Broadbent & Associates, Inc.
8 West Pacific Avenue
Henderson, Nevada 89015
Voice (702) 563-0600
Fax (702) 563-0610

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

January 10, 2011

Project No. 04-01-101-001

Mr. William Knight, P.E.
Supervisor
Special Projects Branch
Bureau of Corrective Actions
Nevada Division of Environmental Protection
2030 East Flamingo Road, Suite 230
Las Vegas, NV 89119

Re: Titanium Metals Corporation
Henderson, Nevada Facility
NDEP Facility ID # 000537
Semiannual Groundwater Monitoring Report – 1st Semester, 2010 Errata and Response to NDEP's December 10, 2010 Comments

Dear Mr. Knight:

Please find attached two copies of the errata to the Semiannual Groundwater Monitoring Report for the 1st Semester of 2010 for the Titanium Metals Corporation (TIMET) facility and TIMET's response to the Nevada Division of Environmental Protection's (NDEP's) December 10, 2010, comments on the groundwater monitoring report. The attached report has been authored by Ms. Candace Friday of CdFriday & Associates; Ms. Victoria Tyson-Bloyd of Tyson Contracting; and Mr. Jay Snyder of EA Engineering, Science, and Technology, Inc. This document has been reviewed and approved by Craig Wilkinson of TIMET and me.

If you have any questions regarding this submittal, please do not hesitate to contact me at (702) 563-0600.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Kirk J. Stowers, EM-1549 (exp. 10/11/12)
Associate Geologist

JURAT: I, Kirk J. Stowers, hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

cc: Craig Wilkinson – TIMET, hard copy and by electronic mail
Dave Moore – TIMET, by disk
Victoria Tyson-Bloyd – Tyson Contracting, Inc., hard copy and disk
Nevada Division of Environmental Protection, c/o McGinley and Associates, Inc., 815 Maestro Drive, Reno, Nevada 89511, hard copy only
Nevada Division of Environmental Protection, c/o McGinley and Associates, Inc., 6280 South Valley View Boulevard, Suite 604, Las Vegas, Nevada 89118, hard copy and disk
David Gratson – Neptune, Inc., by disk
Paul Hackenberry – Hackenberry Associates, by disk
Mark Paris – BRC, by electronic mail
Ranajit Sahu – BRC, by electronic mail
Joe Kelly – Montrose, by electronic mail
Paul Sundberg – representing Montrose, by electronic mail
Lynne Preslo – representing Montrose, by electronic mail
Brian Waggle – representing Montrose, by electronic mail
Curt Richards – Olin, by electronic mail
Lee Erickson – Stauffer, by electronic mail
Nick Pogoncheff – representing Stauffer, by electronic mail
George Crouse – representing Syngenta, by electronic mail
Matt Pique – Tronox, by electronic mail
Susan Crowley – representing Tronox, by electronic mail
Keith Bailey – representing Tronox, by electronic mail
Deni Chambers – representing Tronox, by electronic mail
Jeff Gibson – AMPAC, by electronic mail

Attachment A

1. General comment, the Deliverable lacks any conclusions, path forward or identification of data gaps. Please address these issues.
    a. Discussion minutes from December 20, 2010 meeting: Discussed the lack of conclusions and path forward in the report. TIMET would like NDEP to constrain this requirement. NDEP noted that the intent was to discuss outliers and conformance with historical data sets. If there are no issues of note than the discussion can be very limited.

TIMET Response: Additional discussion has been added to Section 3.2 of the text. See revised text included in the errata.

2. General comment, NDEP appreciates the inclusion of the site database file, which supports the majority of tabulated, plotted and charted data. Please also provide "live" executable spreadsheets files for all tables which are not supported by the database file, including formulas used for calculations, at the time of the original document submission.

TIMET Response: The next report deliverable will include the live files at the time of the original submission.

3. Section 1.2, page 1-3, 4th bullet, TIMET references "other appropriate screening levels"; however, the NDEP was not able to locate any part of the Deliverable that defines these screening levels. This also applies to the referenced "TIMET Screening Levels" in other portions of the Deliverable. Please clarify.

TIMET Response: The database compares data values to the NDEP promulgated Basic Comparison Levels (BCLs) when a MCL or secondary MCL is not available. The text will clarify and reference the current NDEP BCLs in forthcoming reports.

4. Figure 1-2, NDEP notes that the downgradient wells do not appear to be ideally selected as it is the understanding of the NDEP that the plumes travels west of the wells that are selected. This is evidenced in Appendix D of the subject Deliverable. Please discuss.
    a. Discussion minutes from December 20, 2010 meeting: It was agreed that this comment can be disregarded at this time. NDEP will provide more specifics in the future.

TIMET Response: No response required.

5. Section 2, general comment, please describe methods used for generation of potentiometric surface contours (Figure 3-1) and water quality contours (Appendix D). Alternatively, describe the methods as a note on each figure.
    a. Discussion minutes from December 20, 2010 meeting: TIMET clarified that Surfer is used and then hand contoured.

TIMET Response: Contours are initially created using the Spline Method in ArcView Spatial Analyst and then hand-corrected by the project hydrogeologist.

6. Section 3.2.1, page 3-4, in accordance with the referenced NDEP guidance (http://ndep.nv.gov/bmi/docs/090928 _cab_guide_update.pdf), please use atomic weight values to five significant figures for CAB calculations. Please also use a 0.6 multiplier for alkalinity values in the computation of TDS sums. Please also do not use rounded values for sums for quality checks, with the exception of keeping with significant figures, as described in the referenced NDEP guidance. NDEP notes that these changes do not appear to result in changes to the reported data quality flags.

TIMET Response: Calculation tables have been revised in accordance the NDEP comments and guidance. As noted, the resultant data quality flags are not affected by this change. As such, the live file for CAB analysis has been provided with the errata however Table 3-46 remains unchanged.

7. Section 3.2.1, pages 3-4 and 3-5, NDEP provides the following comments:
    a. Page 3-4, 2nd paragraph, TIMET states that "Most of the wells in this event exhibited acceptable CAB results." Please clarify which wells did not.

TIMET Response: Wells BRW-R1, TIMETMW-3R, TIMETMW-4, AA-UW1, CLD4-R, J2D4, PC-67, PC-28, and TMPZ-107 were qualified based on either unacceptable CAB or TDS balance. Please note this information is detailed on Table 15 of the Data Validation Summary Report. The report text has been revised to provide this additional detail.

    b. Page 3-4, 2nd paragraph, while TIMET references a difference of 10%, it is not clear what the basis of this comparison is as 5% is the appropriate metric.

TIMET Response: TIMET agrees and correctly applied the 5% metric. The statement was made to provide the upper range of percent difference. This statement has been removed from the revised text to eliminate confusion. See revised text included with the errata.

8. Figure 3-1, approximate (dashed) contours are presented in the vicinity of the southern property boundary where there appears to be sufficient data to present

solid contours; also, solid contours are extended into the BMI Eastside Common Areas, where no data appear to exist to support other than dashed contours. Please rectify, or explain the rationale for using solid and dashed contours.

a. Discussion minutes from December 20, 2010 meeting: It was agreed that it is difficult to present water level contours and TIMET may suggest that these not be contoured in the off-site areas in the future.

TIMET Response: Figure 3-1 has been revised and is attached as part of the errata. Please note that, due to lack of well density in the off-site areas contours have been either dashed or eliminated (downgradient area).

9. Section 3.2.2, page 3-5, NDEP notes that the discussion in this Section is insufficient as there is no chemical class-specific or analyte –specific discussions. Additional comments are provided below.

TIMET Response: Chemical class-specific discussion has been added to Section 3.2. See revised text included with the errata.

10. Appendix C, NDEP provides the following comments:
    a. General comment, NDEP suggests that TIMET discuss the analytes that are presented in this Section as it appears that some no longer need to be presented. For example, it is not clear that there is a benefit to presenting the components of total dissolved solids (TDS) or total trihalomethanes (TTHMs). Please discuss this matter with NDEP.

TIMET Response: TIMET agrees with NDEP comment and will eliminate the following trend graphs from the next semi-annual report:
C-3 Upgradient Barium – all wells below MCL
C-4 Plant Site Barium (low range) – all wells below MCL
C-5 Plant Site Barium (high range) – all wells below MCL
C-6 Upgradient Bicarbonate Alkalinity – component of TDS
C-7 Plant Site Bicarbonate Alkalinity – component of TDS
C-8 Upgradient Calcium – component of TDS
C-9 Plant Site Calcium (low) – component of TDS
C-10 Plant Site Calcium (high) – component of TDS
C-13 Upgradient Chloride – component of TDS
C-14 Plant Site Chloride (low) – component of TDS
C-15 Plant Site Chloride (high) – component of TDS
C-16 Plant Site Chloroform – component of TTHMs
C-20 Plant Site 1,1-Dichloroethene – all wells below MCL
C-24 Upgradient Lead – all wells below MCL
C-25 Plant Site Lead – all wells below MCL
C-26 Upgradient Magnesium – component of TDS
C-27 Plant site Magnesium (low) – component of TDS

C-28 Plant site Magnesium (high) – component of TDS
C-32 Upgradient Nitrate – component of TDS
C-33 Plant Site Nitrate – component of TDS
C-37 Plant Site Selenium – all wells below MCL
C-38 Upgradient Sodium – component of TDS
C-39 Plant Site Sodium (low) – component of TDS
C-40 Plant Site Sodium (high) – component of TDs
C-41 Upgradient Sulfate – component of TDS
C-42 – Plant Site Sulfate (low) – component of TDS
C-43 – Plant Site Sulfate (high) – component of TDS

b. General comment, several figures have a symbol for the MCL, however, the MCL is not presented. Please either present the MCL or list it if presentation is not practical (due to the scale of the y axis).

TIMET Response: NDEP is correct in that the presentation of the MCL on the trend graphs is sometimes not practical due to the scale of the y axis. A note will be added in these instances indicating the value of the MCL on future deliverables.

c. General comment, the figures reference an "MCL", however, it is not clear if some of these values are actually the "TIMET Screening Levels" referenced above. Please clarify.

TIMET Response: Appendix C Trend Graphs only display the relevant MCL or secondary MCL; no other screening level (i.e. BCL).

d. Figure C-25 and C-37, wells J2D1-R2 and J2D4 appear to have had dramatic increases in concentrations; this is an *example* of an issue that warrants discussion in the text. This is a global comment and will not be repeated for each instance.

TIMET Response: In monitoring well J2D1-R2 lead was reported as 30 U (see Table 3-7). The "U" flag indicates the value was not detected above laboratory detection limits, however, the detection limit was elevated. In like manner, selenium was reported (see Table 3-7 and graphed on C-37) as 50 U – not detected above detection limits but with an elevated detection limit.

