
259.92	1.17
260.92	1.16
261.92	1.15
262.92	1.15
263.92	1.12
264.92	1.12
265.92	1.11
266.92	1.10
267.92	1.09
268.92	1.08
269.92	1.07
270.92	1.06
271.92	1.05
272.92	1.04
273.92	1.03
274.92	1.02
275.92	1.02
276.92	1.01
277.92	1.00
278.92	0.99
279.92	0.99
280.92	0.97
281.92	0.97
282.92	0.96
283.92	0.95
284.92	0.92
285.92	0.94
286.92	0.93
287.92	0.92
288.92	0.91
289.92	0.91

TMMW 103
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
181.10	0.00	-	7.106
181.10	0.00	47868.841	7.104
181.11	0.01	22780.874	7.095
181.11	0.01	14947.355	7.099
181.12	0.02	11122.801	7.092
181.12	0.02	8856.746	7.088
181.12	0.02	7357.804	7.09
181.13	0.03	6292.836	7.076
181.13	0.03	5497.206	7.079
181.14	0.04	4880.210	7.073
181.14	0.04	4387.758	7.073
181.15	0.05	3985.598	7.069
181.15	0.05	3650.983	7.06
181.15	0.05	3368.214	7.065
181.16	0.06	3126.108	7.053
181.17	0.07	2636.460	7.052
181.17	0.07	2511.628	7.017
181.18	0.08	2398.617	7.023
181.18	0.08	2292.438	7
181.18	0.08	2197.039	6.991
181.19	0.09	2110.084	6.993
181.19	0.09	2029.374	6.99
181.19	0.09	1954.965	6.975
181.20	0.10	1885.822	6.967
181.20	0.10	1818.969	6.956
181.21	0.11	1715.691	6.937
181.21	0.11	1623.518	6.921
181.22	0.12	1478.563	6.887
181.23	0.13	1438.302	6.88
181.23	0.13	1366.590	6.858
181.24	0.14	1266.843	6.833
181.25	0.15	1211.427	6.82
181.26	0.16	1149.990	6.792
181.27	0.17	1081.441	6.777
181.28	0.18	1020.612	6.756
181.29	0.19	966.266	6.736
181.30	0.20	912.807	6.718
181.31	0.21	860.856	6.691
181.32	0.22	810.868	6.672
181.34	0.24	766.373	6.655
181.35	0.25	723.618	6.632
181.37	0.27	682.810	6.618
181.38	0.28	644.073	6.606
181.40	0.30	609.501	6.593
181.42	0.32	574.797	6.579
181.43	0.33	542.216	6.567
181.45	0.35	511.692	6.556
181.48	0.38	483.119	6.543

TMMW 103
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
181.50	0.40	456.464	6.527
181.52	0.42	430.537	6.509
181.55	0.45	406.493	6.491
181.57	0.47	384.186	6.474
181.60	0.50	362.754	6.455
181.63	0.53	342.301	6.431
181.66	0.56	323.462	6.408
181.70	0.60	305.055	6.385
181.73	0.63	288.179	6.357
181.77	0.67	272.263	6.33
181.81	0.71	256.930	6.302
181.85	0.75	242.590	6.277
181.89	0.79	229.196	6.242
181.94	0.84	216.437	6.212
181.99	0.89	203.686	6.174
182.04	0.94	192.921	6.157
182.10	1.00	182.169	6.119
182.16	1.06	171.814	6.083
182.22	1.12	162.752	6.048
182.29	1.19	153.234	6.003
182.36	1.26	144.774	5.964
182.43	1.33	137.205	5.92
182.51	1.41	129.475	5.881
182.60	1.50	121.764	5.822
182.68	1.58	115.648	5.781
182.78	1.68	108.822	5.728
182.88	1.78	102.763	5.679
182.98	1.88	97.349	5.629
183.09	1.99	92.023	5.576
183.21	2.11	86.845	5.518
183.34	2.24	81.862	5.457
183.47	2.37	77.426	5.396
183.61	2.51	73.162	5.332
183.76	2.66	69.093	5.265
183.92	2.82	65.229	5.19
184.08	2.98	61.780	5.126
184.26	3.16	58.317	5.045
184.45	3.35	55.066	4.965
184.65	3.55	52.020	4.885
184.86	3.76	49.170	4.799
185.08	3.98	46.507	4.714
185.32	4.22	43.919	4.625
185.57	4.47	41.518	4.543
185.83	4.73	39.278	4.459
186.11	5.01	37.150	4.365
186.41	5.31	35.108	4.269
186.72	5.62	33.226	4.17
187.06	5.96	31.388	4.06

TMMW 103
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
187.41	6.31	29.702	3.952
187.78	6.68	28.112	3.847
188.18	7.08	26.580	3.748
188.60	7.50	25.148	3.648
189.04	7.94	23.810	3.543
189.51	8.41	22.535	3.433
190.01	8.91	21.326	3.309
190.54	9.44	20.185	3.167
191.10	10.00	19.111	3.02
191.70	10.60	18.086	2.857
192.30	11.20	17.170	2.713
193.00	11.90	16.216	2.559
193.70	12.60	15.373	2.413
194.40	13.30	14.617	2.276
195.20	14.10	13.844	2.133
196.10	15.00	13.074	1.981
196.90	15.80	12.462	1.854
197.90	16.80	11.780	1.707
198.90	17.80	11.174	1.575
199.90	18.80	10.633	1.454
200.90	19.80	10.147	1.347
201.90	20.80	9.707	1.249
202.90	21.80	9.307	1.156
203.90	22.80	8.943	1.079
204.90	23.80	8.609	1.004
205.90	24.80	8.303	0.935
206.90	25.80	8.019	0.874
207.90	26.80	7.758	0.815
208.90	27.80	7.514	0.766
209.90	28.80	7.288	0.712
210.90	29.80	7.077	0.665
211.90	30.80	6.880	0.625
212.90	31.80	6.695	0.589
213.90	32.80	6.521	0.552
214.90	33.80	6.358	0.523
215.90	34.80	6.204	0.496
216.90	35.80	6.059	0.47
217.90	36.80	5.921	0.435
218.90	37.80	5.791	0.413
219.90	38.80	5.668	0.386
220.90	39.80	5.550	0.378
221.90	40.80	5.439	0.347
222.90	41.80	5.333	0.347
223.90	42.80	5.231	0.334
224.90	43.80	5.135	0.32
225.90	44.80	5.042	0.307

TMMW 104
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
181.31	0.00	-	4.943
181.31	0.00	93782.034	4.954
181.32	0.01	29642.962	4.941
181.32	0.01	17632.442	4.937
181.32	0.01	12548.405	4.942
181.33	0.02	9740.123	4.978
181.33	0.02	7959.010	4.872
181.34	0.03	6728.644	4.904
181.34	0.03	5827.781	4.888
181.35	0.04	5139.687	4.857
181.35	0.04	4596.944	4.848
181.35	0.04	4129.501	4.833
181.36	0.05	3304.553	4.809
181.37	0.06	3110.949	4.799
181.37	0.06	2938.780	4.794
181.38	0.07	2781.828	4.772
181.39	0.08	2401.927	4.757
181.39	0.08	2298.487	4.749
181.39	0.08	2203.146	4.751
181.40	0.09	2114.170	4.742
181.40	0.09	2032.105	4.74
181.40	0.09	1956.528	4.73
181.41	0.10	1886.699	4.724
181.41	0.10	1821.382	4.72
181.41	0.10	1760.437	4.709
181.42	0.11	1703.175	4.705
181.42	0.11	1649.273	4.7
181.43	0.12	1500.876	4.676
181.43	0.12	1459.257	4.667
181.44	0.13	1387.515	4.637
181.45	0.14	1280.986	4.643
181.46	0.15	1228.002	4.634
181.47	0.16	1136.435	4.619
181.48	0.17	1094.766	4.611
181.49	0.18	1016.363	4.598
181.50	0.19	977.009	4.591
181.51	0.20	922.447	4.583
181.52	0.21	869.482	4.577
181.53	0.22	818.571	4.566
181.54	0.23	773.299	4.561
181.56	0.25	729.836	4.557
181.57	0.26	688.388	4.55
181.59	0.28	649.076	4.547
181.61	0.30	612.398	4.538
181.62	0.31	578.850	4.534
181.64	0.33	545.856	4.527
181.66	0.35	511.780	4.52
181.68	0.37	486.089	4.518

