SECTION 319 NONPOINT SOURCE POLLUTION CONTROL PROGRAM

INVESTIGATIONS AND ABATEMENT OF PRODUCED WATER IMPACTS AND SEEPS TO SURFACE WATER

Upstream of Spence Reservoir (Segment 1411)
Howard and Mitchell Counties, Texas

FINAL REPORT
September 2008

PREPARED BY THE:
RAILROAD COMMISSION OF TEXAS

IN COOPERATION WITH:
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CONTRACT NO. 582-5-70825

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1.0 Introduction

The Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality (TCEQ) awarded a nonpoint source grant to the Railroad Commission of Texas (RRC) for the investigation of the nature and extent of known salinity contamination thought to be contributing to water quality problems in E. V. Spence Reservoir, the development of remediation/abatement alternatives or Best Management Practices (BMPs), and the implementation of the BMPs. The TCEQ has placed Segment 1411 of the Upper Colorado River, E.V. Spence Reservoir, on the State's 303(d) list because it does not meet water quality standards. The project encompasses areas in both Howard and Mitchell Counties commonly referred to as the West O'Daniel Seep, O'Ryan Seep, Pharaoh Seep, and Dugout Creek Alluvium, which all flow into Beals Creek, into the Upper Colorado River, and then into Spence Reservoir (Segment 1411 of the Colorado River Basin). The Hydrologic Unit Code for this study area is 12080007.

Salinity in the Upper Colorado River Basin has been identified as a major water quality problem; and occurrences of poor-quality water in Segment 1411, due to elevated salinity levels, have been documented. Several saltwater seeps that discharge water into intermittent streams and drainage ways flowing into Beals Creek, a tributary of the Colorado River, are found along the unconformable contact of an Ogallala Aquifer Outlier of Tertiary age and the Triassic Dockum Group (Ogallala/Dockum Contact). Possible sources of the saltwater seeps include activity associated with oil and gas operations, such as inadequately completed oil and gas wells, abandoned, unplugged oil and gas wells, wells that are improperly or inadequately plugged with respect to current plugging regulations, saltwater injection and/or disposal wells that have mechanically failed or pressurized the oil reservoir so that salt water can migrate up via natural and anthropogenic conduits, failed gathering and transporting pipelines, historical evaporation pit locations, and abandoned surface facilities. The RRC has conducted several investigations of seeps along the Ogallala Outlier/Dockum contact within two major oil fields, the Snyder Oil Field and the Iatan, East Howard Oil Field. Investigations have been conducted on the O'Daniel Seep, the West O'Daniel Seep, the Click Seep and the Rankin Seep within the Snyder Oil Field and the Pharaoh and O'Ryan Seeps in the Iatan, East Howard Field. Based on the results of these investigations, analytical data provided by the Colorado River Municipal Water District (CRMWD), and data from an airborne geophysical survey performed by the Bureau of Economic Geology (BEG) for the TCEQ, the RRC has determined that oil field operations have contaminated the Ogallala Aquifer in this area causing chloride and total dissolved solids (TDS) in groundwater to be elevated as compared to background levels.

A mutual objective of the RRC and the TCEQ is to locate and eliminate salinity sources and to reduce the high salinity that contributes to water quality degradation in the Colorado River Basin.

The RRC has conducted various activities to achieve the goal of reduced nonpoint source pollutant loading into the Upper Colorado River including the implementation of abatement/remediation projects through the following means:

1) The installation of soil borings and monitoring wells up gradient of known saltwater seeps and in alluvial deposits along the drainage downstream of known seeps.
2) The sampling of existing monitoring wells installed during previous investigations, monitoring wells installed for the present investigations, domestic water wells, and surface water from the seep drainage, and Beals Creek.
3) The performance of a non-invasive geophysical survey on selected areas suspected of high salinity in groundwater.
4) The choice of BMPs based on the feasibility and cost of alternatives.
5) Implementation of the BMPs in order to reduce the TDS loading into the Colorado River.

The objective of the project was to identify and investigate the source(s), nature, and extent of elevated salinity in the Upper Basin Watershed of the Colorado River so that the most effective BMPs could be identified and evaluated, specifically in the project areas of the West O'Daniel Seep and the Dugout Creek Alluvium (including the O'Ryan Seep and Pharaoh Seep which flow into Dugout Creek). This process required an inventory of the current and former land uses within the study areas, ongoing sampling of the known seeps, the installation and sampling of soil borings, the installation and ongoing sampling of groundwater monitoring wells, and the ongoing sampling of surface water and alluvial water in the intermittent creeks within the drainage pattern. Initially samples were analyzed for chlorides, TDS, and sulfate. Subsequent analyzes included cations (sodium, calcium, magnesium, potassium, iron, and barium) and anions (chloride, sulfate, nitrate, and bromide), TDS, benzene, toluene, ethylbenzene, and xylene (BTEX) and total petroleum hydrocarbons (TPH). Because BTEX and TPH can also be found in produced water, periodic screening analyses for these chemicals were scheduled throughout the investigation and will be included in future analytical monitoring.

2.0 West O'Daniel Seep

2.1 Source Investigation Phase of the Project

The West O'Daniel Seep site is located west of FM 821, approximately five and a half miles southeast of Coahoma, in the Snyder Oil Field, Block 30 of the T & P RR Company Survey in Howard County, Texas, and is one of several saltwater seeps found along the contact of an Ogallala Outlier and the Dockum Group that discharge their water into intermittent streams and drainage ways flowing into Beals Creek, a tributary of the Colorado River. The confluence of Beals Creek and the Colorado River is located upstream of the E. V. Spence Reservoir.

The RRC contracted with TRC Companies, Inc. (TRC), to investigate the West O'Daniel Seep. A description of the investigation of the West O'Daniel Seep by TRC is included in Attachment A: *Final Comprehensive Report West O'Daniel Seep, Snyder Oil Field Upper Colorado River Segment 1411 Howard County, Texas.*

The TRC report describes the probable groundwater connection between the East O'Daniel Seep source and the West O'Daniel Seep. The report suggests that the declining levels of benzene in monitor wells, installed by the BEG and TRC, are the result of the plugging of some wells including the 2WIW, which was re-entered and re-plugged in August 2004. During re-entry, the well was found to be flowing saltwater suggesting that it had not been adequately plugged in the past. However, after three years the effectiveness of the 2WIW plugging remains unclear because the groundwater is still saline. Given the groundwater gradient and existing salt content in groundwater, it may take many years for the groundwater system to flush itself of saltwater and the groundwater will continue to contribute to the salt load in Beals Creek and the Colorado River from seepage along the Ogallala/Dockum contact.

TRC conducted a BMP alternative feasibility study based on information from the investigation. The choice and subsequent implementation of the BMP for the West O'Daniel Seep are described in section 2.2 of this report.

2.2 BMP Selection, Implementation, and Effectiveness

Based on the alternative feasibility study submitted by TRC, the RRC determined that a recovery trench system would be the most effective salt load diminishing BMP for the West O'Daniel Seep (Figure 1). A 300-foot recovery trench was constructed into and across the alluvium at the location of the seep according to specifications designed by TRC. During installation, the trench was dug to a depth that penetrates the Ogallala Aquifer and extends approximately one foot into the Dockum below the Ogallala/Dockum contact. Figure 2 denotes a cross-section view of the recovery trench. The trench was backfilled with highly permeable fill material into which groundwater flows preferentially and is captured by a pump. The capture zone of the recovery trench is approximately the cross sectional area of saturated sediment that it intersects. Discharged contaminated groundwater is stored in a tank battery consisting of two 500-barrel fiberglass storage tanks. Contaminated water is periodically taken to a nearby commercial saltwater disposal well and disposed by injection into a deep formation that is not productive of oil or gas.

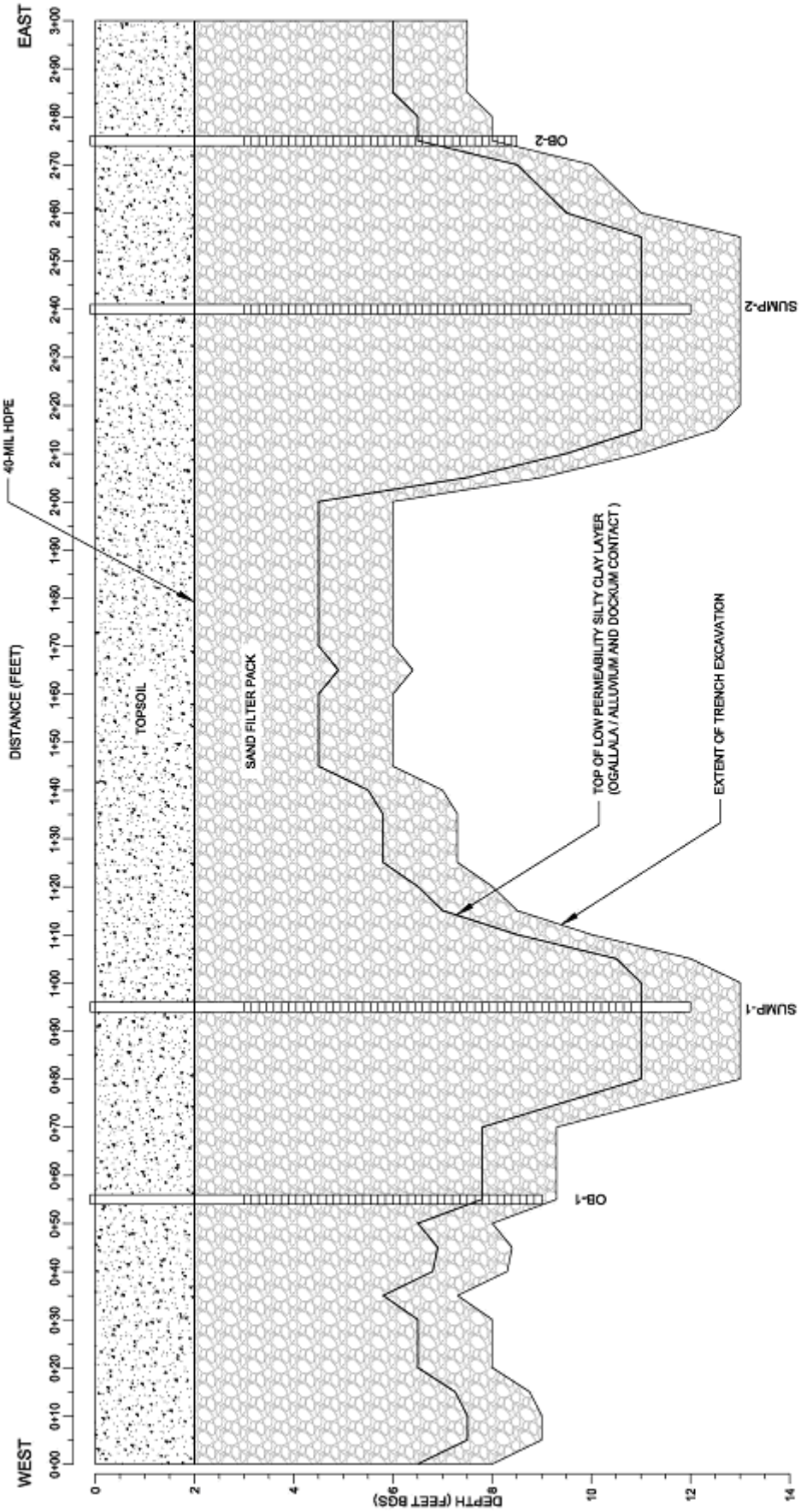
The RRC estimates that a total annual load of 114,975 pounds of chloride (315 pounds per day) and of 223,563 pounds of TDS (434 pounds per day) will be recovered from groundwater by the recovery trench. This estimate is based on a groundwater recovery rate of 50 barrels per day, while the trench system is operating at maximum efficiency, and average chloride and TDS levels of 18,000 mg/L and 35,000 mg/L, respectively. The RRC continues to conduct regular monitoring and evaluation of the system's effectiveness. Based on these results, the interceptor trench will help achieve the total maximum daily load requirements for Segment 1411 of the Upper Colorado River.

Cost of design and construction of the recovery trench system totaled $604,436. This amount is exclusive of subsequent costs for operations and maintenance, saltwater hauling, and monitoring for effectiveness.

A description of the recovery trench system location, construction, and operation (including volume and analytical data) at the West O'Daniel Seep by TRC is found in Attachment A: *Final Comprehensive Report West O'Daniel Seep, Snyder Oil Field Upper Colorado River Segment 1411 Howard County, Texas.* Laboratory reports for this project may be found on the RRC website.
(http://www.rrc.state.tx.us/divisions/og/site_rem/nps/)

Figure 1 Installation of the Receptor Trench

Figure 2 Cross-sectional View of the Recovery Trench



3.0 Dugout Creek (and O'Ryan and Pharaoh Seeps)

3.1 Source Investigation Phase of the Project

The O'Ryan Seep and Pharaoh Seep sites are located at the heads of unnamed tributaries of Dugout Creek approximately three and a half miles southeast of Coahoma, in the Iatan, East Howard Oil Field, Block 30 of the T & P RR Company Survey in Howard County, Texas, and are two of several saltwater seeps that discharge their water east into the intermittent Dugout Creek, which flows into Beals Creek as it crosses into Mitchell County (Figure 3). Beals Creek, in turn, flows into the Colorado River, and the confluence of the two is located upstream of the E. V. Spence Reservoir. The O'Ryan and Pharaoh seeps are also located along the contact of the Ogallala Outlier and the Dockum Group. Dugout Creek is fed from the west by surface drainage and seeps along the base of the Ogallala where it lies unconformably on the Dockum. The O'Ryan and Pharaoh seeps are included in this drainage from the west. Dugout Creek heads to the north of the Iatan, East Howard Field and flows through the field before joining Beals Creek. Drainage from the east of the creek also contributes to the flow of Dugout Creek.