In monitoring well J2D4 lead was reported as 15 U (see Table 3-10)– not detected above the laboratory detection limit but with an elevated detection limit. In like manner, selenium was reported (see Table3-10 and C-37) as 25 U – not detected above the laboratory detection limit but with an elevated detection limit

e. Figure C-47, well TIMET MW-4 appears to have reached a new high concentration; this is an *example* of an issue that warrants discussion in the

text. See also, figure C-56, well CLD4-R. This is a global comment and will not be repeated for each instance

TIMET Response: Figure C-47 reported TDS over 6,500 mg/L which was not correct. TDS was correctly reported on Table 3-15 for well TIMETMW-4 at a concentration of 3,300 mg/L. A revised Figure C-47 is included in the errata.

A discussion has been added to the text (see Section 3.2.2) regarding vanadium concentrations reported in well CLD-4.

f. Figure C-53, it is requested that the very high concentration data for well CLD3-R be obscured by making the maximum value of the y axis equal to 400. This change will allow for meaningful interpretation of the remainder of the data.

TIMET Response: Figure C-53 has been revised and is attached with the errata.

11. Appendix D, NDEP provides the following comments:
    a. Figure D-6, there appears to be a missing 0.1 mg/L contour in vicinity of southern property boundary, please clarify.

TIMET Response: Figure D-6 has been revised and is attached with the errata.

b. Figure D-11, please close the internal 1,000 ug/L contour.

TIMET Response: Figure D-11 has been revised and is attached with the errata.

Attachment B

DVSR Text

1. Section 2.1.3.3, page 9 and 10, the Table in Section 2.1.3.3 indicates how samples are being qualified and censored due to blank contamination. It is recommended that instead of censoring at the PQL when blank contamination is encountered, the reported value is used in place. When results are censored at the PQL, which is greater than the reported value, this results in a high bias and can complicate comparisons to background and BCL values in the decision making. Using this approach, the Qualification column would say, report Found Value with a U in those cases where it currently states "Report PQL with U."

   However, the recommended approach for censoring (outlined above) does appear to be the approach taken as shown in the EDD. For example, in Table 7, page 7 of 7, the Iron value for TMPZ-107 is at a result_reported value of 120 with a U qualifier in the EDD. However, the text is not consistent with this algorithm for censoring. Correct the DVSR text but continue to censor at the result reported level.

   TIMET Response: The table in Section 2.1.3.3 has been revised and is attached as part of the Errata. Future deliverables will incorporate this revised table.

2. Section 2.1.8, page 13, Table 3 and EDD, the DVSR indicates that the "g" qualifier is used for Positive results for stable chemistries above the SQL, but less than the PQL. However, the definition in the EDD (EDD_validation_reason table) is "Quantification below sample quantitation limit for." The text in EDD should be corrected to be consistent with the DVSR, as this is how the qualifier is being applied.

   TIMET Response: The definition in the EDD_validation_reason_table has been changed to "Positive results for stable chemistries above the SQL, but less than the PQL."

3. Table 5. Correct the footnotes.

   TIMET Response: The formatting error has been fixed. The revised Table 5 is attached as part of the Errata.

EDD

1. The EDD_locations Table should be name just "locations".

   TIMET Response: Revised. See EDD database file included.

2. The EDD_results Table should be named just “results”.

TIMET Response: Revised. See EDD database file included.

3. The EDD_samples Table should be named just “samples”.

TIMET Response: Revised. See EDD database file included.

4. The EDD_validation_reason Table should be named just “validation_reason”.

TIMET Response: Revised. See EDD database file included.

5. There are 180 records where the sample_id_field in the Samples table are not unique. Each Sample_id_field must be unique. These records have differing dates and sample_types (NORM versus FLD or FD). For field duplicates, the sample_id_field should provide a unique identification. (see spreadsheet).

TIMET Response: Revised. See EDD database file included.

6. There are 150 records where the sample type is WG (not a soil) yet there the sample_top_depth and sample_bottom_depth are not NULL. The sample top and bottom are typically reserved for soil sampling. Provide clarification on why these samples have depth profiles.

TIMET Response: For WG samples the “sample_top_depth” represented the depth to the top of the well screen and the “sample_bottom_depth” field represented the depth to the bottom of the well screen. For clarity this has been removed from the revised EDD and future WG EDDs.

7. There are 108 records where sample_time NULL. (see spreadsheet).

TIMET Response: The referenced data was for 2009 groundwater data and, at that time, the laboratory’s EDD did not include “sample_time.” The 2010 datasets and all future EDDs from the laboratory will include this information. **Please note that 2009 should not have been included in this deliverable since it was previously submitted (and likely already imported by NDEP). The revised EDD deliverable / database retains this information for NDEP review of this response to comments and associated revisions.**

8. The litho field should be in Samples table but is found in Locations table.

TIMET Response: Revised. See EDD database file included.

9. There are 12 records where matrix=WG and litho=NULL. (see spreadsheet).

TIMET Response: Revised. See EDD database file included.

10. There are 78 records where analytical_method=NULL. (see spreadsheet).

> **TIMET Response:** EPA Method 9040C was used for field pH measurements, and, as such Method 9040C has been inserted into the database for field pH measurements.

11. The EDD is missing the prep_date and prep_time fields.

> **TIMET Response:** The referenced data was for 2009 groundwater data which, at that time, the laboratory's EDD did not include "prep_data" and "prep_time." The 2010 datasets and all future EDDs from the laboratory will include this information.
> **Please note that 2009 should not have been included in this deliverable since it was previously submitted (and likely already imported by NDEP). The revised EDD deliverable / database retains this information for NDEP review of this response to comments and associated revisions.**

12. There are 238 records where the cas_id=NULL. (see spreadsheet).

> **TIMET Response:** Revised. See EDD database file included. Analytes not present in NDEP's list were added to the **cas_id_new** table.

13. There are 193 records where the SQL is NULL. (see spreadsheet). If some of these analyses do not provide an SQL, clarify which ones but the VOC analyses are know to provide this indicator.

> **TIMET Response:** For field PH, no SQL was entered. The value of 0.1 pH units has been entered as the SQL and PQL.
> For anions and solids (analytical suite = General or Solids), the lab reports results to the PQL. As such, the SQL is equal to the PQL. This has been updated in the database.
> For radionuclides (analytical suite = RADS), the lab reports results to the level of uncertainty. As such, the SQL is equal to the "result_uncertainty" value. This has been updated in the database.
> The only VOCs that show no SQL is for xylene, which is a sum of three compounds of xylene. The reports the results to the PQL only. No change to the database has been made.

14. There are 1328 records where the analytical_suite=RADS and the PQL is not NULL. PQL does not apply to radionuclide analyses. See the NDEP Guidance on EDDs.

> **TIMET Response:** Revised. See EDD database file included.

15. There are 78 pH records where the dilution_factor is NULL. These should be populated with a value of 1.

TIMET Response: Revised. See EDD database file included.

16. There are 9725 records (all records) where the lab_id NULL.

TIMET Response: Revised. See EDD database file included.

17. There are 6230 records where final_validation_reason_codes NULL and final_validation_qualifier <> NULL. All records that have a qualifier should have an associated reason code as outlined in the NDEP Guidance, even if the result is a non-detect. (see spreadsheet)

TIMET Response: 1,2 Dichloroethane-D4 was incorrectly assigned as a surrogate compound, correction was made in database and the 6 effected records were given a "g" as a final_validation_reason_code. The J qualified compounds from this set were corrected and given a final_validation_reason_code of g. The correct lab_qualifier of U was provided for the remaining results that were qualified with a U previously but were not given a final_validation_reason_code. This has been corrected for future EDD submittals.

Semiannual Groundwater Monitoring Report

1st Semester 2010

Titanium Metals Corporation Facility

Henderson, Nevada

ERRATA

Submitted to

Nevada Division of Environmental Protection
2030 E. Flamingo Road, Suite 230
Las Vegas, Nevada 89119-0837

Prepared for

Titanium Metals Corporation Facility
181 North Water Street
Henderson, Nevada 89015

JANUARY 10, 2011

3.0 GROUNDWATER MONITORING DATA

This section summarizes the groundwater conditions (see Section 3.1) and analytical results (see Section 3.2). Figure 1-2 shows the location of each monitoring well located on and off the Plant Site sampled during this event. Table 2-1 summarizes the analytical suite conducted for each of the sampled wells.

Wells BRW-R1 and the MW-3 replacement (MW-3R) are generally considered upgradient of the current plant operations, and wells CLD1-R, and CMT-101 are considered downgradient of current plant operations. The six "J2" series wells (J2D1-R2, J2D2-R2, J2D3-R, J2D4, J2U1, and J2U2) serve as compliance monitoring points for the J2 Landfill, and may be upgradient of some potential sources and downgradient of others. Additionally, five wells (CLD1-R, CLD4-R, J2U2, J2D4, and TIMETMW-6R) serve as compliance points for the groundwater protection permit for ponds HP-1 and HP-6 (CLD2-R and CLD3-R were abandoned during the last reporting period and CMT-101 was sampled as a replacement). Four wells (TMMW-101, TMMW-102, TMMW-103, and TMMW-104) are positioned upgradient of the current plant operations along Lake Mead Parkway. Water level measurements and samples for selected analytes were obtained from six piezometers (TMPZ-105, TMPZ-106, TMPZ-107, TMPZ-108, TMPZ-109 and TMPZ-110) positioned just inside the northern fence line (downgradient). In accordance with recent guidance from NDEP and the Groundwater Remedial Action Operation and Maintenance Monitoring Sampling and Analysis Plan (NDEP 2010, TIMET 2010a), analysis was obtained from eighteen additional offsite wells (AA-01, AA-09, AA-11, AA-19, AA-20, AA-27, AA-UW1, DBMW-1, DBMW-3, DBMW-4, DBMW-5, PC-24, PC-28, PC-54, PC-67, PC-124, POD2-R and POU-3) that are considered downgradient of the Plant Site. However, monitoring wells AA-19, DBMW-5, and POD2-R did not yield sufficient water for collection of samples.

Figures and tables for the Plant Site are presented after this section. Figure 3-1 presents a potentiometric surface map using data from the well locations shown in Figure 1-2 that were gauged during this event. The tables presented in this section summarize analytical results and laboratory qualifiers by well for each sampling event conducted from 3rd quarter 2008 through 1st semester 2010 at the Plant Site and Lake Mead Parkway wells. Note that beginning with 4Q2008, analytical data for the even quarters will not be included in these tables; since the groundwater monitoring program was revised to a semiannual event in 2007. Hydrographs, concentration trend graphs, and isoconcentration maps are presented in Appendices B, C and D, respectively.