TMMW 104
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
181.71	0.40	458.122	4.499
181.73	0.42	432.930	4.493
181.75	0.44	408.652	4.481
181.78	0.47	386.138	4.468
181.81	0.50	364.517	4.467
181.84	0.53	343.892	4.448
181.87	0.56	324.903	4.439
181.90	0.59	306.356	4.427
181.94	0.63	289.358	4.414
181.98	0.67	273.333	4.398
182.02	0.71	257.892	4.382
182.06	0.75	243.469	4.371
182.10	0.79	229.994	4.354
182.15	0.84	217.163	4.342
182.20	0.89	204.883	4.322
182.25	0.94	193.521	4.307
182.31	1.00	182.716	4.292
182.37	1.06	172.408	4.271
182.43	1.12	163.207	4.243
182.50	1.19	153.648	4.231
182.57	1.26	145.152	4.206
182.64	1.33	137.553	4.181
182.72	1.41	129.793	4.156
182.81	1.50	122.054	4.128
182.89	1.58	115.916	4.111
182.99	1.68	109.066	4.075
183.09	1.78	102.988	4.042
183.19	1.88	97.471	4.016
183.30	1.99	92.213	3.983
183.42	2.11	87.020	3.946
183.55	2.24	82.023	3.908
183.68	2.37	77.574	3.873
183.82	2.51	73.299	3.831
183.97	2.66	69.219	3.792
184.13	2.82	65.345	3.746
184.29	2.98	61.888	3.701
184.47	3.16	58.417	3.652
184.66	3.35	55.158	3.606
184.86	3.55	52.105	3.557
185.07	3.76	49.249	3.494
185.29	3.98	46.581	3.44
185.53	4.22	43.987	3.376
185.78	4.47	41.582	3.322
186.04	4.73	39.350	3.262
186.32	5.01	37.206	3.198
186.62	5.31	35.159	3.128
186.93	5.62	33.274	3.062
187.27	5.96	31.433	2.994

TMMW 104
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
187.62	6.31	29.744	2.922
187.99	6.68	28.151	2.85
188.39	7.08	26.617	2.771
188.81	7.50	25.182	2.7
189.25	7.94	23.841	2.616
189.72	8.41	22.565	2.528
190.22	8.91	21.354	2.442
190.75	9.44	20.211	2.349
191.31	10.00	19.135	2.259
191.91	10.60	18.108	2.159
192.51	11.20	17.192	2.072
193.21	11.90	16.239	1.97
193.91	12.60	15.392	1.87
194.61	13.30	14.635	1.782
195.41	14.10	13.861	1.683
196.31	15.00	13.089	1.58
197.11	15.80	12.477	1.496
198.11	16.80	11.794	1.394
199.11	17.80	11.187	1.3
200.11	18.80	10.645	1.219
201.11	19.80	10.158	1.131
202.11	20.80	9.718	1.062
203.11	21.80	9.318	0.992
204.11	22.80	8.953	0.929
205.11	23.80	8.619	0.865
206.11	24.80	8.312	0.813
207.11	25.80	8.028	0.757
208.11	26.80	7.766	0.713
209.11	27.80	7.522	0.668
210.11	28.80	7.296	0.627
211.11	29.80	7.085	0.578
212.11	30.80	6.887	0.544
213.11	31.80	6.702	0.501
214.11	32.80	6.528	0.472
215.11	33.80	6.364	0.437
216.11	34.80	6.210	0.41
217.11	35.80	6.065	0.364
218.11	36.80	5.927	0.349
219.11	37.80	5.797	0.326
220.11	38.80	5.673	0.303
221.11	39.80	5.556	0.281
222.11	40.80	5.444	0.255
223.11	41.80	5.338	0.235
224.11	42.80	5.236	0.216
225.11	43.80	5.140	0.193
226.11	44.80	5.047	0.177
227.11	45.80	4.959	0.162
228.11	46.80	4.874	0.145

TMMW 104
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
229.11	47.80	4.793	0.133
230.11	48.80	4.716	0.118
231.11	49.80	4.641	0.105
232.11	50.80	4.569	0.1
233.11	51.80	4.500	0.081
234.11	52.80	4.434	0.069
235.11	53.80	4.370	0.06
236.11	54.80	4.309	0.049
237.11	55.80	4.249	0.04
238.11	56.80	4.192	0.03
239.11	57.80	4.137	0.022
240.11	58.80	4.084	0.016
241.11	59.80	4.032	0.004
242.11	60.80	3.982	-0.002
243.11	61.80	3.934	-0.01
244.11	62.80	3.887	-0.027
245.11	63.80	3.842	-0.025
246.11	64.80	3.798	-0.033
247.11	65.80	3.756	-0.04
248.11	66.80	3.714	-0.049
249.11	67.80	3.674	-0.053
250.11	68.80	3.635	-0.058
251.11	69.80	3.598	-0.062
252.11	70.80	3.561	-0.078

TMPZ 110
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
90.89	0.00	-	2.659
90.89	0.00	59277.087	2.658
90.90	0.01	15900.125	2.648
90.90	0.01	9197.290	2.645
90.90	0.01	6470.039	2.633
90.91	0.02	4990.387	2.625
90.91	0.02	4061.611	2.623
90.92	0.03	3424.352	2.602
90.92	0.03	2959.980	2.604
90.92	0.03	2606.542	2.589
90.93	0.04	2318.637	2.582
90.93	0.04	2104.124	2.578
90.94	0.05	1922.564	2.574
90.94	0.05	1764.143	2.546
90.95	0.06	1472.903	2.545
90.96	0.07	1395.375	2.541
90.96	0.07	1325.927	2.543
90.97	0.08	1149.568	2.524
90.97	0.08	1102.030	2.519
90.98	0.09	1058.270	2.517
90.98	0.09	1017.856	2.504
90.99	0.10	909.143	2.501
90.99	0.10	879.164	2.496
91.00	0.11	851.101	2.5
91.01	0.12	771.472	2.482
91.01	0.12	749.579	2.478
91.01	0.12	728.896	2.477
91.02	0.13	709.418	2.474
91.02	0.13	687.221	2.474
91.03	0.14	669.719	2.47
91.03	0.14	653.243	2.461
91.04	0.15	617.761	2.46
91.05	0.16	586.003	2.457
91.06	0.17	550.627	2.447
91.07	0.18	519.285	2.439
91.08	0.19	491.325	2.433
91.09	0.20	463.859	2.422
91.10	0.21	437.202	2.415
91.11	0.22	411.586	2.41
91.12	0.23	388.784	2.404
91.14	0.25	366.951	2.393
91.15	0.26	346.108	2.382
91.17	0.28	326.343	2.375
91.19	0.30	308.719	2.364
91.20	0.31	291.044	2.353
91.22	0.33	274.463	2.347
91.24	0.35	258.942	2.333
91.26	0.37	244.434	2.319

TMPZ 110
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
91.29	0.40	230.888	2.306
91.31	0.42	217.732	2.29
91.33	0.44	205.538	2.281
91.36	0.47	194.232	2.265
91.39	0.50	183.376	2.247
91.42	0.53	173.021	2.234
91.45	0.56	163.482	2.221
91.48	0.59	154.177	2.205
91.52	0.63	145.645	2.186
91.56	0.67	137.601	2.171
91.60	0.71	129.855	2.16
91.64	0.75	122.614	2.146
91.68	0.79	115.852	2.137
91.73	0.84	109.413	2.125
91.78	0.89	103.311	2.115
91.83	0.94	97.551	2.104
91.89	1.00	92.130	2.088
91.95	1.06	86.959	2.078
92.01	1.12	82.343	2.06
92.08	1.19	77.548	2.047
92.15	1.26	73.286	2.031
92.22	1.33	69.474	2.015
92.30	1.41	65.582	1.997
92.39	1.50	61.700	1.979
92.47	1.58	58.621	1.963
92.57	1.68	55.186	1.94
92.67	1.78	52.137	1.92
92.77	1.88	49.414	1.899
92.88	1.99	46.734	1.882
93.00	2.11	44.130	1.854
93.13	2.24	41.624	1.828
93.26	2.37	39.393	1.805
93.40	2.51	37.249	1.784
93.55	2.66	35.203	1.75
93.71	2.82	33.261	1.724
93.87	2.98	31.503	1.693
94.05	3.16	29.787	1.659
94.24	3.35	28.153	1.629
94.44	3.55	26.622	1.595
94.65	3.76	25.190	1.564
94.87	3.98	23.838	1.527
95.11	4.22	22.551	1.495
95.36	4.47	21.334	1.457
95.62	4.73	20.226	1.418
95.90	5.01	19.151	1.375
96.20	5.31	18.125	1.33
96.51	5.62	17.180	1.279
96.85	5.96	16.257	1.226