The RRC contracted with Intera Incorporated (Intera) to investigate the O'Ryan and Pharaoh seeps and the Dugout Creek Alluvium. A description of the investigations of the O'Ryan and Pharaoh Seeps and Dugout Creek by Intera is included in Attachment B: *Comprehensive Summary Report for the Dugout Creek Area (Including O'Ryan Seep, Pharaoh Seep, and Dugout Creek), Howard and Mitchell Counties, Texas.* Laboratory reports for this project may be found on the RRC website. (http://www.rrc.state.tx.us/divisions/og/site_rem/nps/)

During the investigation phase of the project, Intera conducted a soil gas vapor survey in the Pharaoh Seep area to determine the possibility of pipeline or storage tank releases of hydrocarbons. The results revealed that hydrocarbons do not appear to be releasing into the soil.

Intera completed the field investigation of the O'Ryan and Pharaoh Seeps and Dugout Creek. A non-invasive geophysical survey was conducted initially to assist Intera in locating optimal locations for the installment of monitor wells. The geophysical survey was used primarily along the Dugout Creek alluvium and the drainage paths from the O'Ryan Seep and Pharaoh Seep, particularly at the confluences of the two drainage tributaries and Dugout Creek. Nine monitor wells were installed along the alluvial deposits of Dugout Creek, a distance of two or three miles along the creek, which drains into Beals Creek in Mitchell County. The investigation determined that O'Ryan Seep and Pharaoh Seep are both contributing high saline concentrations in the alluvial flow of the drainage from the two seeps to the confluences with Dugout Creek.

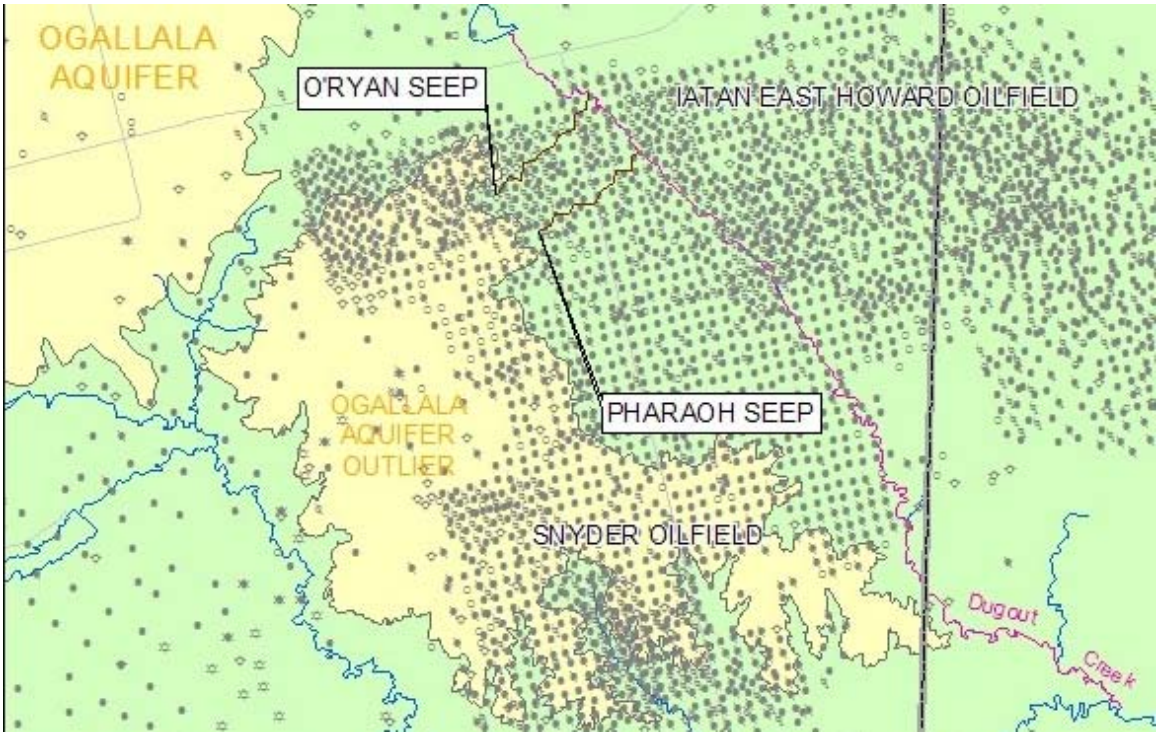
The final field activity for the investigation phase of the Dugout Creek, O'Ryan Seep, and Pharaoh Seep projects consisted of a synoptic site-wide groundwater and surface water sampling event as a guide to BMP evaluation and selection. The results of the investigation are described in a final report entitled *Site-wide Groundwater and Surface Water Monitoring Report for Dugout Creek (Including O'Ryan Seep, Pharaoh Seep, and Dugout Creek) Howard and Mitchell Counties, Texas.* The final site-wide sampling report may be found on the RRC website. (http://www.rrc.state.tx.us/divisions/og/site_rem/nps/)

3.2 BMP Selection, Implementation, and Effectiveness

During the completion of the investigation activities of the project, Intera submitted a BMP feasibility study with a later addendum. The study determined that the most effective BMPs for the reduction of salinity entering the Colorado River would be recovery trenches at the confluences of the O'Ryan and Pharaoh seeps with Dugout Creek and/or a sump collection system at the seeps. The BMPs will be implemented in future projects. The preferred choices for maximum capture of the saltwater from the Pharaoh and O'Ryan seeps and from other seepage along the Ogallala/Dockum Contact appear to be the recovery trenches at the confluences of the two seeps and Dugout Creek. The trenches at the confluences would capture runoff from salt-contaminated soil within the drainage pattern of the seeps. Trenches on Dugout Creek were not considered since such constructions would tend to disrupt flow of fresh water into the creek at various stages of the nine mile flow into Beals Creek.

Grant funding was not adequate to cover the expenses of two recovery trench systems in addition to the trench system at the West O'Daniel Seep. Nor was the funding adequate to install a sump at each of the seeps that feed into Dugout Creek. Therefore, the design and implementation of BMPs for the O'Ryan and Pharaoh seeps and the Dugout Creek will be undertaken as soon as the funds are available.

Figure 3 The O'Ryan and Pharaoh Seeps and Dugout Creek



4.0 Budget Summary

Table 1 Budget Summary

Grant Period	2/14/2005 to 8/31/2008
EPA Grant Award	$949,803
EPA (60 %)	$569,882
RRC (40%)	$379,921
EPA Funds Spent	$569,882
RRC Funds Spent	$555,440
RRC Funds Spent Above 40% Match	$175,519
BMP Costs	$632,934
TOTAL GRANT COSTS	**$1,125,322**
Budget Revisions	In August 2008, TCEQ transferred $144,000 from the NPS Downstream of Spence Reservoir, Segment 1426, grant (contract number 582-570826) to the Upstream of Spence Reservoir, Segment 1411, grant (contract number 582-5-70825). The original EPA grant award of $881,638 for the NPS Downstream of Spence Reservoir, Segment 1426, decreased to $737,638 and the original EPA grant award for the NPS Upstream of Spence Reservoir, Segment 1411, increased from $805,803 to $949,803.

5.0 Ongoing Activities

5.1 West O'Daniel Seep

The recovery trench and tank battery system will continue operating and will be monitored for effectiveness during fiscal year 2009.

In continuing post-NPS grant developments, the RRC has embarked on a field-wide project to assist in determining and controlling reservoir pressures in the Snyder Field to minimize migration up unknown and possibly numerous conduits into the Ogallala Outlier Aquifer. The RRC plans to request the operators in the Snyder Field to search for the conduits, like old unplugged or inadequately plugged oil or gas wells, in order to remediate the problem of saline water migrating into the Ogallala Aquifer. If the sources cannot be found, it will be necessary to maintain the reservoir pressure so that the saline water cannot move through conduits upward above the Ogallala/Dockum Contact and into the freshwater aquifer. The trenches and sumps that are now operating within the field are abatement measures; and it will be necessary to maintain operations for, perhaps, several years even if the sources are found and corrected. The saline water within the Ogallala Aquifer will take several years to move through the aquifer and leave fresher water in place. With the trench at the West O'Daniel Seep and the sumps and trench at the East O'Daniel Seep, approximately 250,000 pounds of chloride are being removed each year.

5.2 Dugout Creek (O'Ryan Seep and Pharaoh Seep)

Future construction of the BMPs at Dugout Creek and Pharaoh and O'Ryan seeps will take place when funds are secured by the RRC. The BMPs will consist of recovery trenches near the confluences of the O'Ryan and Pharaoh seeps and Dugout Creek and/or collection of recovery sumps at the seeps. The RRC will continue to determine sources and steps for source eradication in fiscal year 2009. Based on the recovery of saline water from the West O'Daniel Seep, it is estimated that trenches at the confluences of the O'Ryan Seep and Pharaoh Seep with Dugout Creek would reduce the salt load into Beals Creek and the Colorado River by an estimated 200,000 pounds of chloride per year.

ATTACHMENTS

Attachment A

Final Comprehensive Report West O'Daniel Seep, Snyder Oil Field Upper Colorado River Segment 1411 Howard County, Texas

505 East Huntland Drive
Suite 250
Austin, TX 78752

512.329.6080 PHONE
512.329.8750 FAX

www.TRCsolutions.com

August 29, 2008

Mr. Bill Renfro
Railroad Commission of Texas
1701 North Congress Avenue
Austin, Texas 78701

Re: Final Comprehensive Report, Upper Colorado River Segment 1411 Upstream of E. V. Spence Reservoir, West O'Daniel Seep, Snyder Oil Field, Howard County, Texas

Dear Mr. Renfro:

The attached Final Comprehensive Report presents a summary of the activities completed during the Section 319 Non-Point Source (NPS) grant for investigation and remediation/abatement of oil-field related saltwater impacts in the Upper Colorado River drainage basin upstream of the E. V. Spence Reservoir (Texas Surface Water Segment 1411).

Please do not hesitate to contact me at 512-684-3137 regarding questions or comments.

Sincerely,

Arsin M. Sahba, P.G.
Senior Project Manager/Senior Geologist

cc: Heidi Bojes, RRC, Austin, Texas
Dan O'Donnell, RRC, Austin, Texas
Tim Prude, RRC District 8, Midland, Texas
Doug Slauson, P.E., TRC, Austin, Texas
Daniel Stine, E.I.T., TRC, Austin, Texas

Enclosure

Final Comprehensive Report

West O'Daniel Seep, Snyder Oil Field
Upper Colorado River Segment 1411
Howard County, Texas

Prepared for:

Railroad Commission of Texas
Oil and Gas Division
Site Remediation and Special Response

William B. Miertschin, Assistant Director

Prepared by:

TRC
505 East Huntland Drive, Suite 250
Austin, Texas 78752

Mark A. Robbins, Project Manager

August 2008

Final Comprehensive Report

West O'Daniel Seep, Snyder Oil Field
Upper Colorado River Segment 1411
Howard County, Texas

Prepared for:

Railroad Commission of Texas
Oil and Gas Division, Site Remediation and Special Response
1701 North Congress Avenue
Austin, Texas 78711
William B. Miertschin, Assistant Director

Prepared by:

TRC

505 East Huntland Drive, Suite 250
Austin, Texas 78752
Mark A. Robbins, Project Manager

STATE OF TEXAS
8/29/08
GEOLOGY
No. 4041
LICENSED
PROFESSIONAL GEOLOGIST

TRC Project No. 161641

Principal Lead _____ **Technical Lead** _____

August 2008

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1.0 INTRODUCTION

This Final Comprehensive Report presents a summary of the activities completed during the Section 319 Non-Point Source (NPS) grant for investigation and remediation/abatement of oil-field related saltwater impacts in the Upper Colorado River drainage basin upstream of the E. V. Spence Reservoir (Texas Surface Water Segment 1411).

The Railroad Commission of Texas (RRC), Oil and Gas Division, has documented the occurrence of several saltwater seeps in the Snyder Oil Field, Block 30, of Howard County, Texas. The saltwater seeps in the Snyder Oil Field, including the West O'Daniel Seep, emanate from the base of an outlier of the Ogallala Formation, which overlies the Dockum Group (Ogallala/Dockum Contact). The West O'Daniel Seep is located approximately 5.5 miles southeast of Coahoma in the eastern part of Howard County, Texas. The Ogallala Aquifer in this area has been impacted by past oil field operations causing sodium/chloride and total dissolved solids (TDS) (hereafter referred to as salinity/TDS) in groundwater to be elevated as compared to background levels. The impacted groundwater associated with this seep discharges into tributaries of Beals Creek, which ultimately empties into the Colorado River.