Hydrographs present groundwater elevations for field measurements taken during 1st Quarter 2000 through 1st Semester 2010 at the Plant Site and Lake Mead Parkway wells. Note that hydrographs for piezometers contain fewer data points; as these were measured beginning in 2007.

Concentration trend graphs present analytical data for selected analytes from 1st Quarter 2000 through 1st Semester 2010. Isoconcentration maps suggest that the plumes are relatively stable with no major shift in geometry for the selected analytes during 1st Semester 2010.

3.1 GROUNDWATER CONDITIONS

The following sections discuss the general hydrogeologic characteristics of the water table aquifer (for example, depth to groundwater and potentiometric surface of groundwater) at the TIMET facility for this reporting period.

3.1.1 Depth to Groundwater

Table 3-1 summarizes groundwater levels for the well locations shown in Figure 1-2. Hydrographs showing water level trends for the well locations shown in Figure 1-2 are presented in Appendix B. Water levels in wells J2U1, AA-19, DBMW-5 and POD-2 were gauged this event; however, insufficient screen submergence precluded sampling these wells for chemical analysis. CLD2-R and CLD3-R were not gauged during this reporting period as these wells were abandoned on February 2, 2010.

Existing wells were surveyed to confirm coordinates and TOC elevations. Discrepancies were found in four wells; J2D1-R2, J2U2, J2D2-R2 and J2D4. J2D1-R2 TOC elevation was 2.7 feet less than previously determined, J2U2 TOC elevation increased by 0.19 feet, J2D2-R2 TOC elevation decreased by 2.91 feet and J2D4 TOC elevation increased by 0.37 feet. Table 2-2 presents updated information. These discrepancies are notable on the individual well hydrographs.

Hydrographs are not included for well locations M-129, M-130, CMT-101, AA-1, AA-09, AA-11, AA-19, AA-20, AA-27, AA-UA1, DBMW-1, DBMW-3, DBMW-4, DBMW-5, PC-24, PC-28, PC-54, PC-67, PC-124, POD2-R and POU-3 as this is the first time the water levels were gauged within this program. It should be noted that monitoring wells AA-19, DBMW-5, and POD2-R did not yield sufficient ground water to take water level measurements.

3.1.2 Potentiometric Surface of Groundwater

Figure 3-1 shows the potentiometric surface for the water table aquifer and the direction of groundwater flow for the 1st Semester 2010 sampling event based on data from the well locations shown on Figure 1-2. The hydraulic gradient is approximately 0.02 to 0.03 ft/ft in a northerly direction, mimicking the topographic slope toward the Las Vegas Wash.

3.2 ANALYTICAL RESULTS

This section summarizes the distribution of analytes in groundwater for the 1st Semester 2010. All data from this event were validated according to current NDEP guidelines and have been assigned validation qualifiers based on quality control measurements, as defined in the table below.

Stable Chemistry Validation Qualifiers and Definitions	
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 estimated.
J	The result is an estimated quantity. The associated numerical value is an approximate concentration of the analyte in the sample.
R	The result is rejected. The associated numerical value is rejected due to quality issues that seriously affect the result.

The U qualifier indicates that the analyte was not detected, and the value reported is the sample quantitation limit (SQL). The U qualifier does not imply any data quality issue, but is simply a statement that the analyte was not detected at the reported SQL. The other qualifiers listed in the table above imply that because of some issue with associated QC samples or criteria, the sample result or SQL may be questioned. During the course of data validation, the reviewer evaluated each of the QC criteria and determined if the issue had an impact on data quality. For all analytes, the J qualifier indicates that the reported value is estimated and the R qualifier indicates that the reported value is rejected. Results are considered estimated or rejected when QC issues could affect data quality and are assigned a bias (+/-) where applicable.

Tables 3-2 through 3-35 summarize the results of groundwater monitoring at the well locations shown in Figure 1-2, including the validation qualifiers. Reported values that exceed the TIMET Screening Levels

(TIMET SLs) are highlighted in bold in the tables. The tables were generated from the TIMET electronic database and contain a set of notes defining data qualifiers. Not all notes may be pertinent to every table.

Concentration trend graphs for selected analytes for the 1st quarter 2000 through 1st semester 2010 are provided in Appendix C. Isoconcentration maps for selected analytes during 1st Semester 2010 are provided in Appendix D.

Note that values highlighted in bold font in Tables 3-2 through 3-45 indicate that either the analytical result or the reporting limit exceeds the screening level during this reporting period. Analytical results from wells that experienced their first sampling event during this semester did not undergo trend analysis.

3.2.1 Anions and TDS in Plant Site Groundwater

The dominant anions represented in the TDS observed in Plant Site groundwater are sulfate and chloride with notable concentrations of perchlorate (Figure D-6). Perchlorate is ubiquitous throughout the Plant Site. When mapped on a regional scale, perchlorate contours on TIMET Plant Site represent the eastern edge of the perchlorate plume sourced from the Tronox facility, which is west of the Plant Site.

Of the 22 wells monitored for anions, sulfate concentrations in groundwater exceeded chloride in 17 wells. The ratios of sulfate to chloride varied from 8.7 to 0.1. The sulfate to chloride ratios were greatest in the upgradient (Lake Mead wells) monitoring locations (sulfate dominated) and generally decreased in northern property boundary wells.

TDS in upgradient groundwater (Lake Mead wells) varies between 1,200 mg/L to 2,000 mg/L with similar concentrations reported in monitoring wells located near Lake Mead on the Tronox property. Within the Plant Site, the highest TDS concentrations were reported in wells TMPZ-108 (17,000 mg/L), TMPZ-107 (15,000 mg/L) and J2D4 (10,000 mg/L). These wells support the 10,000 mg/L TDS contour depicted on Figure D-10. However, it should be noted that regionally TDS is significantly elevated throughout the BMI Complex and Common Areas and has been reported at concentrations significantly greater than those observed at the Plant Site. In fact, encroachment of TDS impacted groundwater onto TIMET's northwestern property continues to be observed when mapped at the regional scale.

During the past semester, anions and TDS concentrations in most Plant Site wells remained relatively unchanged and were generally within the historical range of concentrations reported with the following noted exception:

- Nitrate in monitoring well J2D4 has increased over the past four monitoring events, almost reaching the historical peak of 54 mg/L (current nitrate is 53 mg/L). Over the past six years nitrate levels have remained stable, averaging about 20 mg/L after peaking between 2001 and 2002. However, beginning in late 2008, nitrate concentrations have progressively increased. This trend warrants additional monitoring and observation, and represents a data gap under the Environmental Conditions Investigation that will be carried forward as such.

Cation-Anion Balance and TDS Ratios

In late September 2009, NDEP released a letter regarding the analysis and evaluation of cation-anion balance (CAB) in groundwater (NDEP 2009). This analysis and evaluation was conducted during this reporting semester and included: (1) cation-anion balance, (2) measured TDS versus calculated TDS, and (3) TDS versus EC. For the CAB evaluation, the anions and cations used in the calculation include the following:

- Anions – Bicarbonate, carbonate, chloride, fluoride, nitrate as nitrogen, perchlorate, and sulfate
- Cations – Calcium, magnesium, potassium and sodium

Note that hydroxide was not included in the anion calculation, because the pH of the groundwater was less than 10. The acceptable difference between the anion and cation sums is 5 percent. Most of the wells in this event exhibited acceptable CAB results (less or equal to 5%). However, the following wells were qualified based on either unacceptable CAB or TDS balance: BRW-R1, TIMETMW-3R, TIMETMW-4, AA-UW1, CLD4-R, J2D4, PC-67, PC-28, and TMPZ-107.

For the evaluation of measured TDS versus calculated TDS, the same anions and cations listed in the CAB discussion above were used. The ratios of measured TDS (reported directly from Paragon) and calculated TDS were computed according to the formula recommended by NDEP. The acceptable ratio is greater than or equal to 1.0, but less than or equal to 1.2. All results except one (PC-28 at 1.3) are acceptable.

For the evaluation of TDS versus EC, the ratio of TDS against the field measurement of EC was calculated. NDEP's acceptable limits are 0.54 to 0.96. A plot of TDS versus EC results is included as Figure 3-2. All wells in this event exhibited acceptable results for TDS to EC ratio.

CAB analysis, TDS ratios, and TDS to EC ratios are summarized in Table 3-46. The calculated percent differences and ratios were compared to the appropriate acceptance criteria and reported as "acceptable" or "unacceptable" accordingly. Based on the findings shown in Table 3-46, the anion, cation, and/or TDS results were qualified as estimated when acceptance criteria were not met.

3.2.2 Metals in Plant Site Groundwater

Metals exceeding EPA National Drinking Water Standards Maximum Contaminant Levels (MCLs) or secondary MCLs are arsenic, chromium, uranium, and manganese in Plant Site groundwater. Metals exceeding Basic Comparison Levels for residential water in at least one well include: molybdenum, lithium, aluminum, vanadium, and iron. The following discussion focuses on metals exceeding the MCL.

Arsenic (Figure D-1) exceeds the MCL (10 ug/L) in every well monitored within the Plant Site. Arsenic concentrations in upgradient (Lake Mead) wells vary from 18 ug/L to 35 ug/L for this monitoring event. Wells located along the western property boundary report the highest Plant Site arsenic concentrations, and concentrations decrease to the east. When analyzed from a regional perspective, elevated arsenic in groundwater is encroaching from facilities west of the Plant Site onto the northern portion of the TIMET property.

Chromium (Figure D-2) exceeds the MCL (100 ug/L) in wells located in the northwestern portion of the TIMET Plant Site. The chromium observed in groundwater is primarily comprised of hexavalent chromium (Figure D-3). As the contours depict, chromium observed on the TIMET Plant Site represents the eastern edge of the well documented hexavalent chromium plume encroaching from the Tronox proprety to the west.

Uranium (Figure D-12) exceeds the MCL (30 ug/L) in most wells located in the north half of the TIMET Plant Site. Uranium concentrations in upgradient (Lake Mead) wells vary from 9.7 ug/L to 14 ug/L for this monitoring event. The highest uranium concentrations are observed in J2U2 and TMPZ-108 at 140 ug/L. As depicted on Figure D-12 elevated uranium is centered in the middle of the Plant Site. From a regional perspective, there are similar (>100 ug/L) uranium concentrations in groundwater in monitoring wells located on the Tronox property and close enough where groundwater may encroach onto TIMET, thereby influencing uranium concentrations in wells located on the western TIMET property boundary.

Manganese (Figure D-4) in Plant Site groundwater is either not detected above laboratory detection limits or less than 1 ug/L except in monitoring wells located along the western property boundary with Tronox.