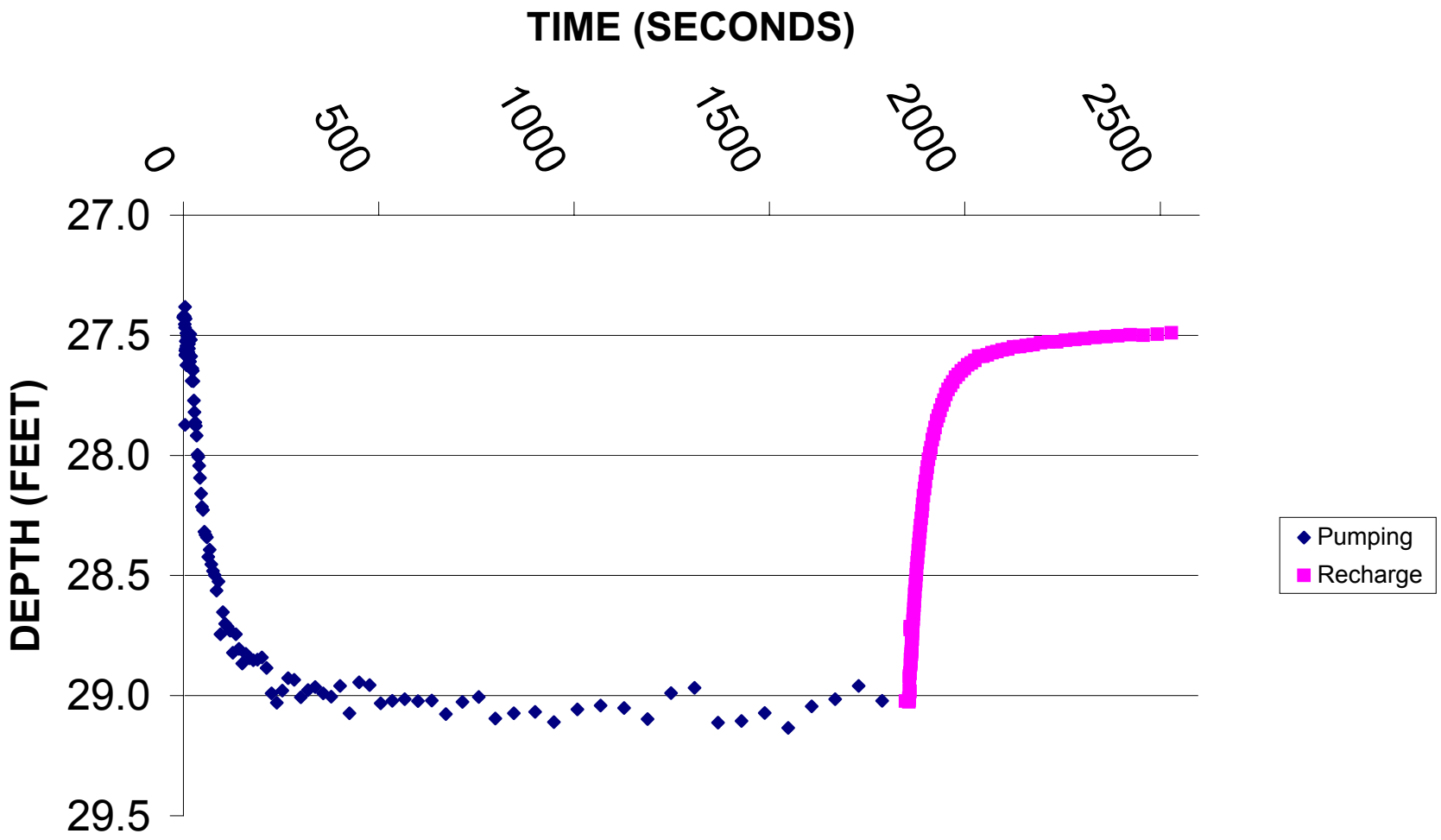
TMPZ 110
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
97.20	6.31	15.409	1.172
97.57	6.68	14.612	1.12
97.97	7.08	13.842	1.066
98.39	7.50	13.123	1.013
98.83	7.94	12.451	0.961
99.30	8.41	11.811	0.913
99.80	8.91	11.204	0.863
100.33	9.44	10.631	0.813
100.89	10.00	10.091	0.763
101.49	10.60	9.577	0.718
102.09	11.20	9.117	0.675
102.79	11.90	8.640	0.631
103.49	12.60	8.215	0.594
104.19	13.30	7.835	0.555
104.99	14.10	7.447	0.516
105.89	15.00	7.060	0.482
106.69	15.80	6.753	0.45
107.69	16.80	6.411	0.421
108.69	17.80	6.107	0.392
109.69	18.80	5.835	0.368
110.69	19.80	5.591	0.344
111.69	20.80	5.370	0.325
112.69	21.80	5.170	0.31
113.69	22.80	4.987	0.285
114.69	23.80	4.819	0.279
115.69	24.80	4.665	0.269
116.69	25.80	4.523	0.256
117.69	26.80	4.392	0.251
118.69	27.80	4.270	0.244
119.69	28.80	4.156	0.231
120.69	29.80	4.050	0.224
121.69	30.80	3.951	0.221
122.69	31.80	3.858	0.214
123.69	32.80	3.771	0.208
124.69	33.80	3.689	0.204
125.69	34.80	3.612	0.201
126.69	35.80	3.539	0.195
127.69	36.80	3.470	0.192
128.69	37.80	3.405	0.189
129.69	38.80	3.343	0.184
130.69	39.80	3.284	0.181
131.69	40.80	3.228	0.178
132.69	41.80	3.175	0.171
133.69	42.80	3.124	0.17
134.69	43.80	3.075	0.172
135.69	44.80	3.029	0.168
136.69	45.80	2.985	0.169
137.69	46.80	2.942	0.164

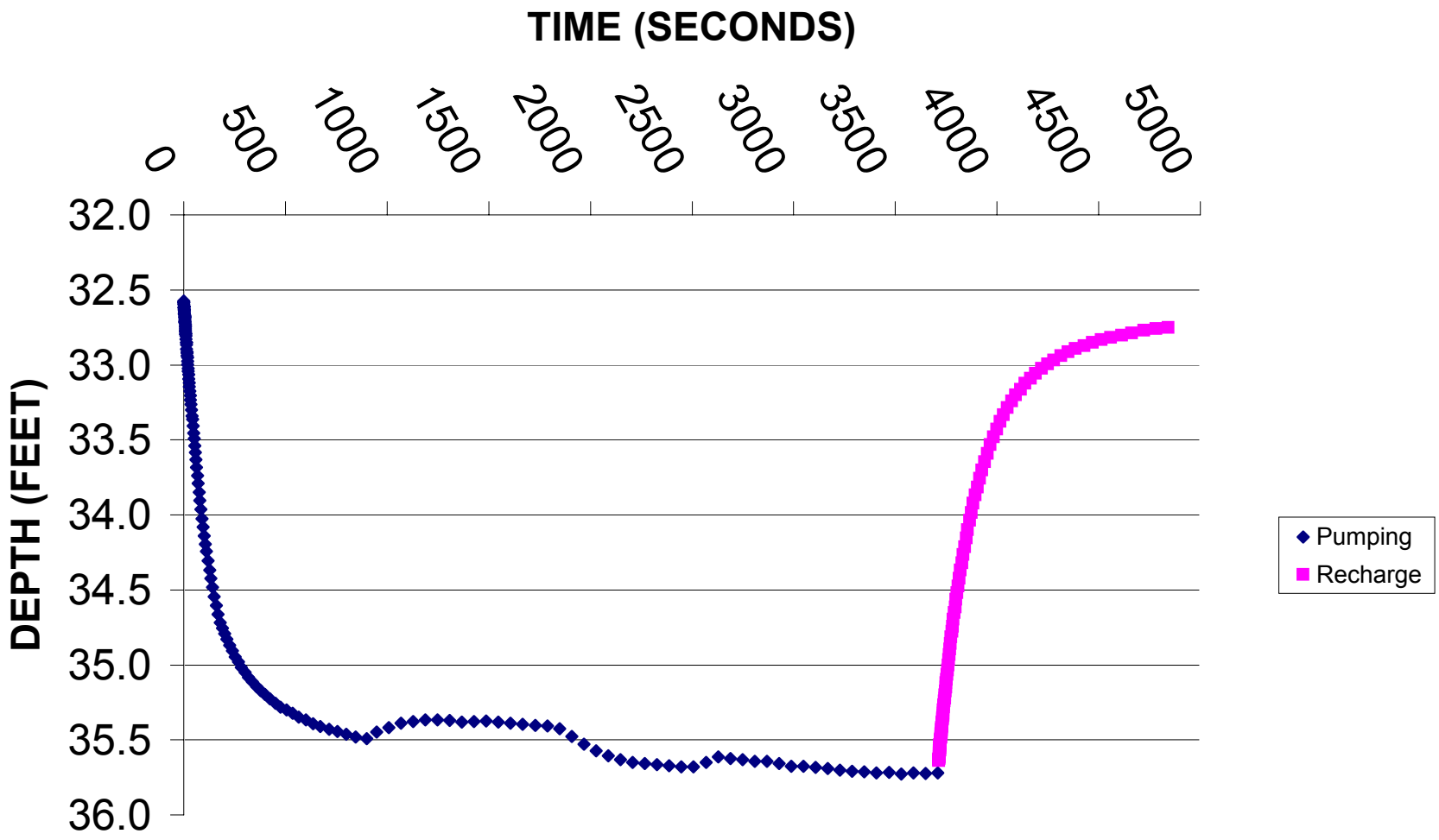
TMPZ 110
Recovery Data

Time Since Pump Started (t)	Time Since Pump Stopped (t')	Ratio of t/t'	Residual Drawdown (s)
138.69	47.80	2.902	0.165
139.69	48.80	2.863	0.161
140.69	49.80	2.825	0.165
141.69	50.80	2.789	0.161
142.69	51.80	2.755	0.16
143.69	52.80	2.721	0.156
144.69	53.80	2.689	0.158
145.69	54.80	2.659	0.154
146.69	55.80	2.629	0.152
147.69	56.80	2.600	0.151
148.69	57.80	2.573	0.15
149.69	58.80	2.546	0.145
150.69	59.80	2.520	0.144
151.69	60.80	2.495	0.144
152.69	61.80	2.471	0.14
153.69	62.80	2.447	0.144
154.69	63.80	2.425	0.143
155.69	64.80	2.403	0.139
156.69	65.80	2.381	0.14
157.69	66.80	2.361	0.139
158.69	67.80	2.341	0.139
159.69	68.80	2.321	0.136
160.69	69.80	2.302	0.133
161.69	70.80	2.284	0.134
162.69	71.80	2.266	0.132
163.69	72.80	2.249	0.134
164.69	73.80	2.232	0.132
165.69	74.80	2.215	0.128
166.69	75.80	2.199	0.127