The Total Maximum Daily Load (TMDL) Section of the Texas Commission on Environmental Quality (TCEQ) placed Segment 1411 of the Upper Colorado River, E. V. Spence Reservoir, on the State's 303(d) list because it did not meet water quality standards for TDS and chloride. The RRC was awarded a Section 319 NPS grant by the United States Environmental Protection Agency (US EPA) through the TCEQ to determine if oil and gas operations are contributing to the elevated salinity in the reservoir. The objective of the grant was to assess and determine the source(s) leading to the elevated TDS and chloride in the Upper Colorado River drainage basin upstream of the E. V. Spence Reservoir (Segment 1411), develop best management practices (BMPs) to reduce the TDS and chloride, and implement the BMPs.

The following sections discuss the site investigation, feasibility study/BMP selection, BMP design, BMP implementation, and an evaluation of BMP effectiveness.

2.0 SITE INVESTIGATION

Site investigation activities in the area of the O'Daniel Seep (referred to as the East O'Daniel Seep) were initiated prior to the RRC receiving a Section 319 NPS grant. The University of Texas, Bureau of Economic Geology (BEG), conducted groundwater investigation activities in the East O'Daniel Seep area beginning in 1998. The results of the BEG investigation were reported in the *Investigation of the Snyder Field Site, Howard County, Texas* dated 1999. Under the auspices of a Section 319 NPS grant, an assessment of the Click Seep, adjacent to the West O'Daniel Seep, was performed. During the Click Seep assessment in February 2001 and August 2001, TRC installed monitoring wells S-MW-01 and S-MW-02 in the West O'Daniel Seep area. Groundwater samples were collected for laboratory analysis from well S-MW-01 in February 2001 and from well S-MW-02 in June 2001. The chloride concentrations were 21,432.6 milligrams per liter (mg/L) and 22,000 mg/L at wells S-MW-01 and S-MW-02, respectively. The results of the investigation were presented in the *Site Assessment Report, Click Seep, Howard County, Texas* dated August 2001. Well S-MW-02 was also sampled in August 2002 and had a chloride concentration of 28,300 mg/L. These data indicated an additional area of impact near the West O'Daniel Seep.

After receiving the current Section 319 NPS grant, TRC, on behalf of the RRC, conducted further site assessment activities in the West O'Daniel Seep area during April 2006. The objective of the April 2006 site investigation was to identify sources and delineate the extent of the salinity that is impacting Beals Creek and potentially to the Colorado River. A site map of the investigation area is provided as Figure 1

The field investigation consisted of surface water and groundwater investigation activities. The field investigation tasks were completed in accordance with the *Investigations and Abatement of Produced Water Impacts and Seeps to Surface Water in the Upper Colorado River Basin Upstream of Spence Reservoir (Segment 1411) Quality Assurance Project Plan* (QAPP) approved by the US EPA in November 2005.

2.1 Field Sampling

To determine appropriate locations for additional monitoring wells, water samples were collected and analyzed for chlorides using a field test kit on April 10, 2006. The chloride field test kit results from each location are presented in Figure 2. The samples and a description of their locations are summarized below.

- W-FS-S-1 was collected approximately 650 feet downstream of the original West O'Daniel Seep at the location of the first seep (S-S-1) observed downstream of the dry West O'Daniel Seep.

- W-FS-S-2 was collected approximately 1,100 feet downstream of seep S-S-1, where the surface flow terminated.
- W-FS-S-3 was collected from hand auger location (HA-2) where water was observed three feet below ground surface (bgs).
- W-FS-S-4 was collected from a minor tributary west of a stock tank located in the drainage basin.
- W-FS-ST-5 was collected from a stock tank located in the drainage basin.
- Two hand auger holes (HA-1 and HA-3) were completed further downstream but were dry.

2.2 Monitoring Well Installation

Five monitoring wells were installed in April 2006 to characterize lithology, collect groundwater samples, and measure depth to groundwater. The locations of the monitoring wells were selected based on the results of previous site investigations performed by the BEG and TRC, as well as the results from the field chloride sample locations discussed above. A summary of the monitoring well completion information (completion date, coordinates, ground elevation, top-of-casing elevation, screen interval, and total depth) is presented in Table 1. The locations of the monitoring wells installed during the April 2006 site investigation are summarized below.

- S-MW-03 was installed upgradient of the West O'Daniel Seep to evaluate potential source pathways along the western topographic drainage basin upstream of the West O'Daniel Seep.
- S-MW-04 was installed upgradient of the West O'Daniel Seep to evaluate potential source pathways along the eastern topographic drainage basin upstream of the West O'Daniel Seep.
- S-MW-05 was installed near the West O'Daniel Seep and former monitoring well S-MW-01.
- S-MW-06 was installed in the drainage basin downgradient of West O'Daniel Seep for delineation.
- S-MW-07 was installed in the drainage basin downgradient of West O'Daniel Seep and well S-MW-06 for delineation.

2.3 Groundwater and Surface Water Sampling

Groundwater level measurements were collected from monitoring wells and water wells using a water level meter on April 21, 2006. Table 2 presents the monitoring well information including ground elevation, top of well casing elevation, water level measurement (date of measurement, depth to water, and total depth), and calculated water elevation. These data were used to determine the groundwater flow direction and gradient. A groundwater potentiometric map for the June 2007 gauging event is presented as Figure 3. A comparison of the April 2006 and June 2007 groundwater potentiometric maps indicate that groundwater flow direction and gradient has remained consistent. The groundwater flow in June 2007 was to the south along the central axis of the West O'Daniel Seep drainage with a groundwater gradient of 0.019 feet per feet (ft/ft).

During April 2006, groundwater samples were collected for laboratory analysis from eight monitoring wells (S-MW-02 through S-MW-07, BEG-MW-06, BEG-MW-11), one water well (S-WW-53), and two sumps (E-S-55 and E-S-56). Wells BEG-MW-06 and BEG-MW-11 were installed by the BEG during investigation of the East O'Daniel Seep. Sumps E-S-55 and E-S-56 are part of the response action being implemented at the East O'Daniel Seep. The remaining sample locations are associated with the West O'Daniel Seep. Surface water samples (S-S-1 and S-S-2) were collected at two seep locations within the drainage basin downstream of the West O'Daniel Seep. The sample locations and analytical results for chloride are presented on Figure 2, and the analytical results are summarized in Table 3.

2.4 Site Investigation Conclusions and Recommendations

The April 2006 site investigation made progress towards identifying potential sources and delineating the extent of salinity impacts to Beals Creek and potentially to the Colorado River. A summary of the conclusions presented in the August 2006 *Site Investigation Report* are provided below.

- Groundwater occurs under unconfined conditions in the sand unit of the Ogallala Aquifer. Groundwater flows to the south along the drainage basin with a minor flow component to the east towards the East O'Daniel Seep.
- All of the sample locations had chloride concentrations above background conditions.
- Delineation of chloride concentrations to the background level was not achieved, but chloride concentrations were documented to decrease from

29,600 mg/L at well S-MW-04 to 7,540 mg/L at well S-MW-07, which is to the south (downgradient).

- The source area seems to be located near or upgradient of BEG-MW-06 based on these wells having the highest chloride concentrations and the presence of benzene. There was no benzene data available north (upgradient) of BEG-MW-06 to more precisely determine the potential source location.
- The decrease in benzene concentrations over time, especially at BEG-MW-06, may indicate that the source is no longer active. There has not been a corresponding decrease in the chloride concentration. This may be because chloride undergoes negligible, if any, attenuation and thus concentrations of chloride take a longer time to decrease even when the source area is eliminated.
- There seems to be a groundwater divide near BEG-MW-06, with groundwater flow from this location going east towards the East O'Daniel Seep and south towards the West O'Daniel Seep. The presence of benzene in the wells isolated to the drainage basin for the East O'Daniel Seep (e.g., sump E-S-55 and BEG-MW-15) and isolated to the drainage basin for the West O'Daniel Seep (e.g., S-MW-04) may indicate that the two seeps have a common source located generally to the north.

The results of the April 2006 investigation led to the recommendation to conduct a preliminary feasibility study of BMPs with consideration of the abatement measures already implemented for the East O'Daniel Seep.

3.0 PRELIMINARY FEASIBILITY STUDY / BMP SELECTION

The objective of the Preliminary Feasibility Study was to use the results of the previous site investigations to develop remedies (i.e., BMPs) to abate the high salinity/TDS water emanating from the West O'Daniel Seep, flowing into Beals Creek, and eventually into the Colorado River. The scope of the feasibility study was confined to the drainage basin associated with the West O'Daniel Seep. The drainage basin is shown in Figure 4.

The feasibility study considered alternatives for addressing the saline-impacted water including containment, recovery, in-situ treatment, ex-situ treatment, and disposal. The feasibility study evaluated the BMPs by determining the effectiveness, implementability, regulatory agency and stakeholder acceptance, and cost of these options to meet the objective. The feasibility study provided the following: (1) conceptual site model, (2) alternatives for salinity/TDS abatement, (3) design alternatives, and (4) recommended solution.

3.1 Conceptual Site Model

The conceptual site model was developed to define the physical setting in which the impacted water is present and migrates, and was critical to designing the most effective remedy. The model included a description of the geology/hydrogeology, chemicals of concern, potential sources of salinity/TDS, and pathways for migration of impacted water.

The groundwater flow pattern within the alluvial material located in the drainage channels associated with the West O'Daniel Seep generally follows topography and surface water flow. Specifically, drainage is to the south at a hydraulic gradient of 0.019 feet per foot. The alluvial material is thin and sits upon the Dockum Group, which is a clay aquitard.

The area of saline-impacted groundwater that appears to be impacting the West O'Daniel Seep, and therefore the subject of this study, lies within the West O'Daniel Drainage basin (Figure 4). Impacted water outside of this area is flowing either east to the East O'Daniel Seep area or west to the Click Seep area. The chloride-impacted groundwater flows through the Ogallala Aquifer outlier, discharges to the surface at seeps, re-infiltrates into the alluvial material, and then flows south towards Beals Creek.

Based on the information gathered from the 1999 BEG report, RRC records, TRC's field investigations, and several dye studies, it appears that the source of the salinity at the seeps is from pressurizing the reservoir such that the injected produced water is migrating upward via conduits.

3.2 Alternatives for Salinity/TDS Abatement

Technologies were reviewed for potential application to the West O'Daniel Seep. Many technologies were available for the ex-situ treatment of saline-impacted water. However, there were no industry standards for in-situ treatment of saline groundwater. Therefore, each treatment technology scenario reviewed involves collection and ex-situ disposal of the groundwater. The recovery and treatment/disposal options are listed in the following table:

Recovery Options	Recovery Wells	Moderate effectiveness but better suited for deeper groundwater applications
	Recovery Trench	Moderate to high effectiveness and best suited for shallow groundwater applications (i.e., West O'Daniel Seep)
	Halophytic Vegetation	Low effectiveness and difficult to implement (i.e., not appropriate for the West O'Daniel Seep)
Treatment and Disposal Options	Evaporation Ponds	Construction, land owner agreement, and operation and maintenance (O&M) complications
	Desalination	Very high cost
	Disposal Well	Variable cost depending on availability of commercial versus private wells
	Phytoremediation	Low effectiveness and difficult to implement

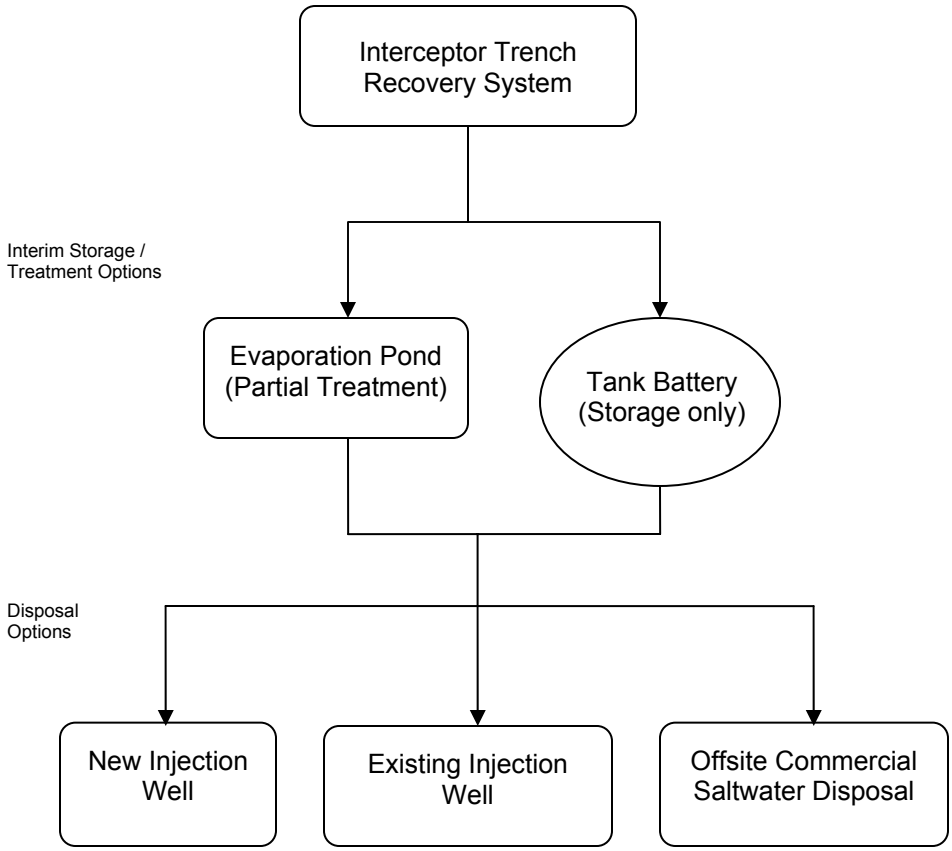
3.3 Design Alternatives

Based on the remedial objective, conceptual site model, and an evaluation of the technologies for groundwater recovery and management (storage, evaporation, and disposal) options, the basic recommended design is shown in the flow chart below.