The highest manganese concentrations for this monitoring event are reported in CLD1-R at 170 ug/L and TMPZ-107 at 160 ug/L. These wells represent the edge of the 50 ug/L contour extending onto the TIMET Plant Site. From a regional perspective manganese contours suggest a plume of elevated manganese sourced to the west of TIMET.

During the past quarter, metal analyte concentrations in most Plant Site wells remained relatively unchanged and were generally within the historical range of concentrations reported with the following noted exception:

- Since 2001 vanadium concentrations in monitoring well CLD4-R have varied between 8,000 ug/L to 10,000 ug/L with a notable decrease (<3,000 ug/L) in July 2004 followed by a peak (>12,000 ug/L) in the fourth quarter of 2004 (see Figure C-56). Vanadium concentrations rebounded to about 11,000 ug/L during 2005 and then experienced another notable drop (<6,000 ug/L) in July 2006. In 2007, vanadium concentrations once again rebounded to about 11,000 ug/L with another, albeit modest, decrease (<7,000 ug/L) in July 2008. Since the last seasonal decrease, vanadium concentrations in CLD4-R have increased to a new peak concentration of 13,000 ug/L. Inspection of the vanadium data in other monitoring locations in the vicinity of CLD4-R report concentrations at or less than 100 ug/L. It appears that elevated vanadium is isolated to this location. Close attention to the summer vanadium concentration in this well will be made and discussed in the next semiannual report.

3.2.3 Radionuclides in Plant Site Groundwater

No radioisotopes exceeded their respective MCLs during this monitoring event, although detectable levels of radium (radium 226 plus radium 228) greater than 2 pCi/L were measured in monitoring wells TMPZ-105 and TMPZ-107. Several of the “J2” wells also reported detectable levels albeit less than 2 pCi/L combined radium. As depicted on Figure D-7, this cluster of wells represents an area of elevated radium; however, this elevated area is below the MCL.

Radon in groundwater is prevalent throughout the BMI Complex and Plant Site. Upgradient (Lake Mead wells) exceed the screening level of 300 pCi/L (proposed rule) averaging 583 pCi/L for this monitoring event. Radon concentrations in groundwater increase at the northern property boundary to an average 1,700 pCi/L. Radon 222 is a decay isotope of uranium-238 and the distribution of uranium as a metal is presented on Figure D-12 and discussed in the previous Section 3.2.2.

During the past quarter, analyte concentrations in most wells remained relatively unchanged and were generally within the historical range of concentrations reported.

3.2.4 Volatile Organic Compounds in Plant Site Groundwater

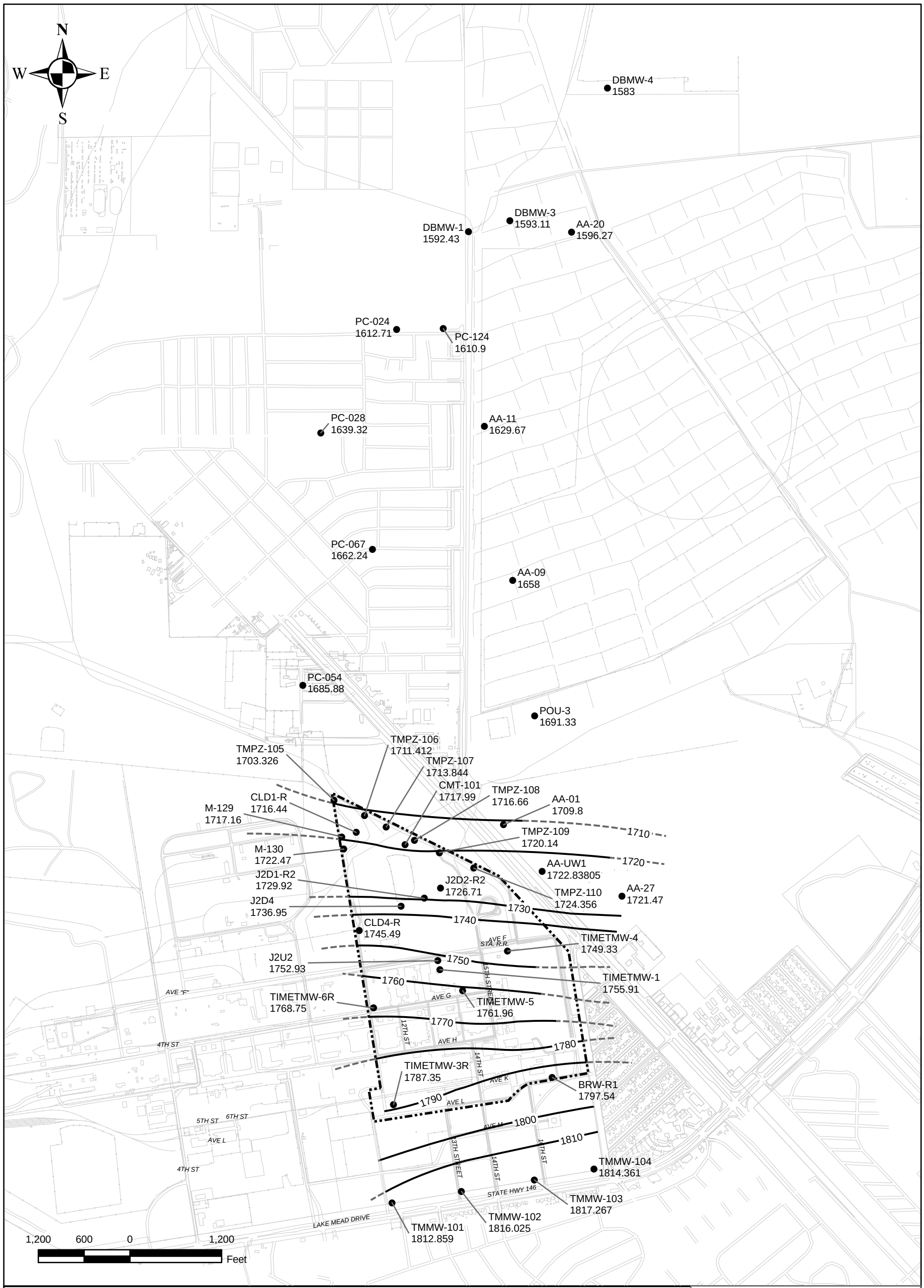
Volatiles exceeding their respective MCLs in Plant Site groundwater include tetrachloroethene (PCE), trichloroethene (TCE), total trihalomethanes (TTHM), and carbon tetrachloride. A stable and well defined PCE plume is depicted on Figure D-9. Off-site migration of the PCE plume is evident and is monitored under this program. A significantly smaller TCE plume exists within the PCE plume. TCE exceeding the MCL is reported in only four Plant Site wells: J2D2-R2, J2U2, TIMETMW-1, and TMPZ-109. Carbon tetrachloride is elevated above the MCL in three monitoring wells located along the western Plant Site boundary (CLD3-R [historic], CLD4-R, and TMPZ-105). The report authors are not aware of a regional plume of carbon tetrachloride, however, TTHMs have been reported throughout the BMI Complex and are believed to be sourced at the Olin, Stauffer, Syngenrta, and Montrose facilities. TTHMs, depicted on Figure D-11, are prevalent throughout the northwestern TIMET Plant Site and have been found at depth in Muddy Creek Formation groundwater.

During the past quarter, VOC concentrations in most wells remained relatively unchanged and were generally within the historical range of concentrations reported with the following noted exceptions:

- Trichloroethene (TCE) and 1,2-Dichloropropane in monitoring well TIMETMW-3R continue to be elevated (20 ug/L and 24 ug/L, respectively) above their respective MCLs (see Figure C-54 and Table 3-14). This well was installed in 2009 as a replacement well for TIMETMW-3 which was abandoned for utility construction associated with the Lake Mead shopping center. TCE and 1,2-Dichloropropane concentrations in former well TIMETMW-3 were repeatedly not detected above the laboratory detection limit. Insufficient upgradient monitoring data exists to evaluate whether the source is located upgradient (and potentially off-site) or generalized to the area. This represents a data gap under the Environmental Conditions Investigation and will be carried forward as such.

.

FIGURES



BRW-R1
1797.54 ● MONITORING WELL WITH GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)

WATER LEVEL CONTOUR

APPROXIMATE WATER LEVEL CONTOUR

NOTE: All wells gauged between April 15 and May 15, 2010.

Semiannual Groundwater Monitoring Report
1st Semester 2010
Titanium Metals Corporation
Henderson, Nevada

FIGURE 3-1
POTENTIOMETRIC SURFACE MAP
1ST SEMESTER 2010

TIMET

2010-08-17 C:\TIMET\1stSEM2010\mxd\TIMET_siteWL_S12010.mxd michelle.handley

TABLES

TABLE 3-46
CATION-ANION BALANCE EVALUATION
GROUNDWATER MONITORING REPORT FIRST SEMESTER 2010
Titanium Metals Corporation, Henderson, Nevada