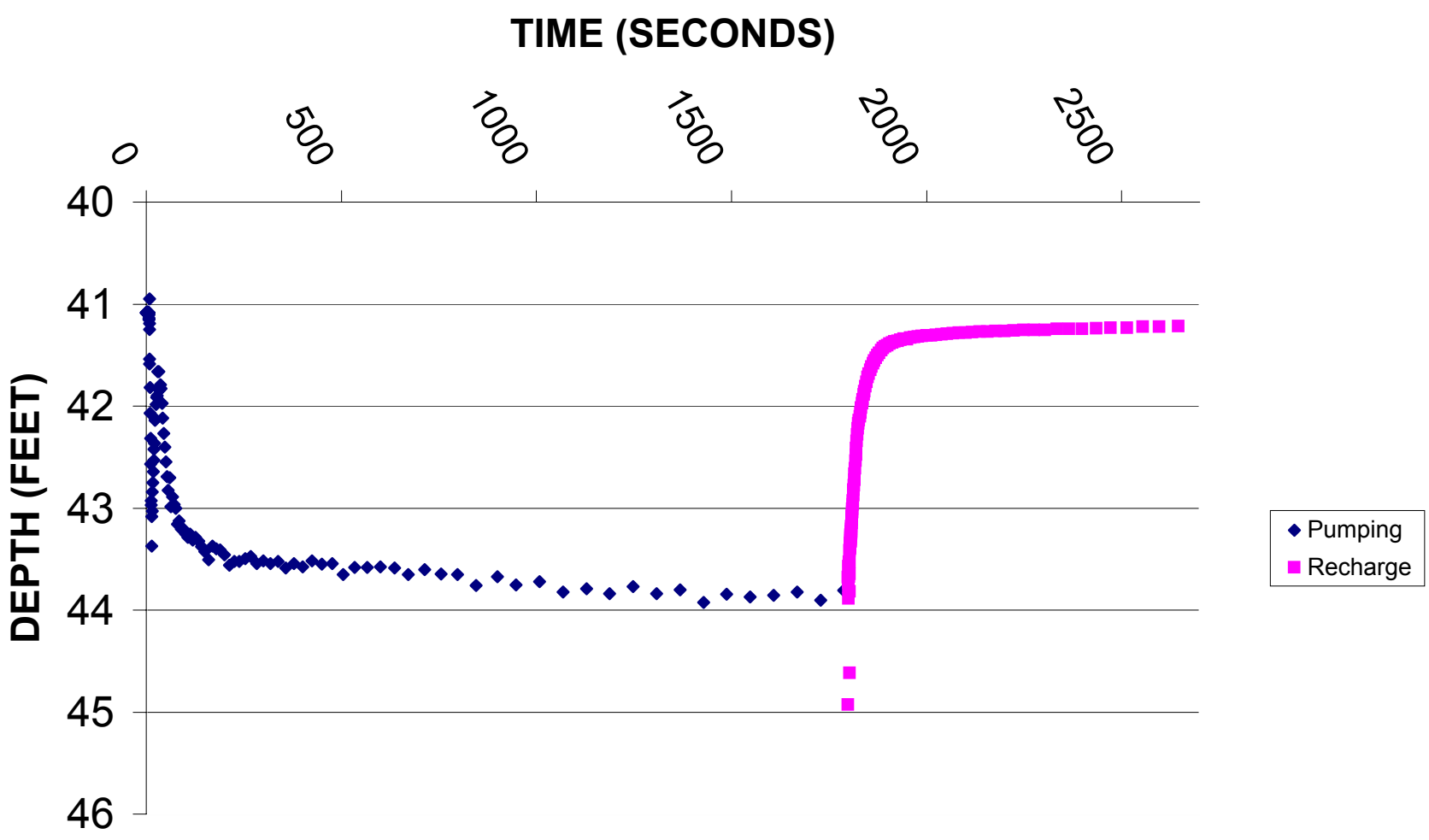
APPENDIX D
DRAWDOWN/RECOVERY PLOTS



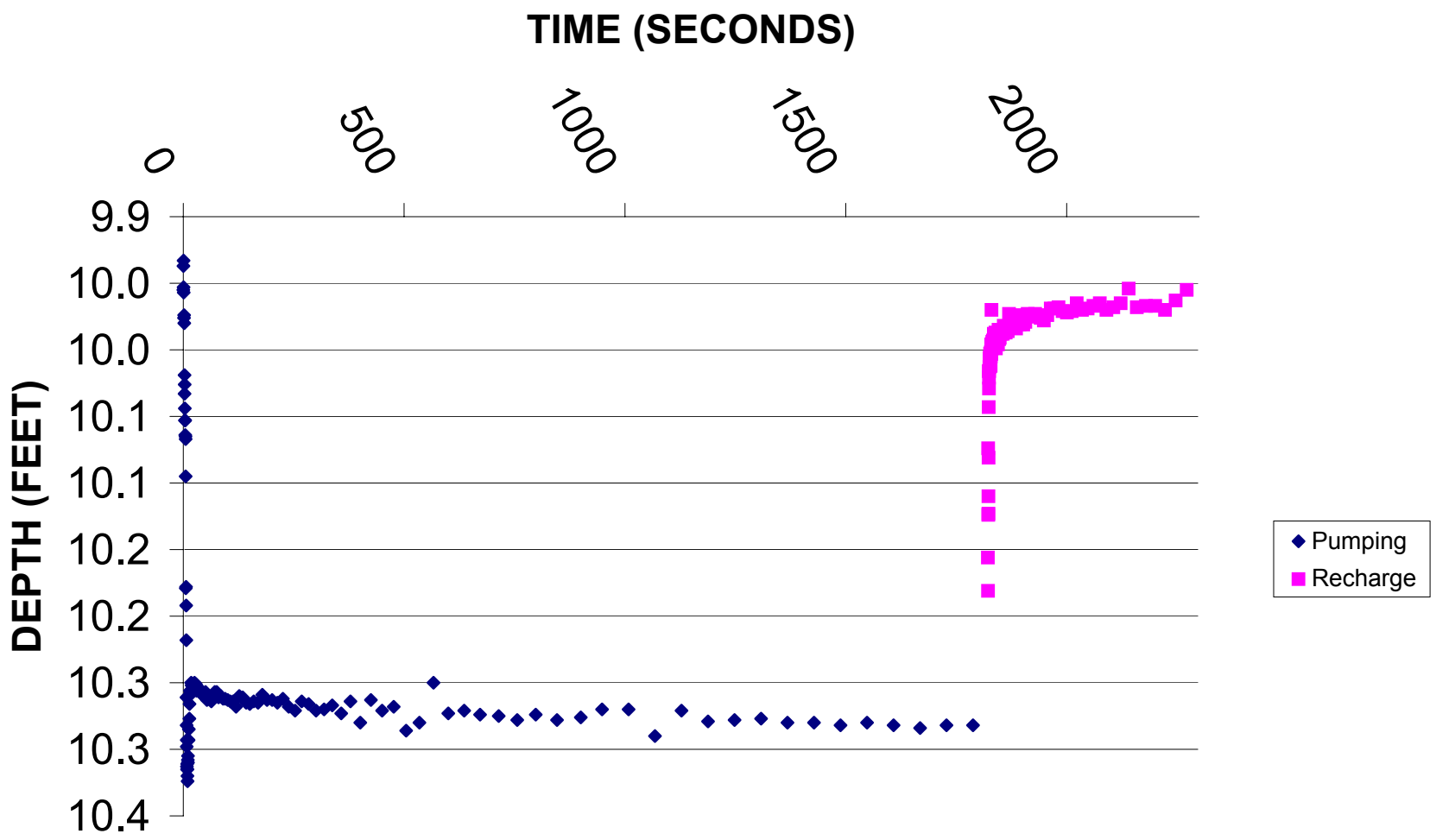
TIME VS. DEPTH TO WATER
CLD1 R DRAWDOWN/RECOVERY PLOT



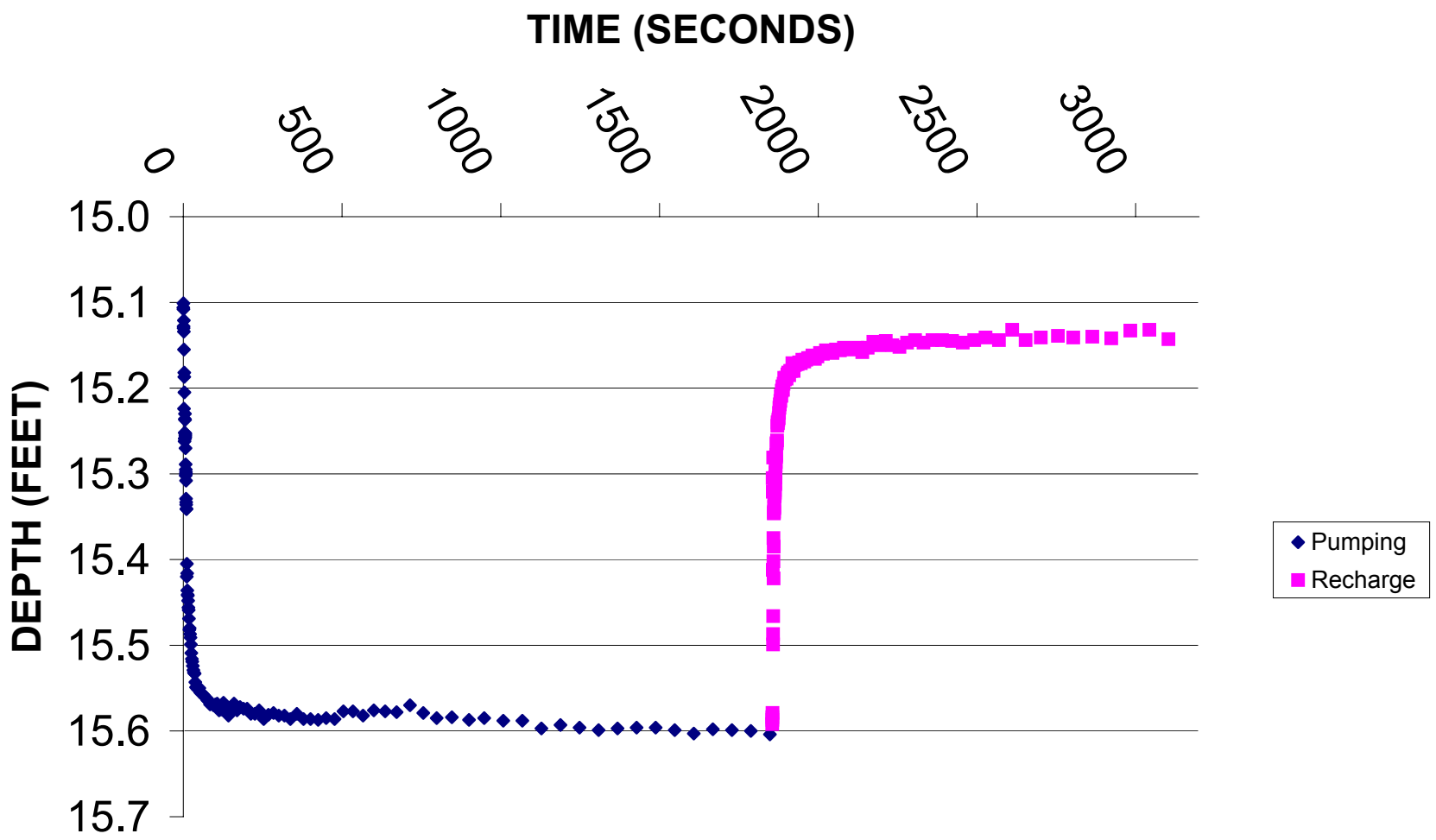
TIME VS. DEPTH TO WATER
CLD3R DRAWDOWN/RECOVERY PLOT



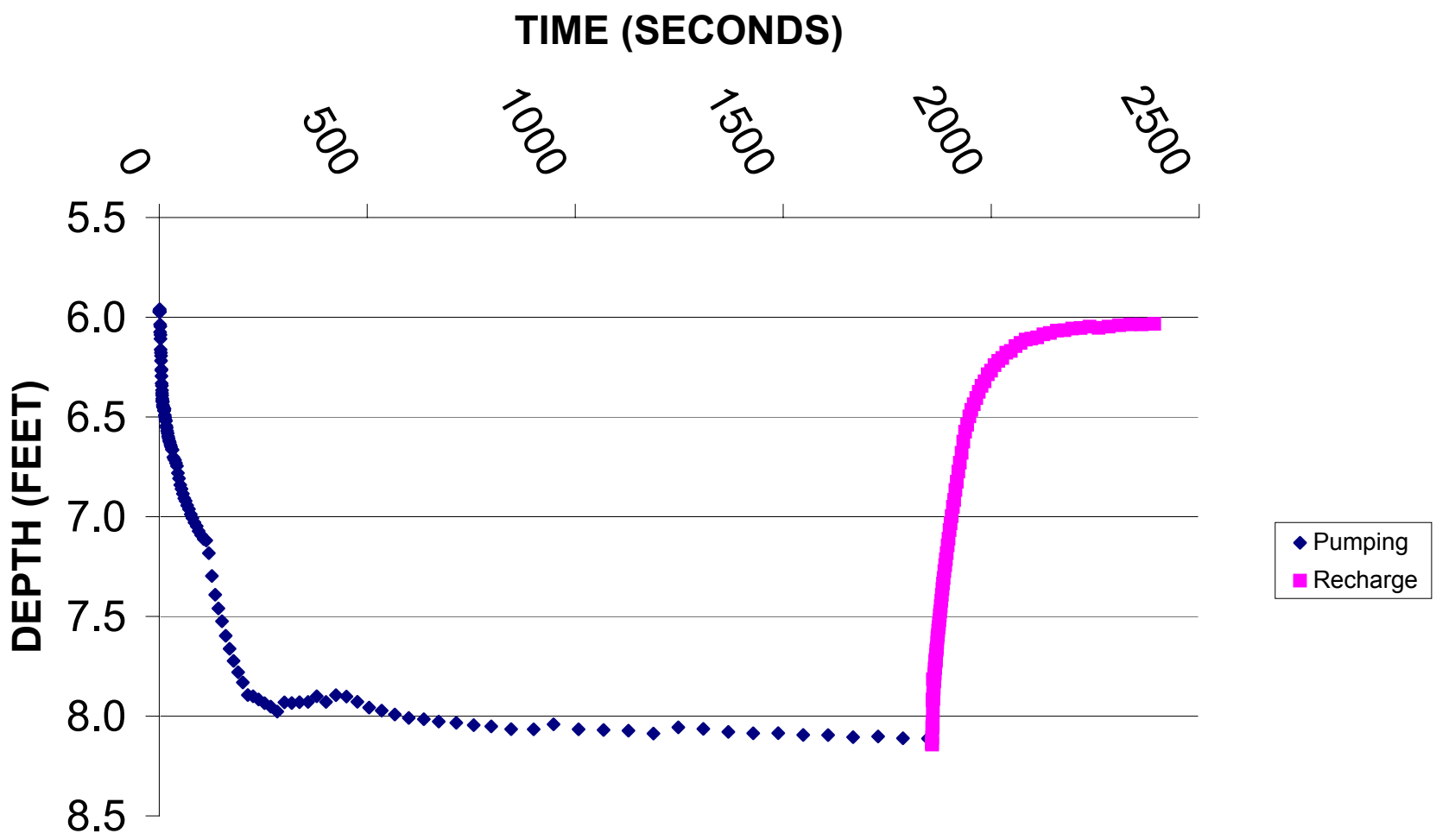
TIME VS. DEPTH TO WATER
J2D2 R2 DRAWDOWN/RECOVERY PLOT



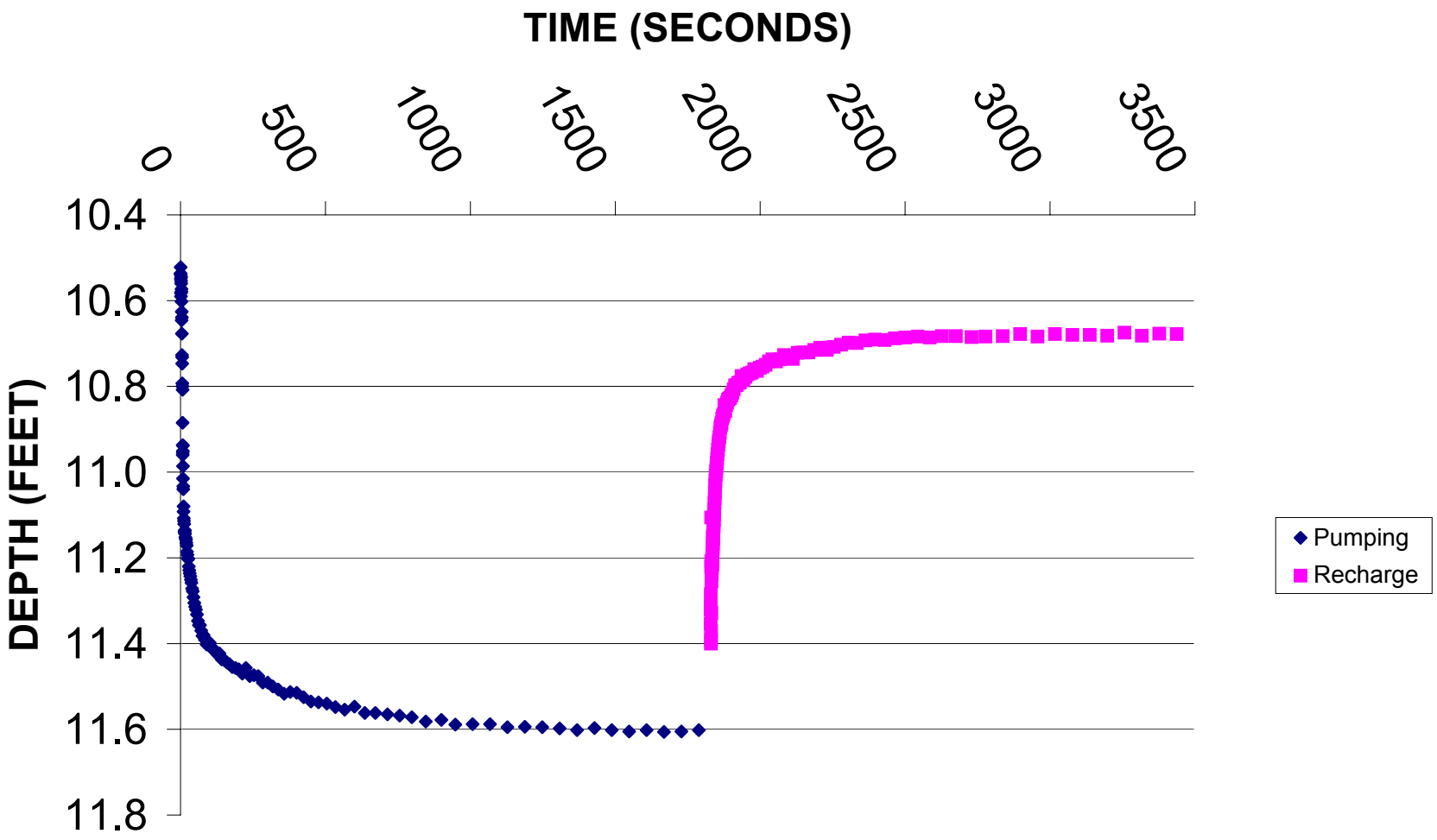
TIME VS. DEPTH TO WATER
M95 DRAWDOWN/RECOVERY PLOT



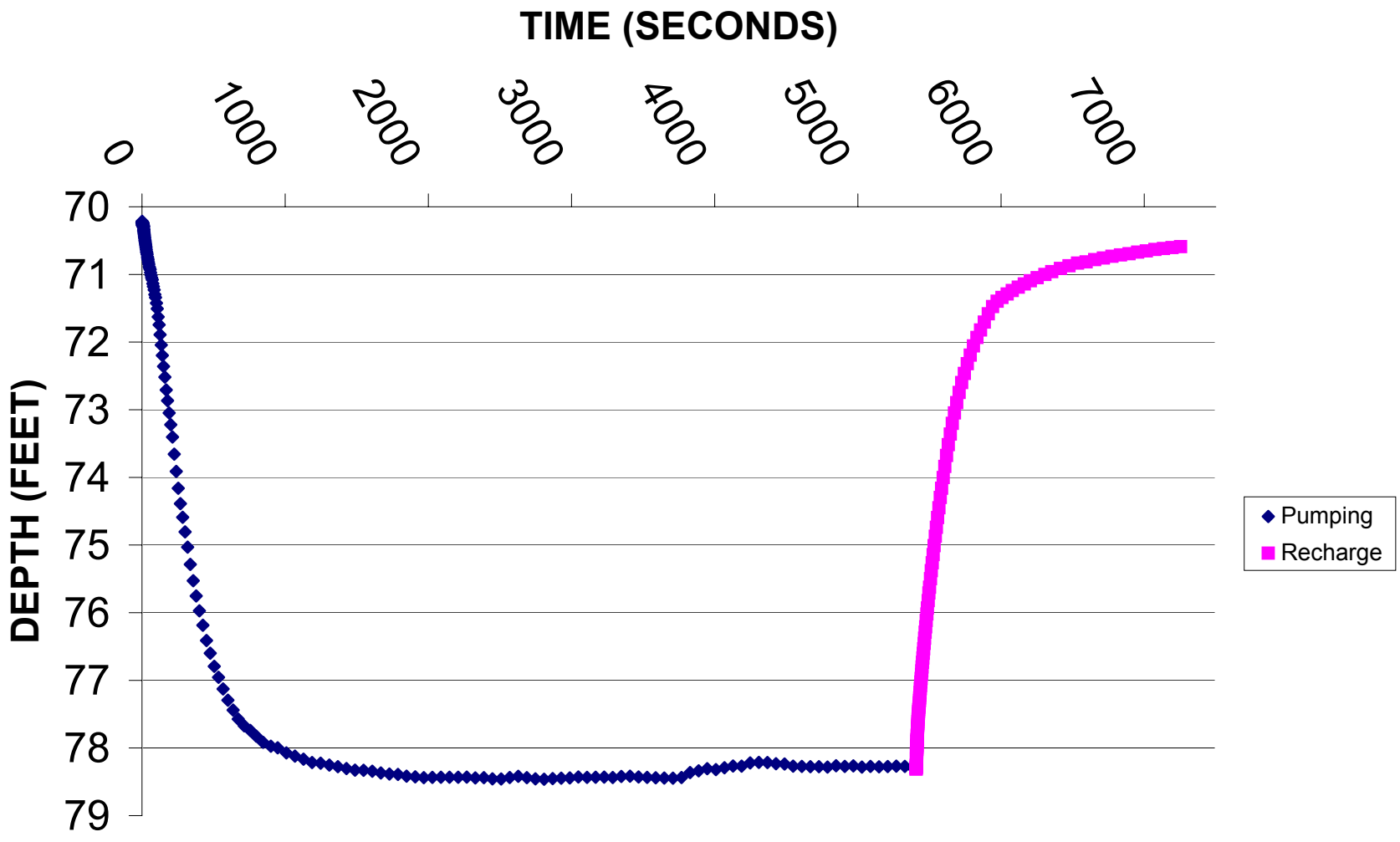
TIME VS. DEPTH TO WATER
PC54 DRAWDOWN/RECOVERY PLOT



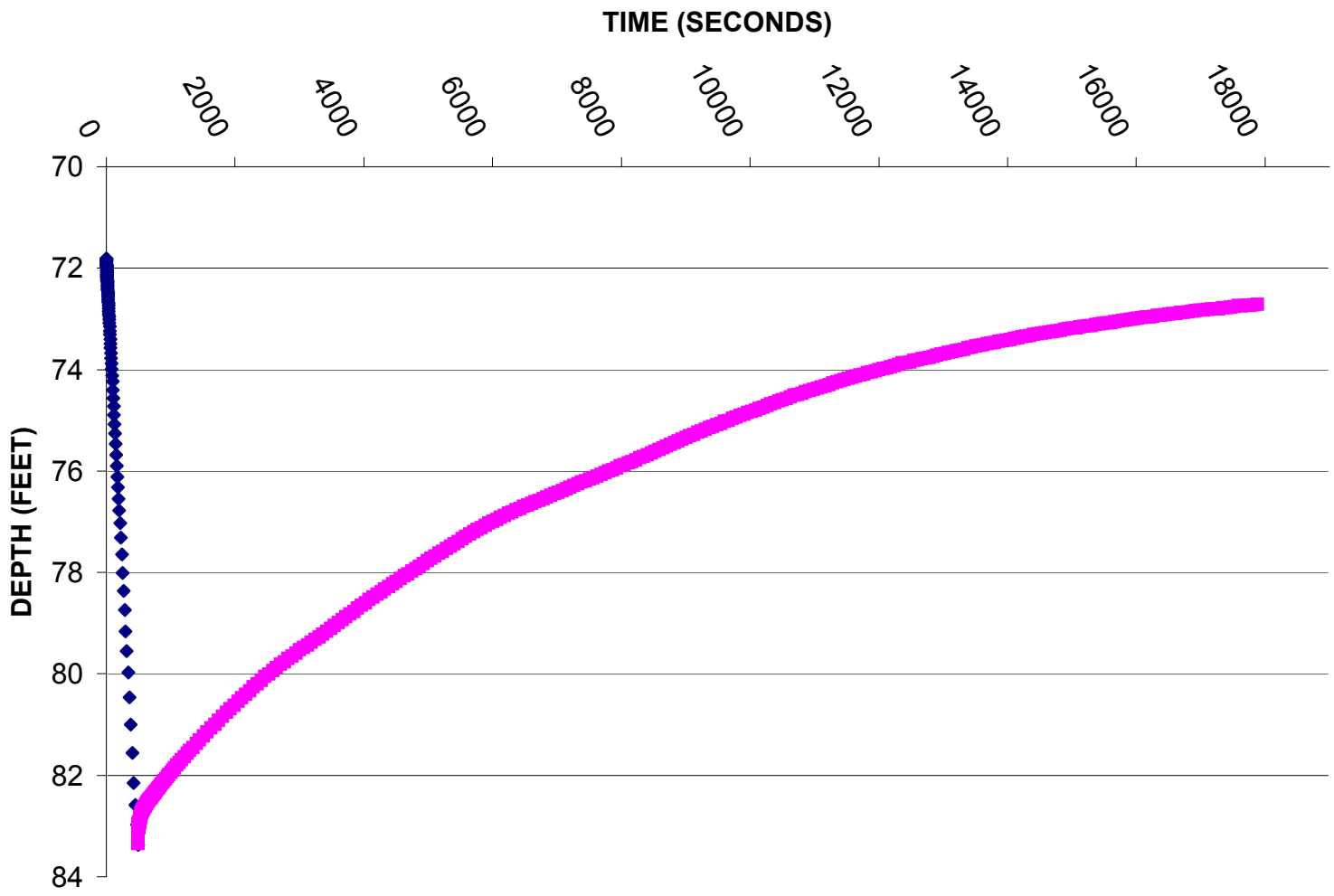
TIME VS. DEPTH TO WATER
PC65 DRAWDOWN/RECOVERY PLOT



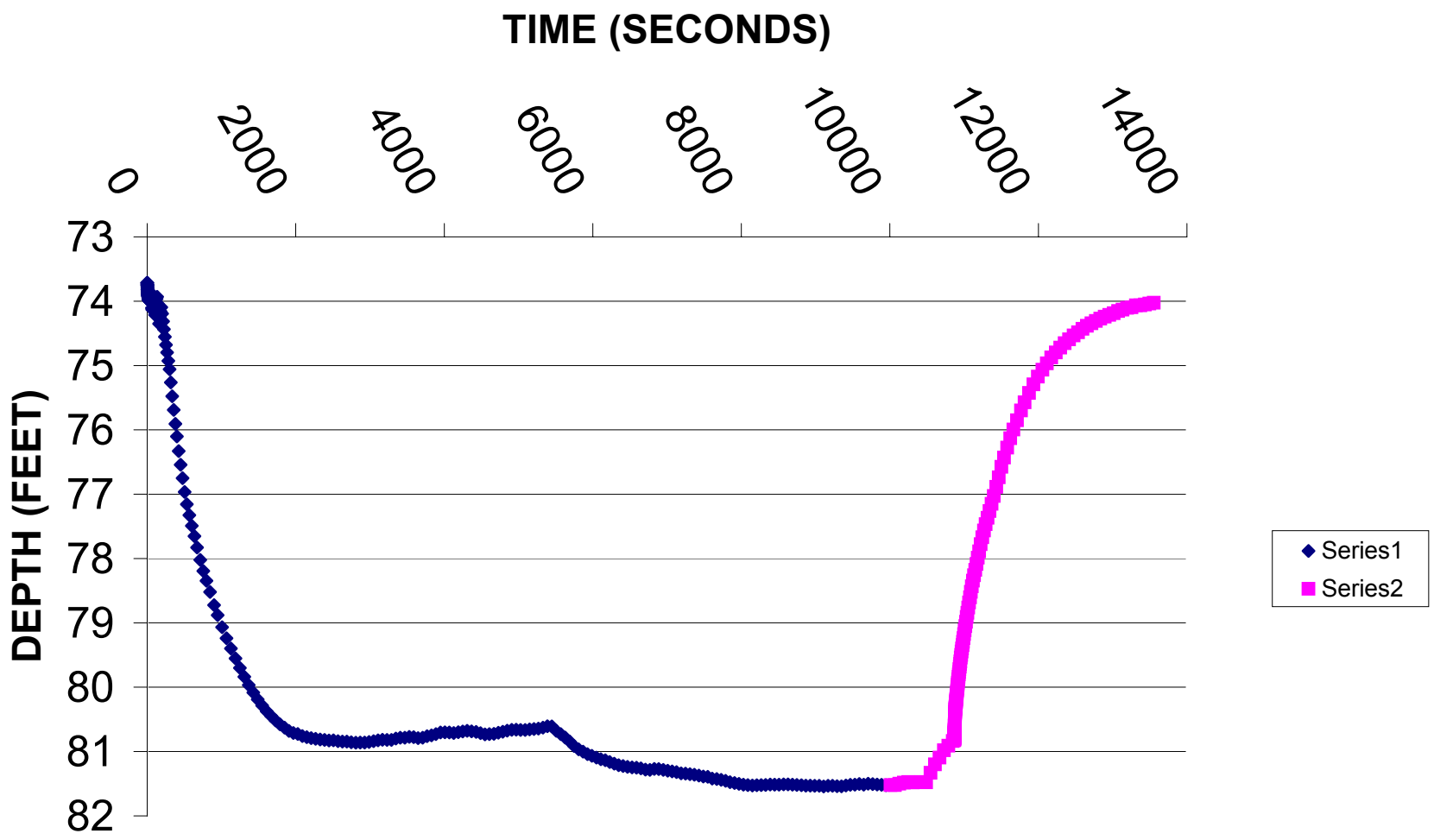
TIME VS. DEPTH TO WATER