The advantages of installing a tank battery are the simplicity of design and construction, and using a well-known, widely available, and non-intrusive technology. The disadvantage of this option is the entire volume of recovered water will need to be routed for disposal. Although an evaporation pond reduces the volume of water that needs to be disposed, the disadvantages include a large area of land necessary for effective evaporation, O&M, and sludge/sediment disposal.

Advantages for offsite commercial disposal are the simplicity of implementation, the low cost of saltwater disposal, lack of dependence on a local operator, and proximity to the commercial saltwater disposal facility. The disadvantage of constructing a new injection well is the high cost of capital expenditures. The disadvantage of using an existing injection well is that the operator can specify a maximum capacity that can be

received, which would make the recovery system operation dependant on the operator's injection system.



3.4 Preliminary Feasibility Study Recommendation

The following recommendations are the result of the preliminary feasibility study, which evaluated BMPs to abate salinity/TDS impacts into Beals Creek originating from the West O'Daniel Seep drainage basin.

- Interceptor Trench – Located in the area of highest chloride concentration.
- Interim Storage and Treatment – Achieved by a tank battery, evaporation pond, or combination of both, however an evaporation pond is contingent upon land owner approval.
- Disposal – Offsite commercial saltwater disposal facility provides the greatest flexibility and fewest complications.

After completion of the feasibility study, it was determined that additional information was required to determine groundwater remedy options (i.e., BMPs).

4.0 ENGINEERING DESIGN FIELD ACTIVITIES

Additional information was obtained from the West O'Daniel Seep area by completing soil borings, installing temporary monitoring wells, and performing aquifer tests. These activities were performed by TRC during June 2007. A summary of the engineering field design activities and results are presented below.

4.1 Soil Borings

Twelve soil borings (SB-01 to SB-12) were completed using a direct-push technology (DPT) drilling rig along the axis of the proposed trench location (i.e., BMP) to define the contact between the base of the Ogallala Aquifer or alluvium (i.e., groundwater-bearing unit) and the upper portion of the Dockum Group (i.e., aquitard), as well as to determine the lateral extent of saturation within the West O'Daniel drainage basin.

Four geotechnical samples were collected from soil borings SB-01, SB-02, SB-03, and SB-06. The samples were analyzed for grain size distribution, total porosity, and water-filled porosity. The results were used to aid in the engineering design (i.e., filter pack and screen slot size) of the proposed trench, chosen as the BMP for the West O'Daniel Seep from the completed feasibility study.

4.2 Temporary Monitoring Wells

Temporary monitoring wells were installed at each of the 12 soil borings to determine the saturated thickness of the alluvium and collect groundwater samples. Grab samples were collected from each well that produced water (SB-01 through SB-10) and were tested for chloride concentration using a field kit. The highest concentrations were located near the center of the drainage basin.

4.3 Aquifer Slug Tests

Slug tests were performed on temporary monitoring wells SB-01 and SB-02 and permanent monitoring wells S-MW-02, S-MW-04, and S-MW-06 during June 2007. Slug test data indicated an average hydraulic conductivity (K) of 9.53×10^{-4} centimeters per second (cm/s). Using the average hydraulic conductivity, the hydraulic gradient (i) calculated for June 2007 (0.019 ft/ft), and a default porosity (n) of 0.3, the groundwater flow rate (V) was calculated to be 62.4 feet per year (ft/year).

4.4 Groundwater Sampling

Eleven monitoring wells (S-MW-02 through S-MW-07, BEG-MW-05, BEG-MW-06, BEG-MW-07, BEG-MW-11, and BEG-MW-14), two water wells (W-WW-52 and W-WW-53), and two East O'Daniel Seep sumps (E-S-55 and E-S-56) were gauged

and/or sampled during June 2007. The groundwater analytical results are summarized in Table 3 and the chloride data are presented on Figure 2. The analytical results, including chloride concentrations, were consistent with historical data. Chloride concentration trends from April 2006 to June 2007 were as follows:

- Monitoring wells S-MW-02 and S-MW-07 increased slightly (approximately 3,000 mg/L and 1,000 mg/L, respectively).
- Monitoring wells S-MW-04, S-MW-05, and BEG-MW-06, water well S-WW-53, and seep S-S-1 had relatively stable concentrations.
- Monitoring wells S-MW-03 and BEG-MW-11 decreased slightly (approximately 1,000 mg/L and 4,000 mg/L, respectively).

The results of the June 2007 engineering design field work were used to aid the BMP design. BMP alternatives were to be evaluated on their ability to achieve the project goal (abatement of high salinity water), implementability, regulatory acceptance, and cost.

5.0 BMP DESIGN

The BMP design applied the recommendations of the feasibility study to conditions observed in the field. The BMP design was based on the April 2006 investigation data, June 2007 engineering field data, and NPS grant objectives.

5.1 Final Groundwater Recovery System Design

The design process began after completion of the engineering design field work. The engineering design of the West O'Daniel Seep recovery system was an iterative process that involved review and approval by the RRC. The design packages that included engineering cost estimates are listed below.

- 80-Percent Design and Specifications Document – June 29, 2007
- 95-Percent Design and Specifications Document – July 27, 2007
- 100-Percent Design and Specifications Document – August 10, 2007

The final BMP design is summarized in the following sections, which include: (1) trench specifications, (2) estimated loading, (3) pump specifications, and (4) tank battery specifications. Figure 5 depicts the basic groundwater recovery system layout that was constructed from March 26 to May 19, 2008.

5.2 Trench Specifications

The recovery trench was designed to intercept saline-impacted shallow groundwater, thus reducing the loading to downstream water bodies (i.e., Beals Creek and Colorado River). The location of the trench was designed to achieve the maximum combination of flow and concentration (i.e., loading). The trench was not designed to achieve 100-percent interception of groundwater flow within the drainage basin. In addition, the trench will not act as an impermeable boundary to groundwater flow; rather the trench will serve as a preferential interception zone from which groundwater may be removed. Therefore, the trench was placed within the portion of the drainage basin that had the greatest saturated thickness and the highest chloride concentrations based on soil borings/groundwater samples collected along the proposed trench axis.

The trench was installed within the saturated, higher permeability silty/clayey sand unit. The bottom of the trench followed the contact between the sand unit (Ogallala Aquifer) and underlying lower permeability silty clay unit (Dockum Group). The base of the trench has two depressions separated by a plateau in the center. A 12-inch diameter recovery sump was installed in the center of each depression.

5.3 Flow Rate

The design discharge rate of the trench was 1.5 gallons per minute (gpm). The flow rate was calculated from the groundwater velocity and saturated cross-sectional area of the trench. Based on static conditions, the flow rate into the trench would be 1.2 gpm. The system was designed for 1.5 gpm as a 25-percent contingency due to anticipated increases in hydraulic gradient during pumping.

5.4 Estimated Loading

A loading rate was estimated from the previously referenced flow rate and an estimated TDS concentration of 30,000 mg/L from monitoring well sampling. The estimated loading rate was calculated to be 540 pounds per day.

5.5 Pump Specifications

An above-ground double diaphragm pump was selected, as opposed to a submersible pump, because the groundwater is corrosive (high salinity) and the formation has a large amount of fines. Elevated chloride levels along with suspended fine-grained sediment will shorten the operating life of a submersible pump. A double diaphragm pump was the most effective pump examined when considering flow rate, suction lift, discharge head, corrosivity, and the presence of suspended sediments. The Wilden P1 one-inch double diaphragm pump fitted with Buna-N rubber components has high resistance to damage at a low operating and repair cost. The pump was sized for the calculated flow rates. The operating pressure of the pump requires a three horsepower air compressor with a 60 gallon pressure vessel. The groundwater is being removed through a one-inch Schedule 40 polyvinyl chloride (PVC) suction pipe placed in each sump. The pump is operated by floats placed in Sump-1.

5.6 Tank Battery Specifications

The tank battery consists of two 500-barrel fiberglass storage tanks. A flow rate of 1.5 gpm will yield approximately 51 barrels per day (bbl/day). The tank battery was designed to hold a 2.5 week capacity of recovered water assuming constant pumping at the design flow rate and no water removed for disposal. This 2.5 week volume is approximately 1,000 barrels.

6.0 BMP IMPLEMENTATION

The designed recovery system was constructed from March 2008 to May 2008, and is depicted in Figure 5. The recovery trench was installed per the engineering specifications. Once the trench was installed, it was developed to ensure maximum recovery during operation. The tank yard, including the tank battery and equipment shed, was installed per the engineering specifications, All of the scope of work variances were recorded and approved by the RRC. A detailed account of construction activities may be found in the *Construction Completion Report* dated July 2008. The system operation was initiated in May 2008.

7.0 BMP EVALUATION

The recovery trench system was selected as the BMP to reduce the salinity/TDS loading into Beals Creek and potentially to the Colorado River from the West O'Daniel Seep area. In order to ensure efficient system operation, regular monitoring of system parameters is being performed. Table 4 provides the list of system operational parameters that have been recorded since system start-up on May 19, 2008. These parameters include water elevations in the trench, pump and air compressor settings, pump flow rates, and storage tank volumes.

As of August 4, 2008, the average flow rate is 27.6 barrels per day (0.81 gpm), which is 54 percent lower than designed but not unexpected based on the thin zone of saturation and low to moderate permeability. The drawdown in the sumps ranges from seven to ten feet below top of casing (btoc), and the drawdown in the observation wells in the trench is six to nine feet btoc. As expected, the drawdown in the observation wells has been relatively stable since early June 2008, and the drawdown in the recovery sumps has fluctuated slightly between the "on" and "off" settings of the level float assembly. Current operational settings of the system are discussed in the *West O'Daniel Seep Recovery System Operation and Maintenance (O&M) Manual* dated July 2008. System parameters will continue to be examined throughout the life of the system in order to detect trends and maximize system performance.

The system will be periodically evaluated to determine the effectiveness of the BMP. Additional sampling events were conducted June 9 and 26, 2008, and August 4, 2008. The laboratory report and quality assurance review are included as Attachment 1 and Attachment 2, respectively. The effectiveness criteria is based on salinity loading removed from the West O'Daniel Seep area; the design criteria was 540 pounds per day. The salinity loading is calculated using flow rate and laboratory analytical data. Immediately after system start-up, samples were collected on May 21, 2008, from locations throughout the system (both sumps, both observation wells, and the pump effluent) and the three monitoring wells (S-MW-02, S-MW-04, S-MW-05) located closest to the trench. The samples were analyzed for anions, cations, alkalinity, TDS, conductivity, and pH. The analytical data are summarized in Table 3. Trend analyses for conductivity, TDS, chloride, sodium, and groundwater elevation are presented in Graphs 1 through 8. A brief discussion of the trends focusing on changes since the BMP implemention is provided below.

- Upgradient monitoring wells S-MW-02 and S-MW-04: Conductivity has been variable while TDS, chloride, and sodium concentrations remained relatively constant. The groundwater elevation dropped 2 to 3 feet since system start-up,

possibly due to pumping-induced drawdown and/or seasonally dry conditions during summer.

- Downgradient Monitoring Well S-MW-05: TDS, chloride and sodium concentrations have remained relatively constant through June 2008. Based on an estimated groundwater velocity of 62.4 feet/year and a distance of 150 feet from the trench to well S-MW-5, it is estimated that concentrations should decrease at well S-MW-05 within 2.5 years. The groundwater elevation dropped two to three feet since system start-up, possibly due to pumping-induced drawdown and/or seasonally dry conditions during summer. Well S-MW-05 did not have adequate volume present to collect analytical samples during the August 2008 sampling event and did not recharge even after the system was off for two days. This information may be indicative of successful recovery system operation that is prohibiting high salinity/TDS groundwater from migrating downgradient from the West O'Daniel Seep.

- Observation Well OB-1: Conductivity decreased while TDS, chloride, and sodium concentrations have remained constant. The groundwater levels have remained between 7 and 8 feet btoc, which indicates that the system is maintaining a constant drawdown.

- Observation Well OB-2: Conductivity, TDS, and chloride concentrations have increased while sodium concentrations have remained constant. The May 2008 sampling event is not representative of groundwater conditions in the trench and likely influenced by trench development activities. The groundwater levels have remained at nine feet btoc (bottom of casing), which indicates that the system is maintaining a constant drawdown. It appears that drawdown from SUMP-2 has kept water levels in that portion of the trench at or below 9 feet btoc, which prohibits water from entering OB-2.

- Recovery Sumps SUMP-1 and SUMP-2: Conductivity has fluctuated between 50,900 micromhos per centimeter (umhos/cm) and 79,500 umhos/cm since system start-up. TDS, chloride, and sodium concentrations have remained relatively constant. The groundwater levels have remained between seven and ten feet btoc, which indicates that the system is maintaining a constant drawdown between the "on" and "off" positions of the float.