Well ID	Cation Sum (meq/L) [1]	Anion Sum (meq/L) [2]	Difference (%) [3]	CAB Result	TDS Measured (mg/L)	TDS Calculated (mg/L)	Ratio [4]	TDS Results [5]	TDS Measured (mg/L)	EC Measured (uS/cm)	Ratio TDS:EC [6]	EC Results [7]	Qualifier
AA-01	53	57	3.5	Acceptable	3900	3400	1.1	Acceptable	3900	5530	0.71	Acceptable	No qualifier
AA-09	81	87	3.5	Acceptable	5700	5400	1.1	Acceptable	5700	7490	0.76	Acceptable	No qualifier
AA-11	66	69	2.7	Acceptable	4300	4200	1	Acceptable	4300	5910	0.73	Acceptable	No qualifier
AA-20	80	88	4.4	Acceptable	5600	5300	1	Acceptable	5600	7400	0.76	Acceptable	No qualifier
AA-27	60	63	2.9	Acceptable	4100	3900	1	Acceptable	4100	5620	0.72	Acceptable	No qualifier
AA-UW1	53	59	5.1	Unacceptable	3900	3600	1.1	Acceptable	3900	4520	0.86	Acceptable	**J-CAB**
BRW-R1	47	54	6.7	Unacceptable	3400	3300	1	Acceptable	3400	4290	0.79	Acceptable	**J-CAB**
CLD1-R	60	66	5.3	Unacceptable	4100	3900	1	Acceptable	4100	6760	0.61	Acceptable	**J-CAB**
CLD4-R	79	92	7.2	Unacceptable	5800	5500	1.1	Acceptable	5800	9080	0.64	Acceptable	**J-CAB**
DBMW-1	86	83	1.7	Acceptable	5500	5300	1	Acceptable	5500	7120	0.77	Acceptable	No qualifier
DBMW-3	110	110	0.61	Acceptable	7500	6900	1.1	Acceptable	7500	9180	0.82	Acceptable	No qualifier
DBMW-4	81	81	0.28	Acceptable	5100	5100	1	Acceptable	5100	6920	0.74	Acceptable	No qualifier
Duplicate-1	76	82	3.6	Acceptable	5000	4700	1.1	Acceptable	5000	--	--	Acceptable	No qualifier
Duplicate-2	80	80	0.31	Acceptable	4900	4700	1	Acceptable	4900	--	--	Acceptable	No qualifier
J2D1-R2	80	83	1.8	Acceptable	4900	4700	1	Acceptable	4900	7450	0.66	Acceptable	No qualifier
J2D2-R2	77	79	0.93	Acceptable	5000	4600	1.1	Acceptable	5000	7050	0.71	Acceptable	No qualifier
J2D4	150	170	6	Unacceptable	10000	9900	1	Acceptable	10000	15900	0.63	Acceptable	**J-CAB**
J2U2	72	75	2.3	Acceptable	4900	4300	1.1	Acceptable	4900	6920	0.71	Acceptable	No qualifier
MW-3R	26	31	8.5	Unacceptable	2000	1900	1.1	Acceptable	2000	2710	0.74	Acceptable	**J-CAB**
MW-4	44	51	7.2	Unacceptable	3500	3200	1.1	Acceptable	3500	4010	0.87	Acceptable	**J-CAB**
MW-5	56	60	3.2	Acceptable	4000	3700	1.1	Acceptable	4000	5320	0.75	Acceptable	No qualifier
MW-6R	41	44	3.4	Acceptable	2900	2600	1.1	Acceptable	2900	4230	0.69	Acceptable	No qualifier
PC-124	110	110	0.39	Acceptable	6600	6500	1	Acceptable	6600	9960	0.66	Acceptable	No qualifier
PC-24	150	150	0.6	Acceptable	10000	8600	1.1	Acceptable	10000	14440	0.69	Acceptable	No qualifier
PC-28	90	82	4.8	Acceptable	6800	5200	1.3	Unacceptable	6800	8230	0.83	Acceptable	**J-TDS**
PC-54	74	70	2.8	Acceptable	5500	4600	1.2	Acceptable	5500	6740	0.82	Acceptable	No qualifier
PC-67	160	200	10	Unacceptable	12000	11000	1.1	Acceptable	12000	16810	0.71	Acceptable	**J-CAB**
POU3	150	160	2.7	Acceptable	9400	9100	1	Acceptable	9400	14520	0.65	Acceptable	No qualifier
TMMW-101	21	23	4.5	Acceptable	1500	1400	1.1	Acceptable	1500	2040	0.74	Acceptable	No qualifier
TMMW-102	17	18	2.2	Acceptable	1200	1100	1.1	Acceptable	1200	1820	0.66	Acceptable	No qualifier
TMMW-103	29	33	5.8	Unacceptable	2100	2000	1.1	Acceptable	2100	2860	0.73	Acceptable	**J-CAB**
TMMW-104	30	34	4.8	Acceptable	2200	2100	1	Acceptable	2200	2950	0.75	Acceptable	No qualifier
TMPZ-105	100	110	3.2	Acceptable	7800	6700	1.2	Acceptable	7800	11540	0.68	Acceptable	No qualifier
TMPZ-107	220	260	8.6	Unacceptable	15000	14000	1.1	Acceptable	15000	24100	0.62	Acceptable	**J-CAB**
TMPZ-110	78	79	1.1	Acceptable	5000	4800	1	Acceptable	5000	6650	0.75	Acceptable	No qualifier
CMT-101	Insufficient results to calculate CAB												
M-129	Insufficient results to calculate CAB												
M-130	Insufficient results to calculate CAB												
TMPZ-106	Insufficient results to calculate CAB												
TMPZ-108	Insufficient results to calculate CAB												
TMPZ-109	Insufficient results to calculate CAB												

TABLE 3-46
CATION-ANION BALANCE EVALUATION
GROUNDWATER MONITORING REPORT FIRST SEMESTER 2010
Titanium Metals Corporation, Henderson, Nevada

Notes:

CAB	Cation/anion balance	mg/L	Milligram per liter	Duplicate 1 = J2D2-R2
EC	Electrical conductivity	TDS	Total dissolved solids	Duplicate 2 = J2D1-R2
meq/L	Milliequivalent per liter	uS/cm	MicroSiemens per centimeter	

1 Cations summed include: Calcium, magnesium, sodium, and potassium.
2 Anions summed include: Bicarbonate, carbonate, chloride, fluoride, nitrate-nitrogen, perchlorate, and sulfate.
3 QC criterion for CAB: absolute percent difference less than or equal to 5 percent; when the anion sum is between 10 and 800 meq/L.
4 Ratio of laboratory measured TDS to calculated TDS.
5 QC criterion for TDS measured versus calculated: ratio of TDS measured to TDS calculated greater than or equal to 1.0 and less than or equal to 1.2.
6 QC limits for TDS versus ED ratio is 0.54 to 0.96
7 J-TDS indicates that TDS value for the given well is estimated; J-CAB indicates that the values for the 11 cation/anions are estimated for a given well.
The qualification of results based CAB includes the "J" qualifier with the associated comment code "p" or "q" in the TIMET analytical database

APPENDIX A

DATA VALIDATION SUMMARY REPORT
GROUNDWATER MONITORING DATA

All stable chemistry results were qualified as follows:

Blank Value	Sample Result	Qualification
Detects	Not detected	No qualification
< PQL	< PQL ≥ PQL	Report found value with U Use professional judgment (typically no qualification)
> PQL	< PQL ≥ PQL but < blank value ≥ PQL and > blank value	Report found value with U Report found value with U Use professional judgment (either J+ or no qualifier)
= PQL	< PQL ≥ PQL	Report found value with U Use professional judgment (either J+ or no qualifier)
Negative value (often seen with metals)	< PQL	Report found value with J-
Gross contamination	Detects	Qualify as rejected "R"

For radionuclides, the qualification is simpler. Several radionuclides were detected above the MDA in laboratory blanks. However, no data were qualified or rejected due to blank contamination. Either results were significantly greater than the blank value, the results were already non-detect, or results were not reported from the associated analyses.

As listed in Section 2.1.3.2, one VOC was detected in trip blanks associated with the SDGs in this DVSR. All associated sample results were either already non-detect, or already qualified as non-detect for other reasons. No data were qualified based on field blank contamination.

2.1.4 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

TABLE 5
QUALIFICATION BASED ON SAMPLE RECEIPT CONDITION
2010 1ST SEMESTER DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Event	SDG	Sample ID	Analyte	Sample pH [2]	Results [2]	Qualifier	Comment	Unit
2Q2010	1004128	TIMETMW-4	SULFIDE	~8	2 U	UJ-	h	MG/L
2Q2010	1004175	AA-UW1	SULFIDE	~8	2 U	UJ-	h	MG/L
2Q2010	1004188	AA-01	SULFIDE	~8	2 U	UJ-	h	MG/L
2Q2010	1004188	AA-27	SULFIDE	~8	2 U	UJ-	h	MG/L
2Q2010	1004213	J2D2-R2	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1004213	TMMW-101	CYANIDE	~11	0.01 U	R	e, h	MG/L
2Q2010	1004213	TMMW-102	CYANIDE	~11	0.01 U	R	e, h	MG/L
2Q2010	1004224	AA-09	SULFIDE	~8	2 U	UJ-	h	MG/L
2Q2010	1004224	AA-20	SULFIDE	~8	2 U	UJ-	h	MG/L
2Q2010	1004224	J2U2	SULFIDE	~8	2 U	UJ-	h	MG/L
2Q2010	1004252	DBMW-3	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1004252	TMMW-103	CYANIDE	~11	0.01 U	R	e, h	MG/L
2Q2010	1004274	CLD1-R	CYANIDE	~11	0.01 U	R	e, h	MG/L
2Q2010	1004274	DBMW-1	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1004284	AA-11	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1004284	DBMW-4	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1004284	J2D1-R2	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1004291	PC-54	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005006	PC-024	SULFIDE	~8	2 U	UJ-	h	MG/L
2Q2010	1005006	PC-124	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005006	PC-124	SULFIDE	~8	2 U	UJ-	h	MG/L
2Q2010	1005006	PC-24	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005020	J2D4	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005020	PC-28	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005020	PC-67	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005038	POU3	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005038	TMPZ-110	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005059	TMPZ-105	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005093	TMPZ-107	CYANIDE	~10	0.01 U	R	e, h	MG/L
2Q2010	1005093	TMPZ-107	SULFIDE	~8	2 U	UJ-	h	MG/L

Notes:

MG/L	Millogram per liter
SDG	Sample delivery group
PQL	Practical quantitation limit

Qualifiers/Comments:

h	Comment code for sample receipt condition
R	Rejected
U	Undetected

1 Sample pH at receipt at laboratory; cyanide and sulfide pH requirements are >12 and >9, respectively
2 Result field includes the numerical concentration and the laboratory qualifier or code.