PC67 DRAWDOWN/RECOVERY PLOT



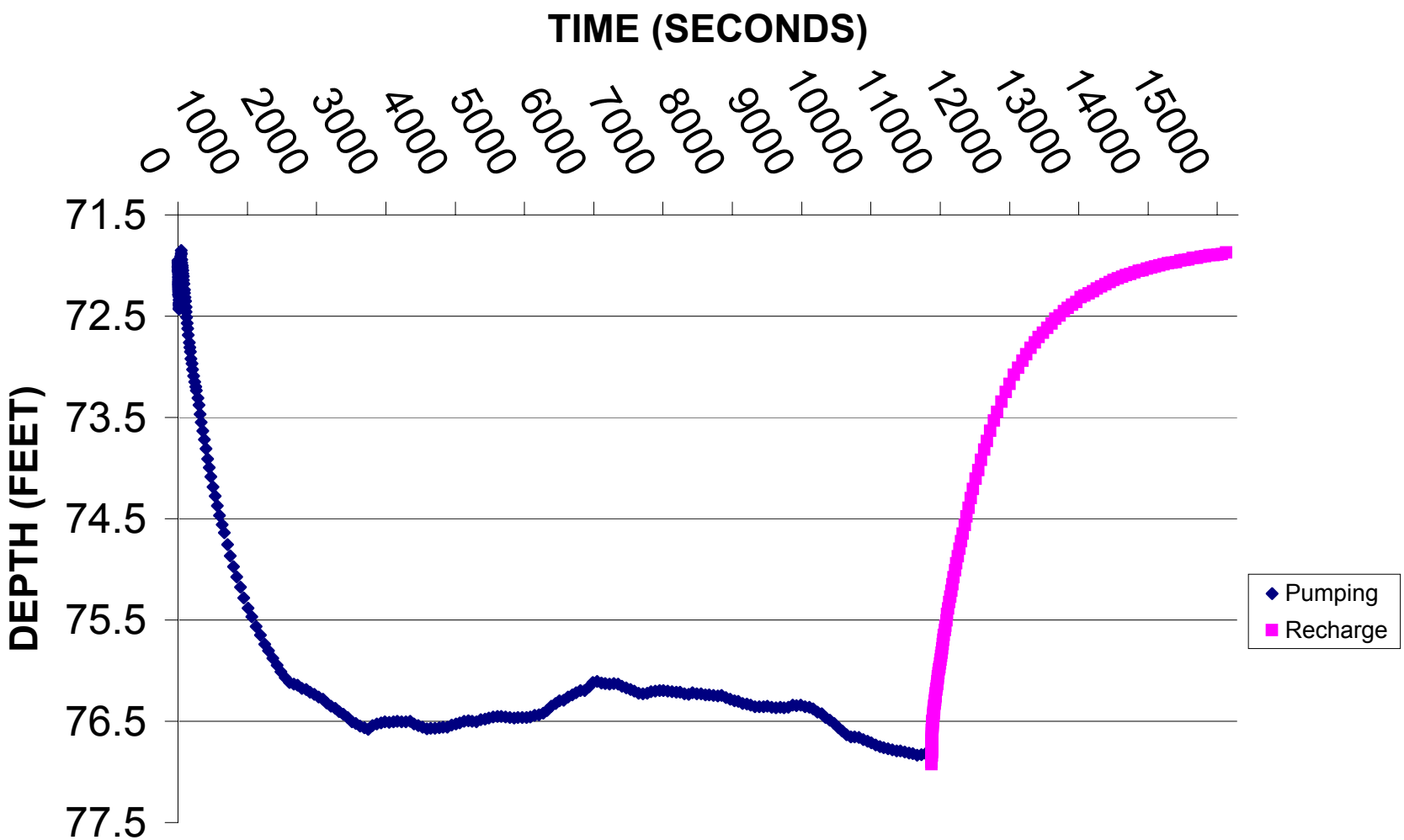
TIME VS. DEPTH TO WATER
TMMW 101 DRAWDOWN/RECOVERY PLOT



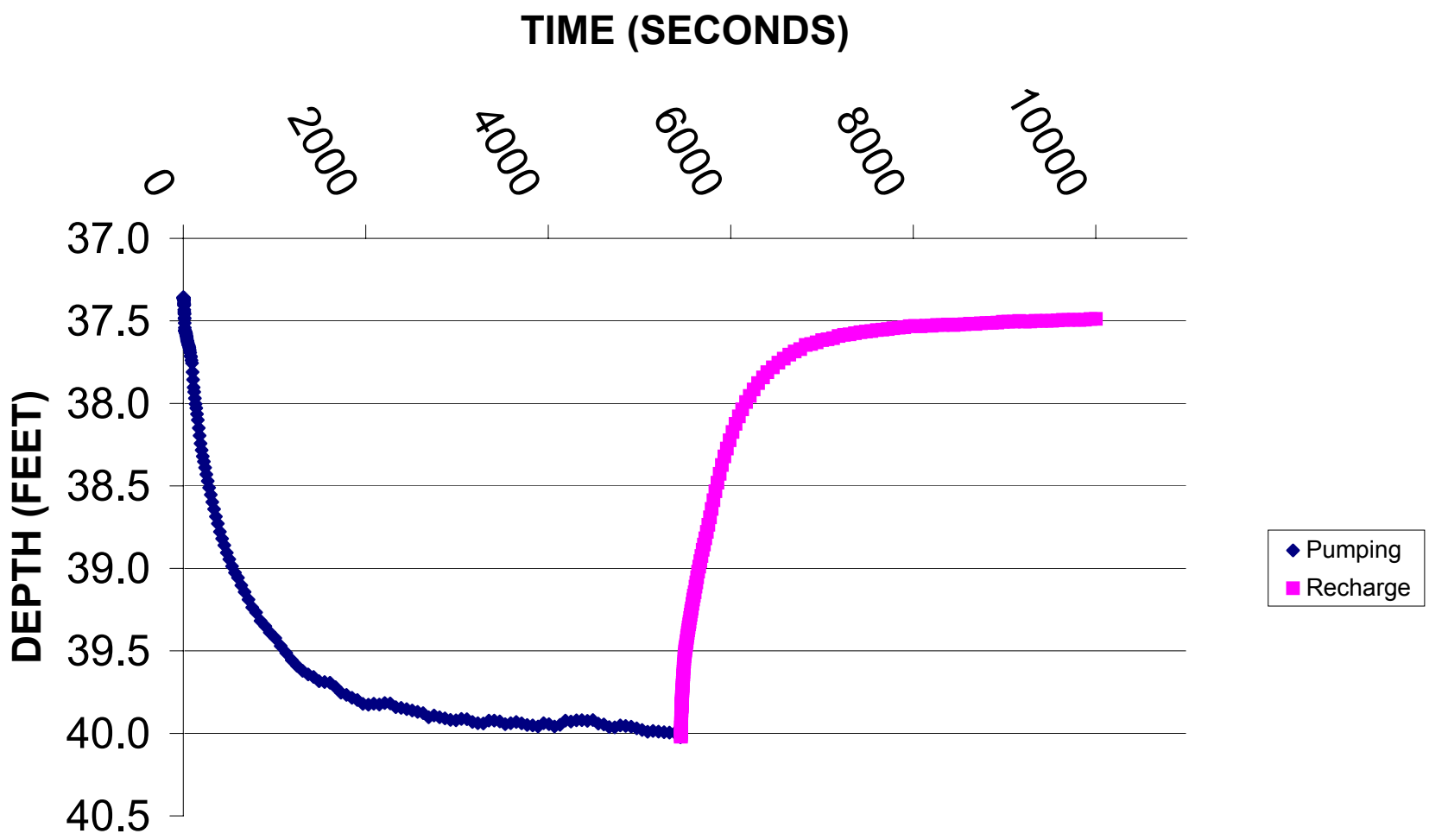
TIME VS. DEPTH TO WATER
TMMW 102 SLUG TEST



TIME VS. DEPTH TO WATER
TMMW 103 DRAWDOWN/RECOVERY PLOT



TIME VS. DEPTH TO WATER
TMMW 104 DRAWDOWN/RECOVERY PLOT



TIME VS. DEPTH TO WATER
TMPZ 110 DRAWDOWN/RECOVERY PLOT

APPENDIX E
STEP TEST RESULTS

SPECIFIC CAPACITY TEST ANALYSIS AND CALCULATION OF CRITICAL TIMES
TIMET FACILITY, HENDERSON, NV

Purpose:
Estimate transmissivity and critical time for single well recovery tests from specific capicity tests

References:
Kruseman, G.P., and de Ridder, N.A., 1991, Analysis and Evaluation of Pumping Test Data, 2nd Edition, Publication 47, International Institute for Land Reclamation and Improvement, The Netherlands, pp. 232-233.