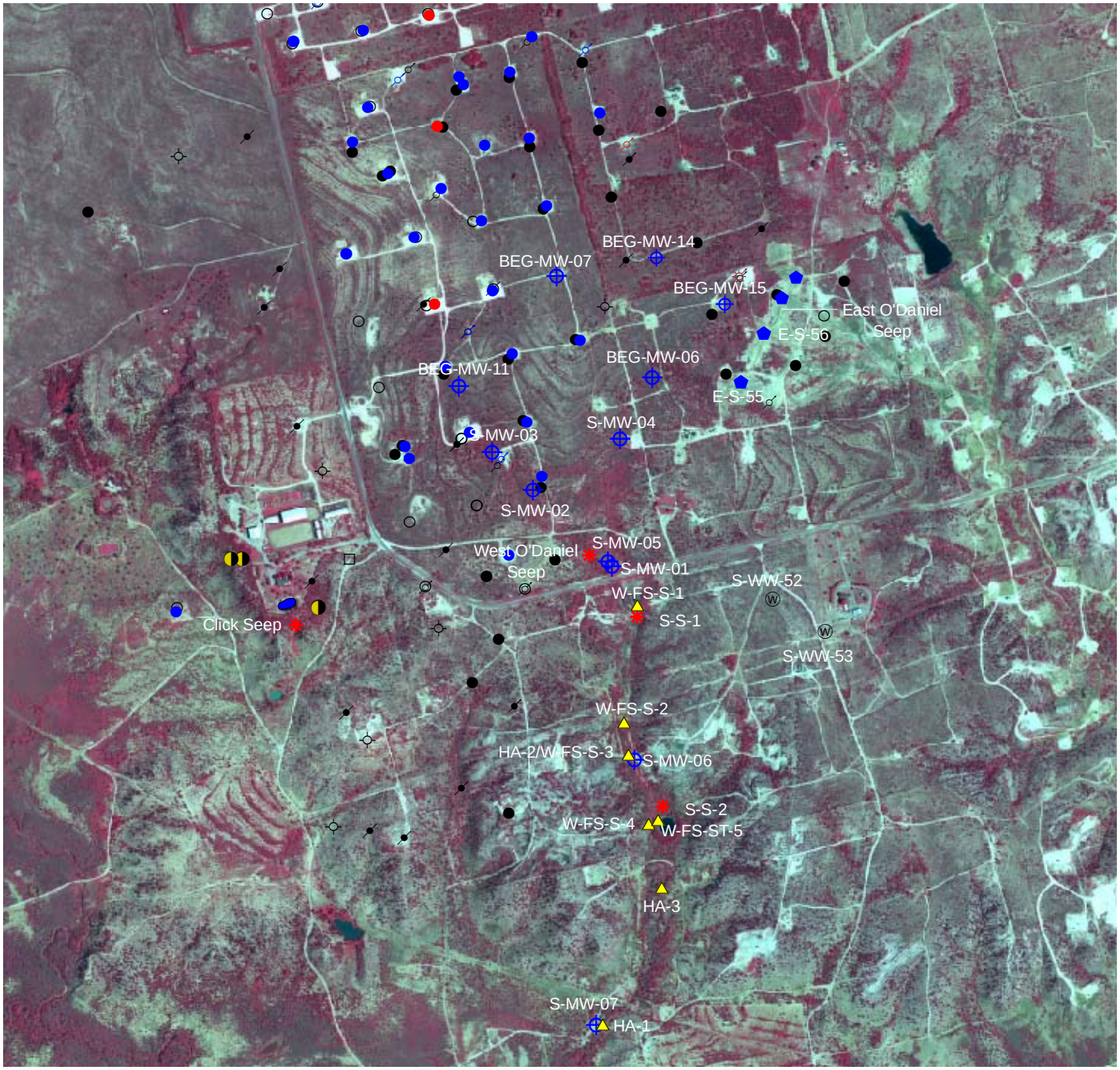
- Pump Effluent: All constituents have remained relatively constant. There have been no major changes in groundwater composition recovered from the trench.

The analytical data from May 21, June 9, June 26, and August 4, 2008, were used to calculate the total mass removed for chlorides and TDS; the calculations are provided in Table 5 and Table 6, respectively. The concentration of the pump effluent was used to determine loading as this location is considered the most representative value of the system recovery. A total of 17,309 pounds (lbs) of chloride and 33,399 lbs of TDS have been removed by the system from May 19 to August 4, 2008. This equates to removal rates of 225 lbs/day for chloride and 434 lbs/day for TDS. The estimated TDS recovery rate referenced in the 95-percent design document cover letter was 540 lbs/day. The daily loading rates calculated from the first three sampling events, shown in Table 5 and Table 6, were above 540 lbs/day. The most recent sampling event had a loading rate of 311 lbs/day; this lower loading rate is largely due to recent operational issues encountered with the system resulting in lower pumping rates. Corrective actions are being taken to resolve these issues and loading rates are expected to return to previous levels. The cumulative pump effluent loading rate for TDS and chloride are presented in Graph 9. The flow rate depicted in this graph is calculated by the change in volume of the storage tanks divided by the time between measurements of storage tank volume. As a result, the calculated flow rate includes the time that the pump is off; which causes the flow rate to be biased low when compared to actual flow rates observed during operation.

8.0 CONCLUSION

As a result of the Section 319 NPS grant for investigation and remediation/abatement of saltwater impacts in the Upper Colorado River drainage basin upstream of the E. V. Spence Reservoir, the RRC has successfully implemented a BMP to reduce salinity/TDS impacts at the West O'Daniel Seep. From May 19 to August 4, 2008, a total of 17,309 lbs of chloride and 33,399 lbs of TDS have been recovered from groundwater. Continued system operation will ensure the future abatement of saltwater impacts in the area. Regular monitoring and evaluation of the system is required to maintain effective operation. The impacts of the system will be better understood after the first year of continuous operation. If properly maintained, this BMP will have a significant impact in reducing salinity/TDS loading to downstream water bodies (i.e., Beals Creek and potentially to the Colorado River). Therefore, this BMP will help achieve the TMDL requirements for Segment 1411 of the Upper Colorado River.

FIGURES



LEGEND

TRC Monitoring Well Locations

- Monitoring Well
- Field Sample

TRC Verified Well Locations

- Oil
- Injection / Disposal
- Problem Oil
- Problem Plugged Oil Well
- Seep
- Sumps
- Problem Injection
- Salt Cedars
- Plugged Problem Injection
- Water Well

RRC Recorded Well Locations

- Permitted Location
- Dry Hole
- Oil
- Plugged Oil
- Injection / Disposal
- Injection / Disposal from Oil

Reference: U.S.G.S. Digital Orthophoto Quarter Quadrangle (DOQ) Hyman SW (2004) and Moss Creek Lake NE (2004),Texas DOQs.

N

0 1,000 2,000
Feet

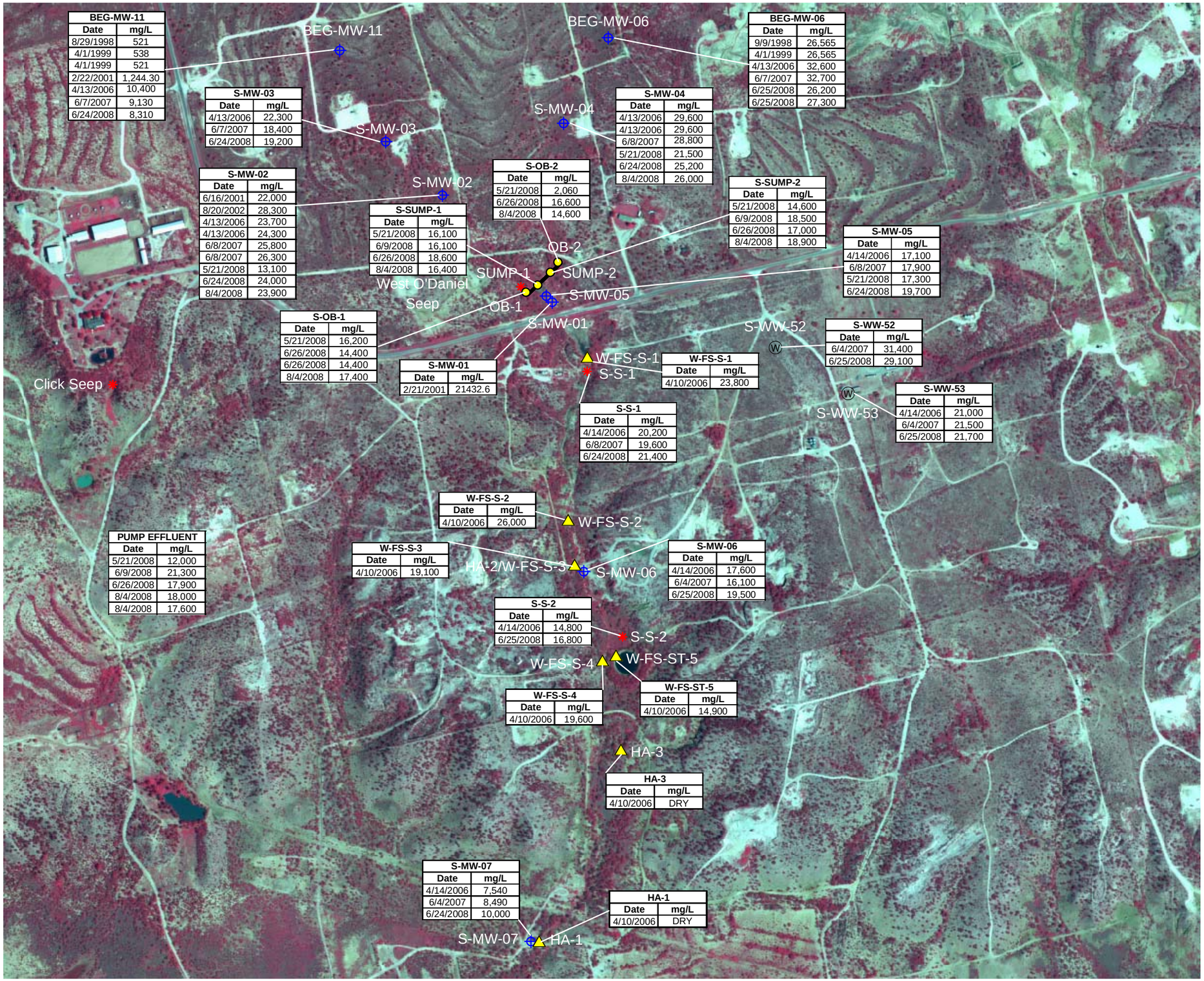
SITE MAP

RAILROAD COMMISSION OF TEXAS
WEST O'DANIEL SEEP

PROJECT NO.: 161641 | DATE: 8/8/2008

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
512-329-6080

FIGURE 1



LEGEND

TRC Monitoring Well Locations

- Monitoring Well
- Recovery Sump and Observation Wells
- Extent of Recovery Trench
- Field Sample
- Water Well
- Seep

Reference: U.S.G.S. Digital Orthophoto Quarter Quadrangle (DOQ) Hyman SW (2004) and Moss Creek Lake NE (2004),Texas DOQs.