TABLE 15
QUALIFICATION BASED ON EITHER UNACCEPTABLE CAB OR TDS BALANCE
2010 1ST SEMESTER DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Event	SDG	Lab ID	Client ID	Analyte	PQL	SQL	Results [1]	Qualifier	Comment	Unit
2Q2010	1004121	1004121-1	BRW-R1	POTASSIUM	1000	110	16000	J+	e, j, p	UG/L
2Q2010	1004121	1004121-1	BRW-R1	SODIUM	100000	660	370000	J+	j, p	UG/L
2Q2010	1004121	1004121-1	BRW-R1	BICARBONATE AS CACO3	10		77	J	p	MG/L
2Q2010	1004121	1004121-1	BRW-R1	CALCIUM	500	12	340000	J	p	UG/L
2Q2010	1004121	1004121-1	BRW-R1	CARBONATE AS CACO3	10		10 U	UJ	p	MG/L
2Q2010	1004121	1004121-1	BRW-R1	CHLORIDE	10	1.2	290	J	p	MG/L
2Q2010	1004121	1004121-1	BRW-R1	FLUORIDE	0.5	0.048	1.4	J	p	MG/L
2Q2010	1004121	1004121-1	BRW-R1	MAGNESIUM	1000	13	170000	J	p	UG/L
2Q2010	1004121	1004121-1	BRW-R1	NITRATE AS N	1	0.05	11	J	p	MG/L
2Q2010	1004121	1004121-1	BRW-R1	PERCHLORATE	0.02		0.28	J	p	MG/L
2Q2010	1004121	1004121-1	BRW-R1	SULFATE	50	2	2100	J	p	MG/L
2Q2010	1004121	1004121-2	MW-3R	POTASSIUM	1000	110	13000	J+	e, j, p	UG/L
2Q2010	1004121	1004121-2	MW-3R	SODIUM	100000	660	260000	J+	j, p	UG/L
2Q2010	1004121	1004121-2	MW-3R	BICARBONATE AS CACO3	10		110	J	p	MG/L
2Q2010	1004121	1004121-2	MW-3R	CALCIUM	500	12	140000	J	p	UG/L
2Q2010	1004121	1004121-2	MW-3R	CARBONATE AS CACO3	10		10 U	UJ	p	MG/L
2Q2010	1004121	1004121-2	MW-3R	CHLORIDE	10	1.2	200	J	p	MG/L
2Q2010	1004121	1004121-2	MW-3R	FLUORIDE	0.2	0.019	0.68	J	p	MG/L
2Q2010	1004121	1004121-2	MW-3R	MAGNESIUM	1000	13	91000	J	p	UG/L
2Q2010	1004121	1004121-2	MW-3R	NITRATE AS N	0.4	0.02	2.7	J	p	MG/L
2Q2010	1004121	1004121-2	MW-3R	PERCHLORATE	0.004		0.085	J	p	MG/L
2Q2010	1004121	1004121-2	MW-3R	SULFATE	50	2	1100	J	p	MG/L
2Q2010	1004128	1004128-2	MW-4	POTASSIUM	1000	110	13000	J+	e, j, p	UG/L
2Q2010	1004128	1004128-2	MW-4	SODIUM	100000	660	320000	J+	j, p	UG/L
2Q2010	1004128	1004128-2	MW-4	BICARBONATE AS CACO3	10		110	J	p	MG/L
2Q2010	1004128	1004128-2	MW-4	CALCIUM	500	12	340000	J	p	UG/L
2Q2010	1004128	1004128-2	MW-4	CARBONATE AS CACO3	10		10 U	UJ	p	MG/L
2Q2010	1004128	1004128-2	MW-4	MAGNESIUM	1000	13	160000	J	p	UG/L

TABLE 15
QUALIFICATION BASED ON EITHER UNACCEPTABLE CAB OR TDS BALANCE
2010 1ST SEMESTER DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Event	SDG	Lab ID	Client ID	Analyte	PQL	SQL	Results [1]	Qualifier	Comment	Unit
2Q2010	1004128	1004128-2	MW-4	PERCHLORATE	0.02		0.19	J	p	MG/L
2Q2010	1004175	1004175-1	AA-UW1	POTASSIUM	1000	110	12000	J+	e, j, p	UG/L
2Q2010	1004175	1004175-1	AA-UW1	SODIUM	100000	660	270000	J+	j, p	UG/L
2Q2010	1004175	1004175-1	AA-UW1	BICARBONATE AS CACO3	10		86	J	p	MG/L
2Q2010	1004175	1004175-1	AA-UW1	CALCIUM	50000	1200	500000	J	p	UG/L
2Q2010	1004175	1004175-1	AA-UW1	CARBONATE AS CACO3	10		10 U	UJ	p	MG/L
2Q2010	1004175	1004175-1	AA-UW1	CHLORIDE	10	1.2	400	J	p	MG/L
2Q2010	1004175	1004175-1	AA-UW1	FLUORIDE	0.5	0.048	1.3	J	p	MG/L
2Q2010	1004175	1004175-1	AA-UW1	MAGNESIUM	1000	13	200000	J	p	UG/L
2Q2010	1004175	1004175-1	AA-UW1	NITRATE AS N	1	0.05	4.7	J	p	MG/L
2Q2010	1004175	1004175-1	AA-UW1	PERCHLORATE	0.04		0.81	J	p	MG/L
2Q2010	1004175	1004175-1	AA-UW1	SULFATE	50	2	2200	J	p	MG/L
2Q2010	1004188	1004188-1	CLD4-R	POTASSIUM	1000	110	12000	J+	e, j, p	UG/L
2Q2010	1004188	1004188-1	CLD4-R	SODIUM	100000	660	1700000	J+	j, p	UG/L
2Q2010	1004188	1004188-1	CLD4-R	BICARBONATE AS CACO3	20		260	J	p	MG/L
2Q2010	1004188	1004188-1	CLD4-R	CALCIUM	500	12	72000	J	p	UG/L
2Q2010	1004188	1004188-1	CLD4-R	CARBONATE AS CACO3	20		10 U	UJ	p	MG/L
2Q2010	1004188	1004188-1	CLD4-R	CHLORIDE	20	2.3	1700	J	p	MG/L
2Q2010	1004188	1004188-1	CLD4-R	FLUORIDE	1	0.096	5.6	J	p	MG/L
2Q2010	1004188	1004188-1	CLD4-R	MAGNESIUM	1000	13	18000	J	p	UG/L
2Q2010	1004188	1004188-1	CLD4-R	NITRATE AS N	2	0.1	9.7	J	p	MG/L
2Q2010	1004188	1004188-1	CLD4-R	PERCHLORATE	0.4		2.7	J	p	MG/L
2Q2010	1004188	1004188-1	CLD4-R	SULFATE	100	4	1800	J	p	MG/L
2Q2010	1004224	1004224-4	MW-4	CHLORIDE	10	1.2	180	J	p	MG/L
2Q2010	1004224	1004224-4	MW-4	FLUORIDE	0.5	0.048	0.76	J	p	MG/L
2Q2010	1004224	1004224-4	MW-4	NITRATE AS N	1	0.05	2.8	J	p	MG/L
2Q2010	1004224	1004224-4	MW-4	SULFATE	50	2	2100	J	p	MG/L
2Q2010	1005020	1005020-1	J2D4	BICARBONATE AS CACO3	10		110	J	p	MG/L
2Q2010	1005020	1005020-1	J2D4	CALCIUM	2500	60	870000	J	p	UG/L

TABLE 15
QUALIFICATION BASED ON EITHER UNACCEPTABLE CAB OR TDS BALANCE
2010 1ST SEMESTER DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Event	SDG	Lab ID	Client ID	Analyte	PQL	SQL	Results [1]	Qualifier	Comment	Unit
2Q2010	1005020	1005020-1	J2D4	CARBONATE AS CACO3	10		10 U	UJ	p	MG/L
2Q2010	1005020	1005020-1	J2D4	CHLORIDE	100	12	4200	J	p	MG/L
2Q2010	1005020	1005020-1	J2D4	FLUORIDE	2	0.19	2 U	UJ	p	MG/L
2Q2010	1005020	1005020-1	J2D4	MAGNESIUM	5000	65	340000	J	p	UG/L
2Q2010	1005020	1005020-1	J2D4	NITRATE AS N	4	0.2	53	J	p	MG/L
2Q2010	1005020	1005020-1	J2D4	PERCHLORATE	0.4		3.5	J	p	MG/L
2Q2010	1005020	1005020-1	J2D4	POTASSIUM	5000	540	30000	J	p	UG/L
2Q2010	1005020	1005020-1	J2D4	SODIUM	50000	330	1900000	J	p	UG/L
2Q2010	1005020	1005020-1	J2D4	SULFATE	500	20	2400	J	p	MG/L
2Q2010	1005020	1005020-4	PC-67	BICARBONATE AS CACO3	10		140	J	p	MG/L
2Q2010	1005020	1005020-4	PC-67	CALCIUM	2500	60	730000	J	p	UG/L
2Q2010	1005020	1005020-4	PC-67	CARBONATE AS CACO3	10		10 U	UJ	p	MG/L
2Q2010	1005020	1005020-4	PC-67	CHLORIDE	100	12	4700	J	p	MG/L
2Q2010	1005020	1005020-4	PC-67	FLUORIDE	2	0.19	2 U	UJ	p	MG/L
2Q2010	1005020	1005020-4	PC-67	SODIUM	50000	330	2300000	J	p	UG/L
2Q2010	1005020	1005020-4	PC-67	SULFATE	500	20	3000	J	p	MG/L
2Q2010	1005020	1005020-6	PC-28	BICARBONATE AS CACO3	10		98	J	p	MG/L
2Q2010	1005020	1005020-6	PC-28	CALCIUM	2500	60	660000	J	p	UG/L
2Q2010	1005020	1005020-6	PC-28	CARBONATE AS CACO3	10		10 U	UJ	p	MG/L
2Q2010	1005020	1005020-6	PC-28	CHLORIDE	40	4.6	1100	J	p	MG/L
2Q2010	1005020	1005020-6	PC-28	FLUORIDE	1	0.096	1 U	UJ	p	MG/L
2Q2010	1005020	1005020-6	PC-28	MAGNESIUM	5000	65	220000	J	p	UG/L
2Q2010	1005020	1005020-6	PC-28	NITRATE AS N	2	0.1	36	J	p	MG/L
2Q2010	1005020	1005020-6	PC-28	PERCHLORATE	8		44	J	p	MG/L
2Q2010	1005020	1005020-6	PC-28	POTASSIUM	5000	540	9000	J	p	UG/L
2Q2010	1005020	1005020-6	PC-28	SODIUM	5000	33	890000	J	p	UG/L
2Q2010	1005020	1005020-6	PC-28	SULFATE	200	7.9	2200	J	p	MG/L
2Q2010	1005020	1005020-6	PC-28	TOTAL DISSOLVED SOLIDS	200		6800	J	p	MG/L