Driscoll, F.G., 1986, Groundwater and Wells, 2nd Edition, Johnson Filtration Systems, Saint Paul, Minnesota, pp. 572.

Schafer, D.C., 1978, Casing Storage Can Affect Pumping Test Data, The Johnson Drillers Journal, January-February 1978

Equations:

$T = 2{,}000*Q/s$	Driscoll, p. 572.
$t_c = \{(375*R_w^2)/T\}*1440$	Schafer

T = transmissivity (gal/ft/day)
Q = flow rate (gallons per minute)
t_c = critical time in minutes
R_w = casing radius (ft)
s = drawdown (ft)

Notes:

ft	Foot
gpd	Gallon per day
gpm	Gallon per minute

SPECIFIC CAPACITY TEST ANALYSIS AND CALCULATION OF CRITICAL TIMES
TIMET FACILITY, HENDERSON, NV

Well ID	Step	Discharge Q (gpm)	Drawdown s (ft)	Transmissivity T (gpd/ft)	Casing Radius R_w (ft)	Critical Time t_c (minutes)	Proposed Pumping Test Rate (gpm)	Length of Pumping Period (minutes)
TMW 102	2	0.5	8	125	0.1667	120	Slug	NA
TMW-103	1	0.5	4.2	238	0.1667	63	0.5	180
	2	1.0	4	500		30		
	3	1.5	Fail	NA		NA		
TMW-104	1	0.5	4.6	217	0.1667	69	0.5	180
	2	1	6.4	313		48		
CLD3R	1	0.5	1	1000	0.1667	15	1.5	60
	2	1	2	1000		15		
	3	1.5	3.5	857		18		
	4	2	5	800		19		
	5	2.5	Fail	NA		NA		
J2D2 R2	1	0.5	0.125	8000	0.1667	2	5	30
	2	1.0	0.3	6667		2		
	3	1.5	0.5	6000		3		
	4	2.0	0.8	5000		3		
	5	2.5	0.95	5263		3		
TMPZ 110	1	0.5	1.1	909	0.1667	17	0.75	90
	2	1	5.5	364		41		
PC65	1	0.5	0.5	2000	0.0833	2	1.5	30
	2	1	0.8	2500		1		
	3	2	4	1000		4		