N

1,000 500 0 1,000

Feet

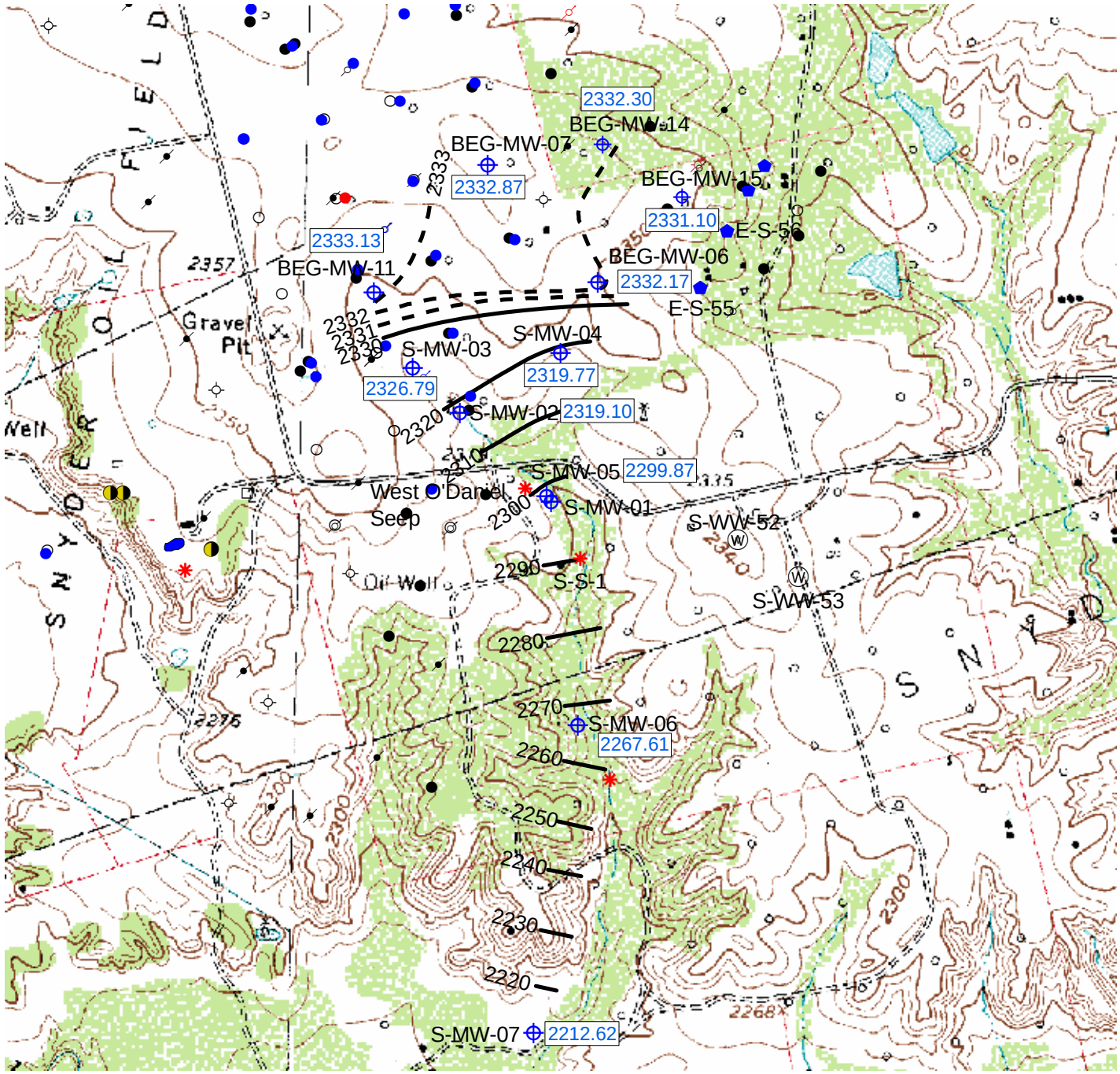
CHRONOLOGICAL CHLORIDE CONCENTRATION MAP

RAILROAD COMMISSION OF TEXAS
WEST O'DANIEL SEEP

PROJECT NO.: 161641 | DATE: 8/8/2008

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
512-329-6080

FIGURE 2



LEGEND

TRC Monitoring Well Locations

- Monitoring Well
- 2331.10 Groundwater Elevation (Feet amsl)
- Groundwater Contour (10 Foot)
- Groundwater Contour (1 Foot)

TRC Verified Well Locations

- Oil
- Injection / Disposal
- Problem Oil
- Problem Plugged Oil Well
- Seep
- Sumps
- Problem Injection
- Salt Cedars
- Plugged Problem Injection
- Water Well

RRC Recorded Well Locations

- Permitted Location
- Dry Hole
- Oil
- Plugged Oil
- Injection / Disposal
- Injection / Disposal from Oil

Reference: U.S.G.S. 7.5-Minute Series Topographic Maps for Hyman (1991) and Moss Creek Lake (1991), Texas.

N

0 1,000 2,000
Feet

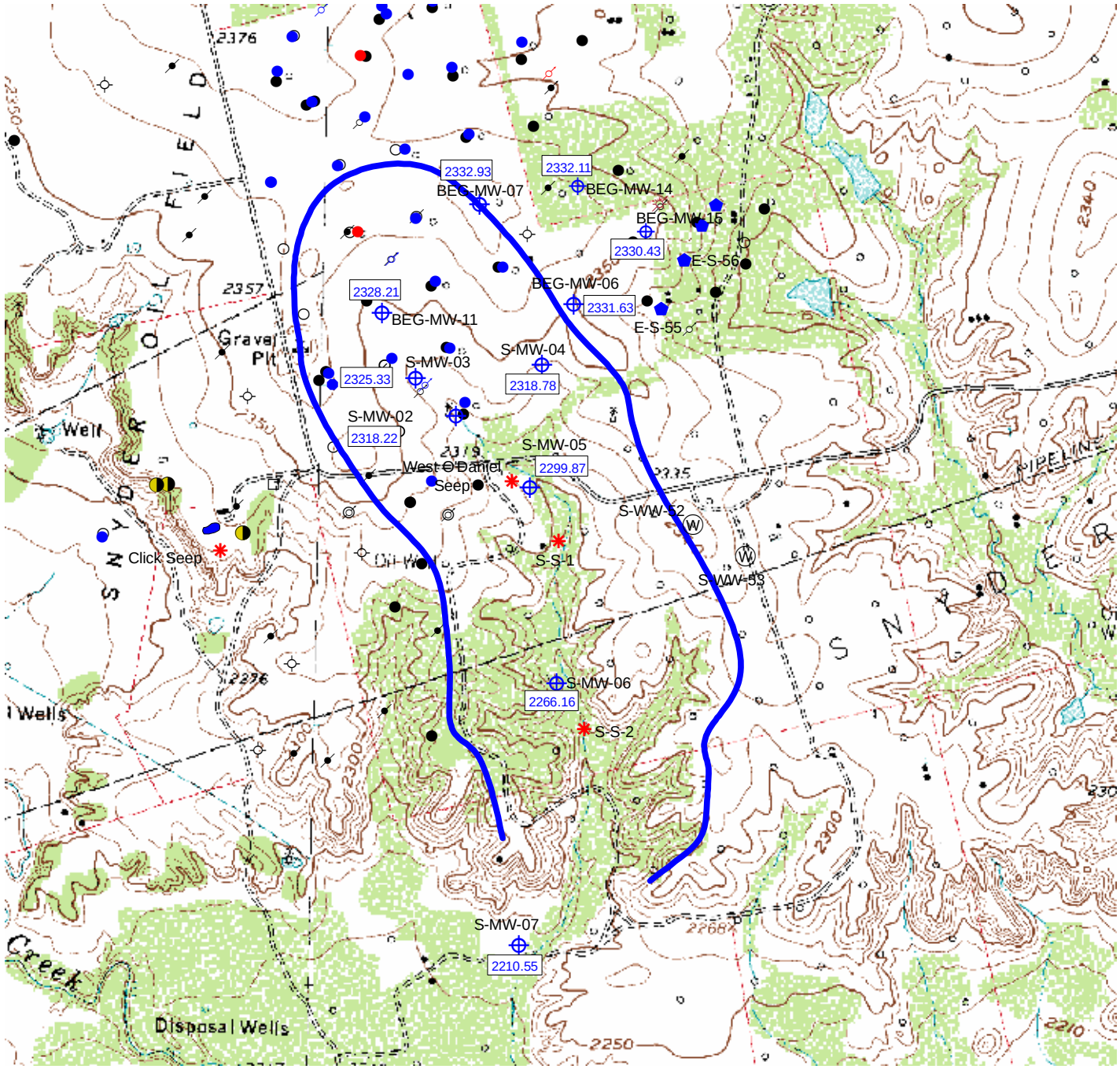
GROUNDWATER ELEVATION MAP (JUNE 2007)

RAILROAD COMMISSION OF TEXAS
WEST O'DANIEL SEEP

PROJECT NO.: 161641 | DATE: 8/8/2008

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
512-329-6080

FIGURE 3



LEGEND

TRC Monitoring Well Locations

- Monitoring Well
- 2299.87 Groundwater Elevation (Feet amsl)
- Drainage Basin

TRC Verified Well Locations

- Oil
- Injection / Disposal
- Problem Oil
- Problem Plugged Oil Well
- Seep
- Sumps
- Problem Injection
- Salt Cedars
- Plugged Problem Injection
- Water Well

RRC Recorded Well Locations

- Permitted Location
- Dry Hole
- Oil
- Plugged Oil
- Injection / Disposal
- Injection / Disposal from Oil

Reference: U.S.G.S. 7.5-Minute Series Topographic Maps for Hyman (1991) and Moss Creek Lake (1991), Texas.

N

0 1,000 2,000
Feet

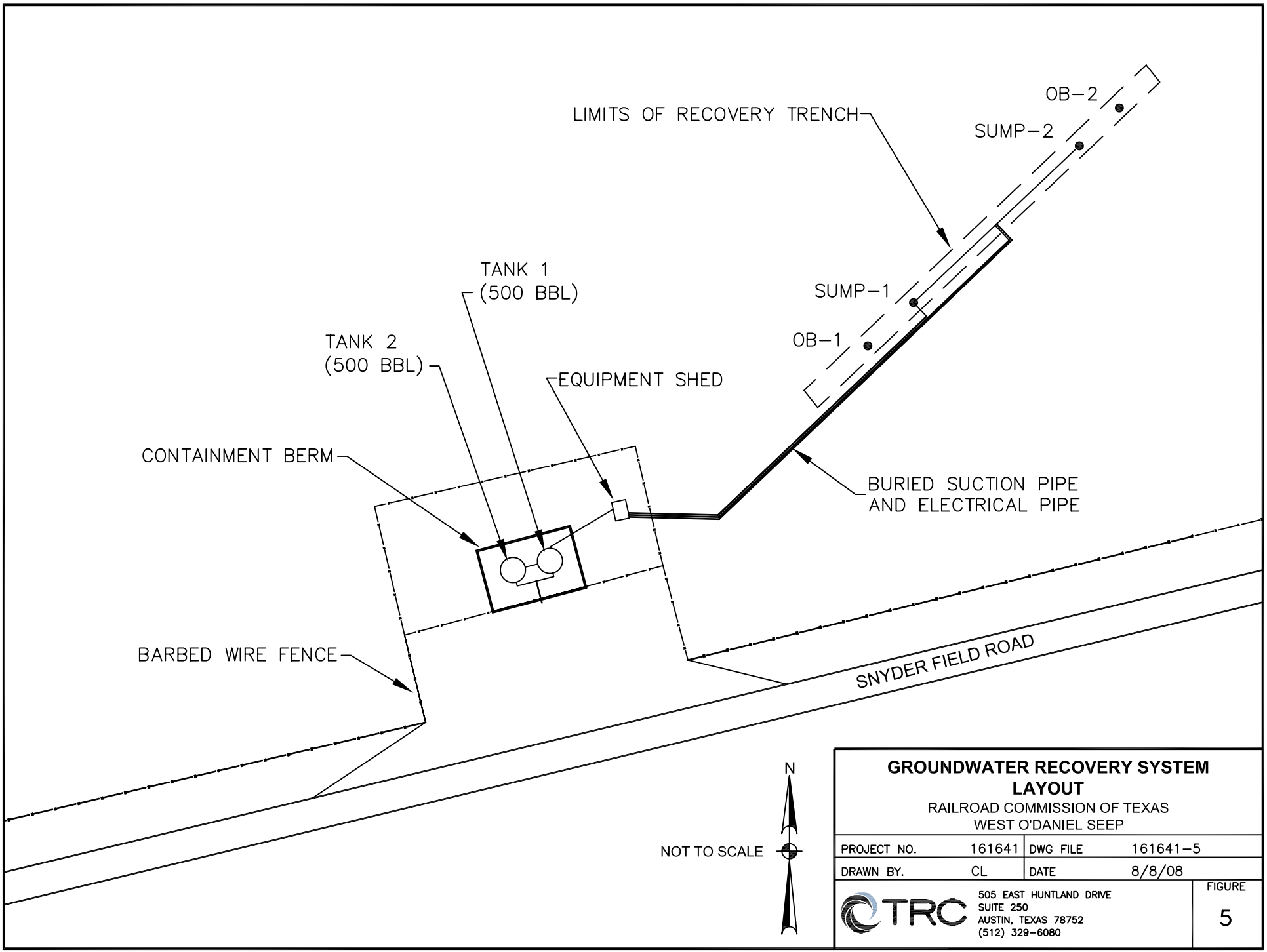
WEST O'DANIEL SEEP DRAINAGE BASIN

RAILROAD COMMISSION OF TEXAS
WEST O'DANIEL SEEP

PROJECT NO.: 161641 | DATE: 8/8/2008

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
512-329-6080

FIGURE 4



GROUNDWATER RECOVERY SYSTEM LAYOUT

RAILROAD COMMISSION OF TEXAS
WEST O'DANIEL SEEP

PROJECT NO.	161641	DWG FILE	161641–5
DRAWN BY.	CL	DATE	8/8/08

TRC
505 EAST HUNTLAND DRIVE
SUITE 250
AUSTIN, TEXAS 78752
(512) 329–6080

FIGURE 5

TABLES

Table 1. Well and Sump Information

Location ID	Completion Date	Latitude (ºN)	Longitude (ºW)	Ground Elevation (ft)	Top-of-Casing Elevation (ft)	Screened Interval (ft bgs)	Total Depth (ft bgs)
S-MW-01	2/16/01	32.22885	-101.24415	2225*	NA	NA	7.0
S-MW-02	6/15/01	32.229396	-101.24573	2321.78	2324.10	4.5-14.5	14.0
S-MW-03	4/12/06	32.230679	-101.247021	2335.79	2337.94	8-23	23.3
S-MW-04	4/11/06	32.231093	-101.243066	2337.07	2339.48	16-26	26.1
S-MW-05	4/11/06	32.227831	-101.243368	2302.11	2304.74	1-6	6.1
S-MW-06	4/12/06	32.222628	-101.242404	2270.35	2272.28	3-13	13.5
S-MW-07	4/12/06	32.215624	-101.243415	2230.71	2232.85	13-33	33.5
BEG-MW-06	8/12/98	32.23273	-101.24211	2347.6	2350.89	NA	24.8
BEG-MW-07	8/12/98	32.2353	-101.2451	2370.9	2373.50	NA	45.7
BEG-MW-11	8/18/98	32.232389	-101.248096	2347.4	2350.88	NA	24.8
BEG-MW-14	8/14/98	32.2359	-101.2421	2355.2	2358.10	NA	25.0
BEG-MW-15	8/11/98	32.2347	-101.2399	2348.4	2351.46	NA	29.5
OB-1	5/19/08	NA	NA	2305.50	2305.46	3-9	9.0
OB-2	5/19/08	NA	NA	2306.37	2306.87	3-9	9.0
Sump-1	5/19/08	NA	NA	2305.50	2305.53	3-11	12.0
Sump-2	5/19/08	NA	NA	2305.55	2306.10	3-11	12.0