TABLE 15
QUALIFICATION BASED ON EITHER UNACCEPTABLE CAB OR TDS BALANCE
2010 1ST SEMESTER DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Event	SDG	Lab ID	Client ID	Analyte	PQL	SQL	Results [1]	Qualifier	Comment	Unit
2Q2010	1005093	1005093-1	TMPZ-107	POTASSIUM	5000	540	38000	J+	e, j, p	UG/L
2Q2010	1005093	1005093-1	TMPZ-107	BICARBONATE AS CACO3	20		200	J	p	MG/L
2Q2010	1005093	1005093-1	TMPZ-107	CALCIUM	2500	60	810000	J	p	UG/L
2Q2010	1005093	1005093-1	TMPZ-107	CARBONATE AS CACO3	20		20 U	UJ	p	MG/L
2Q2010	1005093	1005093-1	TMPZ-107	CHLORIDE	100	12	7100	J	p	MG/L
2Q2010	1005093	1005093-1	TMPZ-107	FLUORIDE	2	0.19	2.1	J	p	MG/L
2Q2010	1005093	1005093-1	TMPZ-107	MAGNESIUM	5000	65	590000	J	p	UG/L
2Q2010	1005093	1005093-1	TMPZ-107	NITRATE AS N	4	0.2	80	J	p	MG/L
2Q2010	1005093	1005093-1	TMPZ-107	PERCHLORATE	0.4		2.9	J	p	MG/L
2Q2010	1005093	1005093-1	TMPZ-107	SULFATE	500	20	2500	J	p	MG/L
2Q2010	1004274	1004274-1	CLD1-R	BICARBONATE AS CACO3	20	20	230	J	p	MG/L
2Q2010	1004274	1004274-1	CLD1-R	CARBONATE AS CACO3	20	20	10	UJ	p	MG/L
2Q2010	1004274	1004274-1	CLD1-R	CHLORIDE	100	2.3	1200	J	p	MG/L
2Q2010	1004274	1004274-1	CLD1-R	FLUORIDE	2	0.096	3.7	J	p	MG/L
2Q2010	1004274	1004274-1	CLD1-R	NITRATE AS N	4	0.1	10	J	p	MG/L
2Q2010	1004274	1004274-1	CLD1-R	PERCHLORATE	0.4	0.4	7.5	J	p	MG/L
2Q2010	1004274	1004274-1	CLD1-R	SULFATE	500	4	1300	J	p	MG/L
2Q2010	1004274	1004274-1	CLD1-R	CALCIUM	2500	12	160000	J	p	UG/L
2Q2010	1004274	1004274-1	CLD1-R	MAGNESIUM	5000	13	95000	J	p	UG/L
2Q2010	1004274	1004274-1	CLD1-R	POTASSIUM	5000	110	20000	J	p	UG/L
2Q2010	1004274	1004274-1	CLD1-R	SODIUM	5000	66	1000000	J	p	UG/L
2Q2010	1004252	1004252-4	TMMW-103	BICARBONATE AS CACO3	20	20	110	J	p	MG/L
2Q2010	1004252	1004252-4	TMMW-103	CARBONATE AS CACO3	20	20	10	UJ	p	MG/L
2Q2010	1004252	1004252-4	TMMW-103	CHLORIDE	100	0.46	250	J	p	MG/L
2Q2010	1004252	1004252-4	TMMW-103	FLUORIDE	2	0.019	0.95	J	p	MG/L
2Q2010	1004252	1004252-4	TMMW-103	NITRATE AS N	4	0.02	7.4	J	p	MG/L
2Q2010	1004252	1004252-4	TMMW-103	PERCHLORATE	0.4	0.4	0.69	J	p	MG/L
2Q2010	1004252	1004252-4	TMMW-103	SULFATE	500	0.79	1100	J	p	MG/L

TABLE 15
QUALIFICATION BASED ON EITHER UNACCEPTABLE CAB OR TDS BALANCE
2010 1ST SEMESTER DATA VALIDATION SUMMARY REPORT
Titanium Metals Corporation, Henderson, Nevada

Event	SDG	Lab ID	Client ID	Analyte	PQL	SQL	Results [1]	Qualifier	Comment	Unit
2Q2010	1004252	1004252-4	TMMW-103	CALCIUM	2500	12	160000	J	p	UG/L
2Q2010	1004252	1004252-4	TMMW-103	MAGNESIUM	5000	13	89000	J	p	UG/L
2Q2010	1004252	1004252-4	TMMW-103	POTASSIUM	5000	110	14000	J	p	UG/L
2Q2010	1004252	1004252-4	TMMW-103	SODIUM	5000	66	310000	J	p	UG/L

Notes:

+ / -	Result may be biased high/low, respectively
UG/L	Microgram per liter
CAB	Cation-anion balance
PQL	Practical quantitation limit
SDG	Sample delivery group
TDS	Total dissolved solids

Qualifiers/Comments:

e	Comment code for spike sample recovery
j	Comment code for other stable chemistry issues
J	Estimated value
p	Comment code for either TDS or CAB unacceptable
U	Undetected
UJ	Undetected at an estimated quantitation limit