PC67	1	0.5	0.2	5000	0.0833	1	2.5	30
	2	1	0.5	4000		1		
	3	2	0.85	4706		1		
	4	2.5	1.15	4348		1		

SPECIFIC CAPACITY TEST ANALYSIS AND CALCULATION OF CRITICAL TIMES
TIMET FACILITY, HENDERSON, NV

Well ID	Step	Discharge Q (gpm)	Drawdown s (ft)	Transmissivity T (gpd/ft)	Casing Radius R_w (ft)	Critical Time t_c (minutes)	Proposed Pumping Test Rate (gpm)	Length of Pumping Period (minutes)
CLD1 R	1	0.5	0.3	3333	0.1667	5	5	30
	2	1	0.53	3774		4		
	3	1.5	0.8	3750		4		
	4	2.5	1.4	3571		4		
M95	1	0.5	0.05	20000	0.1667	1	2.5	30
	2	1	0.1	20000		1		
	3	2	0.2	20000		1		
	4	2.5	0.3	16667		1		
PC54	1	0.5	0.1	10000	0.1667	2	2.5	30
	2	1	0.2	10000		2		
	3	2	0.38	10526		1		
	4	2.5	0.5	10000		2		
TMW-101	1	1	3	667	0.1667	23	2	90
	2	2	9	444		34		
	3	3	21	286		53		