Notes
ft bgs = feet below ground surface
NA = not available
Elevation Survey Benchmark = U.S.C & G.S. MOOR ELEVATION 2754.0 MSL (FEET)
* Estimated
Observation wells and sump screen intervals and total depths are measured below top of casing (btoc) instead of bgs

Table 2. Water Level Gauging Data

Location ID	Ground Elevation (ft)	Top-of-Casing Elevation (ft)	Date Water Level Measured	Total Depth of Well (ft btoc)	Depth to Water (ft btoc)	Water Elevation (ft)
West O'Daniel Monitoring Well 01 (Estimated Data) - ABANDONED						
S-MW-01	2225.00	NA	2/21/2001	NA	5.00	NA
West O'Daniel Monitoring Well 02						
S-MW-02	2321.78	2324.10	8/4/2008	16.86	8.71	2315.39
S-MW-02	2321.78	2324.10	6/23/2008	16.87	7.72	2316.38
S-MW-02	2321.78	2324.10	6/4/2007	17.12	5.00	2319.10
S-MW-02	2321.78	2324.10	4/21/2006	16.97	5.88	2318.22
S-MW-02	2321.78	2324.10	6/16/2001	16.97	4.99	2319.11
West O'Daniel Monitoring Well 03						
S-MW-03	2335.79	2337.94	6/23/2008	25.45	14.90	2323.04
S-MW-03	2335.79	2337.94	6/4/2007	25.45	11.15	2326.79
S-MW-03	2335.79	2337.94	4/21/2006	25.45	12.61	2325.33
West O'Daniel Monitoring Well 04						
S-MW-04	2337.07	2339.48	8/4/2008	27.46	22.59	2316.89
S-MW-04	2337.07	2339.48	6/23/2008	28.48	22.25	2317.23
S-MW-04	2337.07	2339.48	6/4/2007	27.74	19.71	2319.77
S-MW-04	2337.07	2339.48	4/21/2006	28.48	20.70	2318.78
West O'Daniel Monitoring Well 05						
S-MW-05	2302.11	2304.74	8/4/2008	8.27	8.08	2296.66
S-MW-05	2302.11	2304.74	6/23/2008	8.36	7.15	2297.59
S-MW-05	2302.11	2304.74	6/4/2007	8.36	4.87	2299.87
S-MW-05	2302.11	2304.74	4/21/2006	8.69	4.87	2299.87
West O'Daniel Monitoring Well 06						
S-MW-06	2270.35	2272.28	6/23/2008	15.41	8.52	2263.76
S-MW-06	2270.35	2272.28	6/4/2007	14.70	4.67	2267.61
S-MW-06	2270.35	2272.28	4/21/2006	15.41	6.12	2266.16
West O'Daniel Monitoring Well 07						
S-MW-07	2230.71	2232.85	6/23/2008	35.58	21.30	2211.55
S-MW-07	2230.71	2232.85	6/4/2007	35.58	20.23	2212.62
S-MW-07	2230.71	2232.85	4/21/2006	35.62	22.30	2210.55
East O'Daniel Monitoring Well 06						
BEG-MW-06	2347.60	2350.89	6/23/2008	27.84	19.45	2331.44
BEG-MW-06	2347.60	2350.89	6/4/2007	27.88	18.72	2332.17
BEG-MW-06	2347.60	2350.89	4/21/2006	28.10	19.26	2331.63
BEG-MW-06	2347.60	2350.89	9/9/1998	28.10	17.41	2333.48
BEG-MW-06	2347.60	2350.89	8/29/1998	28.10	17.45	2333.44
BEG-MW-06	2347.60	2350.89	8/26/1998	28.10	17.44	2333.45
East O'Daniel Monitoring Well 07						
BEG-MW-07	2370.90	2373.50	6/23/2008	48.34	40.48	2333.02
BEG-MW-07	2370.90	2373.50	6/4/2007	48.34	40.63	2332.87
BEG-MW-07	2370.90	2373.50	4/21/2006	48.31	40.57	2332.93
BEG-MW-07	2370.90	2373.50	9/9/1998	48.30	38.56	2334.94
BEG-MW-07	2370.90	2373.50	8/29/1998	48.30	38.95	2334.55
East O'Daniel Monitoring Well 11						
BEG-MW-11	2347.40	2350.88	6/23/2008	28.28	18.22	2332.66
BEG-MW-11	2347.40	2350.88	6/4/2007	28.28	17.75	2333.13
BEG-MW-11	2347.40	2350.88	4/21/2006	28.30	22.67	2328.21
BEG-MW-11	2347.40	2350.88	2/22/2001	NA	14.21	2336.67
BEG-MW-11	2347.40	2350.88	9/9/1998	28.30	16.81	2334.07
BEG-MW-11	2347.40	2350.88	8/29/1998	28.30	16.82	2334.06
BEG-MW-11	2347.40	2350.88	8/25/1998	28.30	16.85	2334.03
East O'Daniel Monitoring Well 14						
BEG-MW-14	2355.20	2358.10	6/23/2008	27.89	25.97	2332.13
BEG-MW-14	2355.20	2358.10	6/4/2007	28.14	25.80	2332.30
BEG-MW-14	2355.20	2358.10	4/21/2006	27.90	25.99	2332.11
BEG-MW-14	2355.20	2358.10	9/9/1998	27.90	24.83	2333.27
BEG-MW-14	2355.20	2358.10	8/29/1998	27.90	24.97	2333.13
East O'Daniel Monitoring Well 15						
BEG-MW-15	2348.40	2351.46	6/23/2008	32.50	21.39	2330.07
BEG-MW-15	2348.40	2351.46	6/4/2007	32.50	20.36	2331.10
BEG-MW-15	2348.40	2351.46	4/21/2006	32.60	21.03	2330.43
BEG-MW-15	2348.40	2351.46	9/9/1998	32.60	19.37	2332.09
BEG-MW-15	2348.40	2351.46	8/29/1998	32.60	19.47	2331.99
BEG-MW-15	2348.40	2351.46	8/26/1998	32.60	19.29	2332.17

Table 3 - West O'Daniel Water Analytical Results

Monitor Well	Spec. Cond. (µmhos/cm)	Bicarbonate (mg/L)	Carbonate (mg/L)	Hydroxide (mg/L)	Total Alkalinity (mg/L)	TDS (mg/L)	pH	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Sodium (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Iron (mg/L)	Barium (mg/L)	TPH C6-C12 (mg/L)	TPH >C12-C28 (mg/L)	TPH >C28-C35 (mg/L)	TPH C6-C35 (mg/L)
S-MW-01																									
2/21/2001	58,000	258.37	<3	NA	258.37	38,131.2	6.60					21432.6	1976.14	NA	NA	8972.19	4313.2	1,150.63	28.07	NA	NA				
S-MW-02																									
6/16/2001	54,200	293.00	<2	NA	293	37,415.0	6.59	<0.0004	<0.0003	<0.0003	<0.001	22,000	1,810	NA	NA	9,630	2,780	902	NA	0.273	0.1340				
8/20/2002												28,300													
4/13/2006	73,100	259.00	<10	<10	259	40,719.7	6.45	0.00129	<0.005	<0.005	<0.005	23,700	2,130	<1	56.5	9,410	3,980	1,210	30.7	1.970	0.0959				
4/13/2006	74,000	259.00	<10	<10	259	41,359.9	6.47	<0.005	<0.005	<0.005	<0.005	24,300	2,140	<1	56.7	9,440	3,990	1,200	30.9	5.480	0.1050				
6/8/2007	58,500	250.00	<10	<10	250	49,000.0	6.55					25,800	2,310			9,630	3,730	950	34.1	1.260	0.0886				
6/8/2007	59,000	250.00	<10	<10	250	49,400.0	6.56					26,300	2,470	NA	NA	10,200	3,530	966	33.7	1.160	0.0879				
5/21/2008	86,800	262.00	<1	NA	NA	43,300.0	6.65					13,100	16,200	NA	NA	8,910	3,040	890	56.1	0.080	0.0440				
6/24/2008		260.00	ND	ND	260	46,800.0		<0.0008	<0.002	<0.002	<0.003	24,000	2,290			9,200	3,100	783	24.8	2.20	0.0831 J	<0.668	<0.668	<0.668	<0.668
8/4/2008	66,400	197.00	ND	ND	197	43,000.0						23,900	2,170			8,590	3,120	856	26.0	3.980	0.1240				
S-MW-03																									
4/13/2006	67,000	123.00	<10	<10	123	38,465.3	6.61	<0.005	<0.005	<0.005	<0.005	22,300	1,930	1.24	56.1	9,240	3,780	1,080	12.3	0.550	0.1080				
6/7/2007	44,600	206.00	<10	<10	206	36,400.0	6.54					18,400	1,980	NA	NA	6,230	2,690	851	11.1	0.642	0.1010				
6/24/2008		209.00	ND	ND	209	38,200.0		<0.0008	<0.002	<0.002	<0.003	19,200	1850			6,350	3,080	742	9.33	0.656	0.101	<0.684	<0.684	<0.684	<0.684
S-MW-04																									
4/13/2006	90,500	180.00	<10	<10	180	50,925.0	6.67	0.0083	<0.005	<0.005	<0.005	29,600	2,780	29.40	69.2	14,200	3,230	728	207.0	1.750	0.2230				
4/13/2006	90,800	181.00	<10	<10	181	52,851.0	6.65	0.00692	<0.005	<0.005	<0.005	29,600	2,850	33.70	74.9	16,000	3,250	756	214.0	1.890	0.2240				
6/8/2007	66,000	139.00	<10	<10	139	52,900.0	6.67					28,800	2,740	NA	NA	12,800	2,950	643	211.0	1.310	0.1610				
5/21/2008	96,600	142.00	<1	NA	NA	45,000.0	6.95					21,500	3,820	NA	NA	11,600	2,050	560	260.0	0.050	0.0700				
6/24/2008		153	ND	ND	153	48,400.0		0.00152 J	<0.002	<0.002	<0.003	25,200	2,480			11,600	2,100	526	160	0.525	0.127	<0.661	<0.661	<0.661	<0.661
8/4/2008	81,200	116	ND	ND	116	45,400.0						26,000	2,490			12,100	2,450	548	180.0	4.020	0.1910				
S-MW-05																									
4/14/2006	56,800	264.00	<10	<10	264	31,886.3	6.71	<0.005	<0.005	<0.005	<0.005	17,100	1,710	<1	44.3	9,130	2,930	730	22.3	5.500	0.4970				
6/8/2007	43,300	262.00	<10	<10	262	34,200.0	6.59					17,900	1,620	NA	NA	7,480	2,960	602	24.2	9.470	0.2540				
5/21/2008	71,800	252.00	<1	NA	NA	33,500.0	6.77					17,300	2,500	NA	NA	7,420	2,540	680	44.8	10.600	0.1430				
6/24/2008		257.00	ND	ND	257	37,300.0		<0.0008	<0.002	<0.002	<0.003	19,700	1,620			7,320	3,190	732	15.9	15.1	0.404	<0.677	<0.677	<0.677	<0.677
8/4/2008	Insufficient volume to collect analytical samples																								
S-MW-06																									
4/14/2006	55,800	188.00	<10	<10	188	30,047.9	6.39	<0.005	<0.005	<0.005	<0.005	17,600	1,380	1.27	43.6	6,060	3,810	975	34.9	5.060	0.5210				
6/4/2007	38,000	234.00	<10	<10	234	31,200.0	6.54					16,100	1,260	NA	NA	5,790	3,050	827	32.9	2.830	0.3350				
6/25/2008		221.00	ND	ND	221	40,100.0		<0.0008	<0.002	<0.002	<0.003	19,500	1,630			6,390	3,440	908	31.7	2.44	0.261	<0.672	<0.672	<0.672	<0.672
S-MW-07																									
4/14/2006	24,400	119.00	<10	<10	119	12,542.6	6.73	<0.005	<0.005	<0.005	<0.005	7,540	480	ND	20.1	1,950	1,670	746	37.6	0.833	0.3730				
6/4/2007	25,200	223.00	<10	<10	223	22,100.0	6.56					8,490	690	NA	NA	2,040	2,680	705	23.0	1.630	0.1850				
6/24/2008		224.00	ND	ND	224	22,600.0		<0.0008	<0.002	<0.002	<0.003	10,000	683			2,060	2,180	538	20.4	<0.5	0.120	<0.683	<0.683	<0.683	<0.683
S-WW-52																									
6/4/2007	66,500	119.00	<10	<10	119.00	52,900.0	6.59					31,400	3,060			13,300	2,940	925	74.4	0.261	0.1570				
6/25/2008		121.00	ND	ND	121	54,700.0		<0.0008	<0.002	<0.002	<0.003	29,100	2,890			11,800	2,800	790	73.9	0.680 J	0.154	<0.678	<0.678	<0.678	<0.678
S-WW-53																									
4/14/2006	67,400	70.50	<10	<10	70.50	36,947.0	6.45	<0.005	<0.005	<0.005	<0.005	21,000	2,090	19.80	54.7	8,890	3,560	1,280	56.5	9.930	0.1990				
6/4/2007	49,100	83.80	<10	<10	83.80	42,000.0	6.53					21,500	2,290	NA	NA	7,450	3,090	1,080	49.3	38.300	0.1620				
6/25/2008		91.00	ND	ND	91.0	43,200.0		<0.0008	<0.002	<0.002	<0.003	21,700	2,260			7,550	3,050	922	47.5	14.9	0.171	<0.669	<0.669	<0.669	<0.669
SUMP-1																									
5/21/2008	63,400	1,260.00	<1	NA	NA	31,300.0	6.27					16,100	1,850	NA	NA	7,630	2,230	620	44.4	5.050	0.2890				
6/9/2008	75,400	820.00	<1	NA	NA	31,300.0	6.39					16,100	1,150	NA	NA	5,780	2,480	660	34.8	2.670	0.6100				
6/26/2008	61,200	355.00	ND	ND	355	37,200.0		<0.0008	<0.002	<0.002	<0.003	18,600	1,690			7,440	2,460	726	10.8	1.00	0.270	<0.676	<0.676	<0.676	<0.676
8/4/2008	53,200	310.00	ND	ND	310.00	32,800.0						16,400	1,380			5,420	2,540	703	14.7	19.300	0.4230				
SUMP-2																									
5/21/2008	50,900	1,230.00	<1	NA	NA	27,800.0	6.47					14,600	1,820	NA	NA	6,730	1,660	440	28.1	9.820	0.5160				
6/9/2008	79,500	430.00	<1	NA	NA	34,000.0	6.58					18,500	2,380	NA	NA	7,940	2,230	560	16.9	3.040	0.2400				
6/26/2008	58,600	497.00	ND	ND	497	35,200.0		<0.0008	<0.002	<0.002	<0.003	17,000	1,830			7,470	2,040	531	9.63	1.57	0.206	<0.668	<0.668	<0.668	<0.668
8/4/2008	52,500	445.00	ND	ND	445.00	33,100.0						18,900	1,780			6,670	2,200	615	13.0	17.400	1.1100				
OB-1																									
5/21/2008	70,500	650.00	<1	NA	NA	31,800.0	6.44					16,200	1,650	NA	NA	6,050	2,460	690	43.8	1.840	0.1910				
6/26/2008	48,000	817.00	ND	ND	817	30,800.0		<0.0008	<0.002	<0.002	<0.003	14,400	861			4,700	2,400	726	14.8	<0.5	1.01	<0.676	<0.676	<0.676	<0.676
6/26/2008	49,200	823.00	ND	ND	823	31,300.0		<0.0008	<0.002	<0.002	<0.003	14,400	815			4,270	2,260	758	14.0	<2.5	1.00	<0.669	<0.669	<0.669	<0.669
8/4/2008	51,200	ND	ND	ND	ND	30,700.0						17,400	1,610			5,190	2,590	820	15.9	15.200	0.2890				
OB-2																									
5/21/2008	18,100	2,400.00	<1	NA	NA	11,800.0	8.33					2,060	712	NA	NA	3,230	385	112	39.4	44.400	1.1100				
6/26/2008	54,600	543.00	ND	ND	543	36,500.0		<0.0008	<0.002	<0.002	<0.003	16,600	1,880			4,970	3140	845	11.8	48.9	0.546	<0.682	<0.682	<0.682	<0.682
8/4/2008	44,400	431.00	ND	ND	431.00	28,500.0						14,600	1,300			4,360	2,800	806	13.8	35.100	0.7600				