1 Result field includes the numerical concentration and the laboratory qualifier or code.

APPENDIX C

CONCENTRATION TREND GRAPHS

FIGURE C-37: TOTAL URANIUM (high range) CONCENTRATION TREND GRAPH

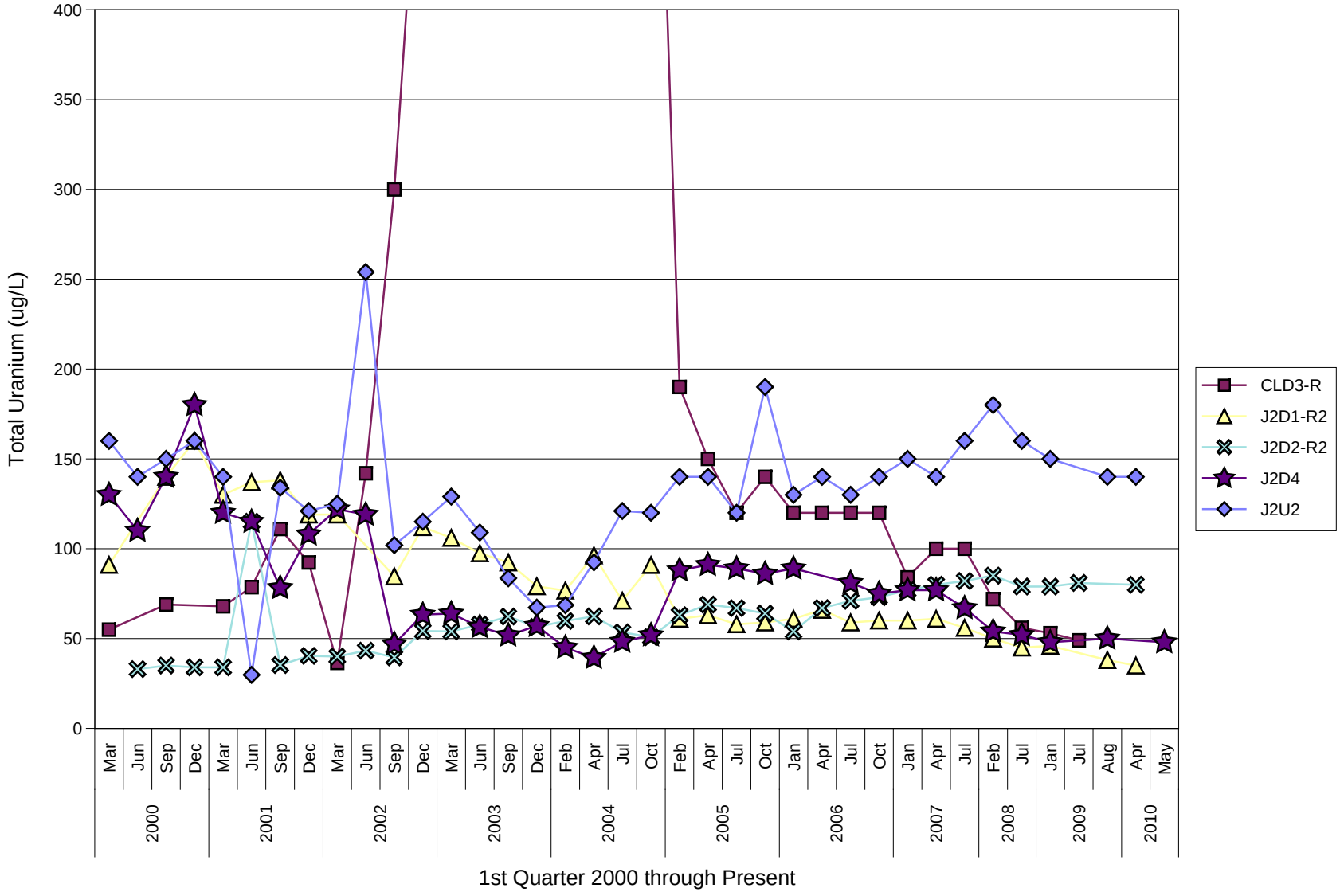


FIGURE C-47: TOTAL DISSOLVED SOLIDS (low range) CONCENTRATION TREND GRAPH

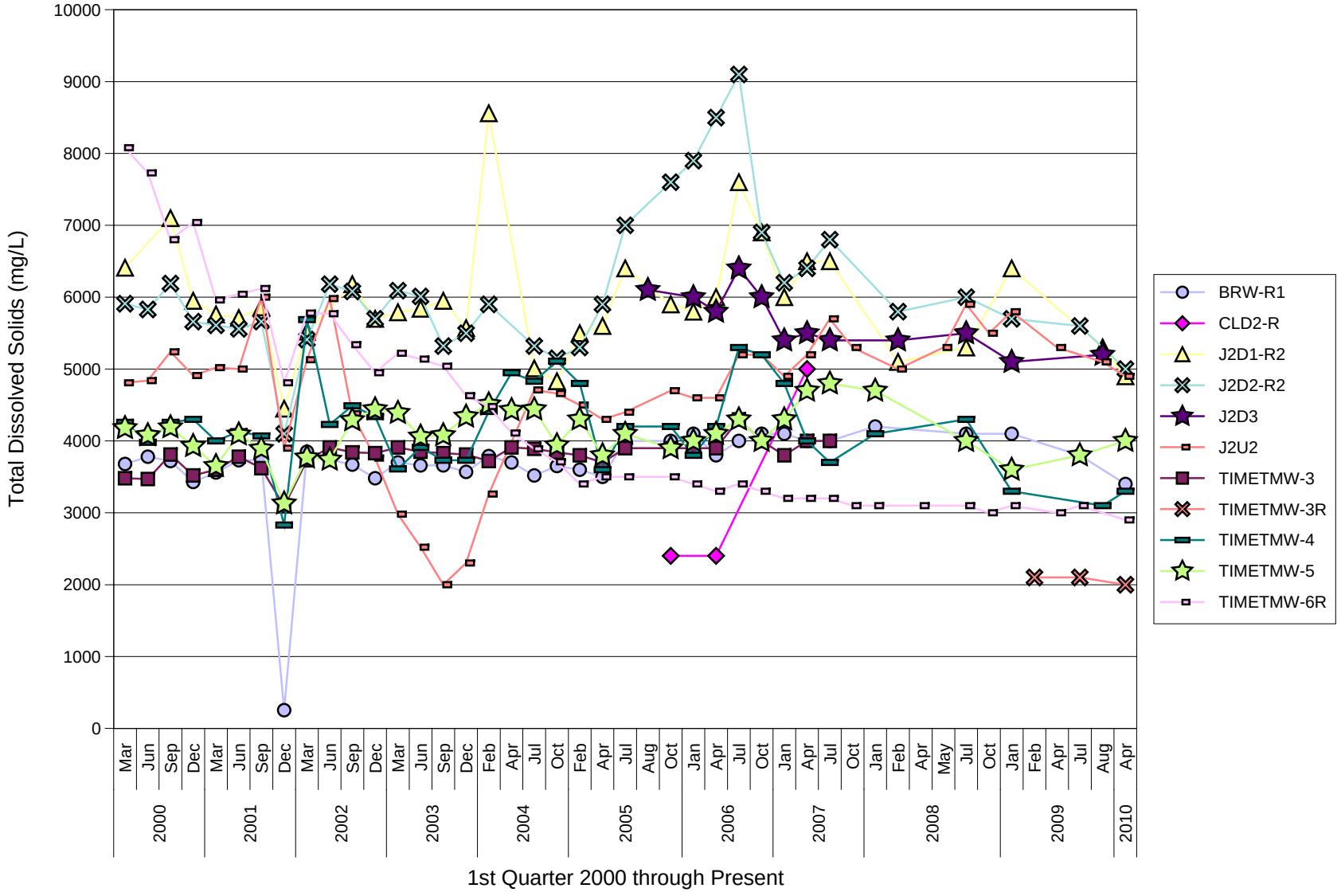
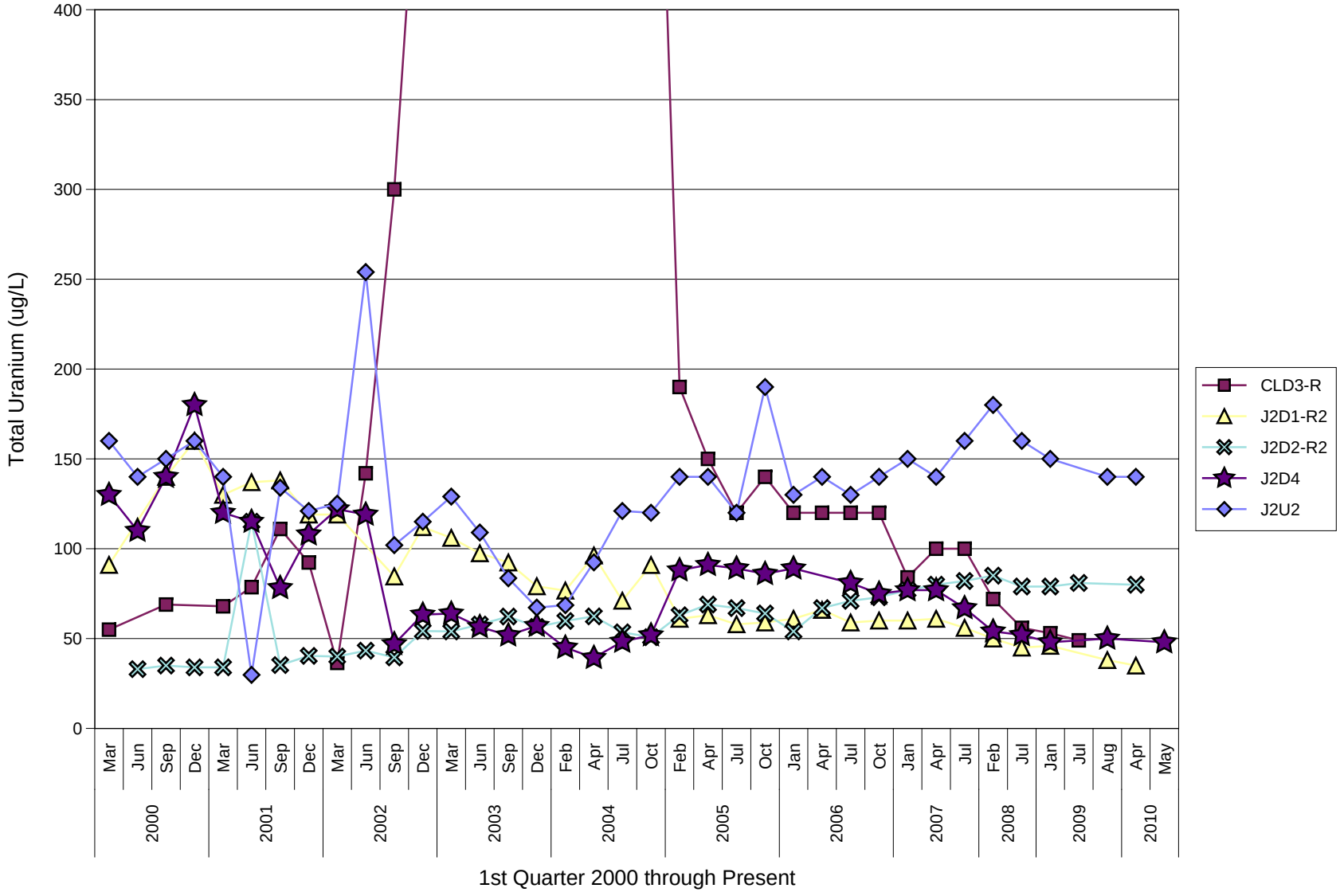
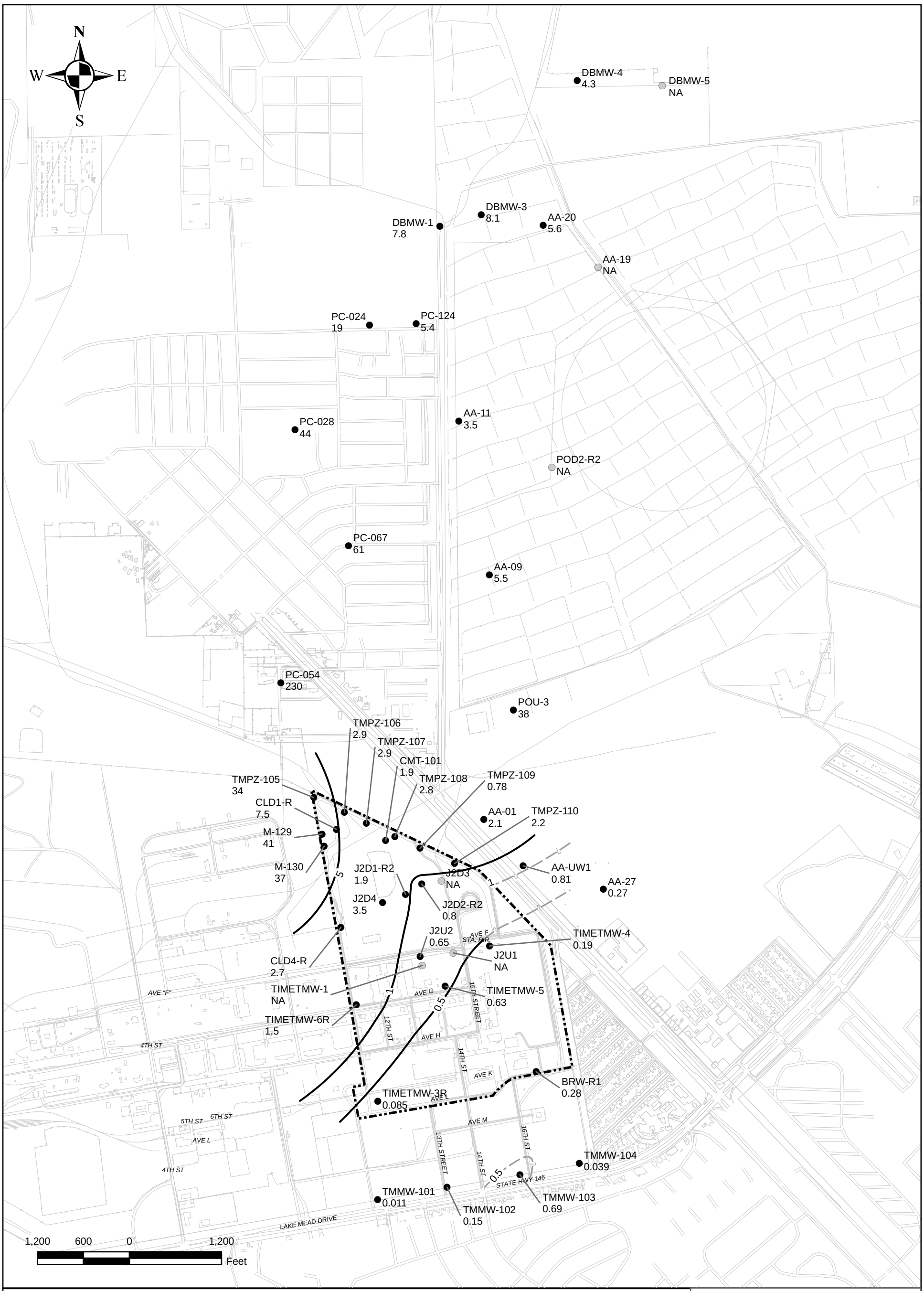


FIGURE C-53: TOTAL URANIUM (high range) CONCENTRATION TREND GRAPH



APPENDIX D

ISOCONCENTRATION MAPS



BRW-R1 0.28 ● MONITORING WELL WITH PERCHLORATE CONCENTRATION (mg/L)

J2U1 NA ○ WELL NOT ANALYZED

100 PERCHLORATE CONTOUR (µg/L)

APPROXIMATE CONTOUR LOCATION

TIMET PROPERTY BOUNDARY

mg/L MILLIGRAM PER LITER

Note:
The screening level used for perchlorate is the residential water NDEP Basic Comparison Level (BCL). The NDEP BCL for perchlorate is 0.018 mg/L.

Semiannual Groundwater Monitoring Report
1st Semester 2010
Titanium Metals Corporation
Henderson, Nevada

FIGURE D-6
PERCHLORATE
ISOCONCENTRATION MAP
1ST SEMESTER 2010

TIMET

2010-08-14 C:\TIMET\1stSEM2010\mxd\TIMET_sitePERCHLORATE.mxd michelle.handley

BRW-R1 3.4 — MONITORING WELL WITH TOTAL TRIHALOMETHANES CONCENTRATION (µg/L)

J2U1 NA — WELL NOT ANALYZED

100 — TOTAL TRIHALOMETHANES CONTOUR (µg/L)

APPROXIMATE CONTOUR LOCATION

TIMET PROPERTY BOUNDARY

µg/L MICROGRAM PER LITER

Note:
The screening level used for total trihalomethanes is the EPA National Drinking Water Standard Maximum Contaminant Level (MCL).
The MCL for total trihalomethanes is 80 µg/L.

Semiannual Groundwater Monitoring Report
1st Semester 2010
Titanium Metals Corporation
Henderson, Nevada

FIGURE D-11
TOTAL TRIHALOMETHANES ISOCONCENTRATION MAP
1ST SEMESTER 2010

TIMET

2010-08-14 C:\TIMET\1stSEM2010\mxd\TIMET_siteTHM.mxd michelle.handley