Table 3 - West O'Daniel Water Analytical Results

Monitor Well	Spec. Cond. (µmhos/cm)	Bicarbonate (mg/L)	Carbonate (mg/L)	Hydroxide (mg/L)	Total Alkalinity (mg/L)	TDS (mg/L)	pH	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate (mg/L)	Bromide (mg/L)	Sodium (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Iron (mg/L)	Barium (mg/L)	TPH C6-C12 (mg/L)	TPH >C12-C28 (mg/L)	TPH >C28-C35 (mg/L)	TPH C6-C35 (mg/L)
S-S-1																									
4/14/2006	63,400	111.00	<10	<10	111.00	36,615.9	7.23					20,200	1,830	<1	52.0	9,780	3,590	1,070	34.9	3.050	0.2050				
6/8/2007	44,900	95.80	<10	<10	95.80	36,800.0	7.00					19,600	1,770	NA	NA	7,120	2,830	813	28.2	3.050	0.1250				
6/24/2008		121.00	ND	ND	121	42,600.0		<0.0008	<0.002	<0.002	<0.003	21,400	1,810			8,230	2,390	686	30.9	4.00	0.281	<0.678	<0.678	<0.678	<0.678
S-S-2																									
4/14/2006	46,200	83.90	<10	<10	83.90	25,648.5	7.13					14,800	1060*	<1	37.8	5,400	3,240	1,050	14.6	1.790	0.2160				
6/25/2008		152.00	ND	ND	152	35,100.0		<0.0008	<0.002	<0.002	<0.003	16,800	1,280			5,350	2,910	785	18.1	0.526 J	0.476	<0.681	<0.681	<0.681	<0.681
Pump Effluent																									
5/21/2008	60,600	840.00	<1	NA	NA	29,600.0	6.38					12,000	1,640	NA	NA	6,590	1,770	460	48.5	7.720	0.3360				
6/9/2008	50,300	350.00	<1	NA	NA	38,400.0	6.53					21,300	2,680	NA	NA	10,500	3,600	950	28.1	1.230	0.1300				
6/26/2008	58,200	494.00	ND	ND	494	36,000.0		<0.0008	<0.002	<0.002	<0.003	17,900	1,670			6,650	2,150	622	11.0	1.23	0.495	<0.69	<0.69	<0.69	<0.69
8/4/2008	54,800	236.00	ND	ND	236.00	34,200.0						18,000	1,750			6,310	2,380	667	12.0	4.510	0.2720				
8/4/2008	54,400	240.00	ND	ND	240.00	34,900.0						17,600	1,640			6,430	2,480	687	12.6	4.660	0.2820				
BEG-MW-06																									
9/9/1998					393	49,676	7.63	0.00775	<0.005	<0.005	<0.005	26,565	3,214	<1	650	15,980	2,277	788	459	<0.1	0.15				
4/1/1999	69,100.00				393		7.63	7.75	<0.005	<0.005	<0.005	26,565	3,214	<1	65.00	15,980	2,277	788	459	<0.1	0.15				
4/13/2006					260	58,710	6.42	0.494	<0.005	<0.005	<0.005	32,600	3,310	6.51	85	18,800	2,670	757	313	0.192	0.141				
6/7/2007					231	57,900	6.57					32,700	3,430	NA	NA	15,500	2,630	706	294	0.610	0.133				
6/25/2008		201	<10	<10	201	52,300		0.0152	<0.002	<0.002	<0.003	26,200	2,930			12,400	2,040	523	211	0.407	0.109	<0.663	<0.663	<0.663	<0.663
6/25/2008		195	<10	<10	195	54,200		0.0183	<0.002	<0.002	<0.003	27,300	2,820 J			11,700	1,960	524	212	0.305	0.108	<0.674	<0.674	<0.674	<0.674
BEG-MW-11																									
8/29/1998					306	1,557.61	8.43	<0.005	<0.005	<0.005	<0.005	521	253	30.8	3.96	366	127	28.7	6.61	0.0174	NA				
4/1/1999	2,710.00				306		8.43	<0.005	<0.005	<0.005	<0.005	538	244	25.0	2.00	280	137	38.00	<5	<0.1	0.20				
4/1/1999	NA				255		NA					521	253	30.80	3.96	366	127	28.70	6.61	NA	NA				
2/22/2001					213.56	3,312.68	7.40	<0.002	<0.005	<0.005	<0.005	1,244.30	504.3	NA	NA	395.42	456.91	103.28	394.91	NA	NA				
4/13/2006					112	17,644.30	6.78	<0.005	<0.005	<0.005	<0.005	10,400	1,080	3.92	25.5	2,650	2,750	632	20.3	0.0984	0.096				
6/7/2007					121	19,300	6.84	no data				9,130	940	NA	NA	2,020	2,150	496	19.3	<0.500	0.115				
6/24/2008		135	<10	<10	135	19,200		<0.0008	<0.002	<0.002	<0.003	8,310	1,010			2,000	2,040	473	<20	2.16	0.0983	<0.684	<0.684	<0.684	<0.684

Notes:

mg/L	Milligrams per Liter
TPH	Total Petroleum Hydrocarbons
TDS	Total Dissolved Solids
µmhos/cm	Microohms per centimeter
J	Analyte detected between sample detection limit and reporting limit
*	Analytical result rejected during QA process based on MS/MSD recoveries
NA	Not analyzed

Table 4 - Groundwater Recovery System Operational Parameters
West O'Daniel Seep

Date	Time	OB-1 (DTW btoc)	Sump-1 (DTW btoc)	Sump-2 (DTW btoc)	OB-2 (DTW btoc)	Pump Inlet Air Pressure (psi)	Pump Strokes per minute	Flow Meter Measurements		AIR COMPRESSOR CYCLES ON and OFF (min)	Storage Tank Measurements					Flow Meter Error		Offsite Disposal		Cumulative Volume Removed (bbl)	Notes
								Flow Rate (gpm)	Totalized Flow (gal)		Tank Gauge Height (one tank only) (ft)	Total Tank Volume (bbl)	Change in Storage (bbl)	Average Flow Rate (bbl/day)	Average Flow Rate (gpm)	Volume Change (flow meter vs tanks)	Ratio of water to total flowmeter reading (% water)	Disposal Date	Disposal Volume		
05/19/08	1100	6.15	5.86	5.70	6.41	30	0	0.0	536	-		-		-	-						
	1207	6.15	5.86	5.70	6.41	30	17	2.0	-	-		-		-	-						
	1215	6.15	5.86	5.70	6.41	30	17	0.9	-	-		-		-	-						
	1227	6.15	5.86	5.70	6.41	30	17	0.9	546	-		-		-	-						
	1245	6.15	5.86	5.70	6.41	30	17	0.9	556	-		-		-	-						
	1250	6.15	5.86	5.70	6.41	40	170	5.2	-	-		-		-	-						
	1257	6.15	6.01	6.05	6.41	40	170	5.2	-	-		-		-	-						
	1315	6.14	6.64	6.60	6.41	40	170	5.2	-	-		-		-	-						
	1330	-	-	-	-	40	170	5.0	-	-		-		-	-						
	1400	6.15	8.69	5.98	6.40	40	170	5.0	760	-		-		-	-						Trip Off - Water level below low level switch in SUMP-1
	1427	-	-	6.38	6.40	40	170	4.5	-	-		-		-	-						
	1432	-	-	6.91	6.40	40	170	4.5	-	-		-		-	-						
	1441	-	-	7.29	6.40	40	170	4.5	-	-		-		-	-						
	1447	-	-	7.48	6.40	40	170	4.5	-	-		-		-	-						
	1454	-	-	7.77	6.40	40	170	4.5	-	-		-		-	-						
	1509	-	-	7.83	6.40	40	170	4.5	-	-		-		-	-						
	1520	-	-	NM	NM	40	170	0.0	-	-		-		-	-						manually tripped to test high float
	1521	-	7.15	7.35	NM	40	180	5.0	-	-		-		-	-						
	1535	-	7.78	7.75	NM	40	180	5.0	-	-		-		-	-						
	1600	6.17	8.35	8.07	6.45	50	220	5.0	-	-		-		-	-						
	1618	-	-	-	-	60	-	5.2	-	-		-		-	-						
	1620	-	-	-	-	80	-	5.4	-	-		-		-	-						
	1639	6.17	8.72	8.68	6.47	40	-	5.0	-	-		-		-	-						
	1710	-	-	-	-	-	-	-	1470	-		-		-	-						
05/20/08	1030	6.21	6.03	5.92	6.61	35	65	2.4	1470	-		-		-	-						
	1048	6.21	6.14	6.23	6.61	35	64	2.3	1500	-		-		-	-						
	1110	-	-	-	-	35	-	-	-	-		-		-	-						Pump off to test tank floats
	1115	-	-	-	-	35	-	-	-	-		-		-	-						Pump off to test tank floats
	1125	6.21	6.26	6.44	6.61	35	60	2.3	1533	16.00		-		-	-						
	1200	6.21	6.48	6.64	6.62	35	60	2.2	1560	14.00		-		-	-						
	1435	6.22	6.67	6.77	6.64	35	60	2.4	1631	-		-		-	-						
	1545	6.22	6.71	6.85	6.65	35	56	2.2	1977	-		-		-	-						
	1550	-	-	-	-	40	196	4.5	2114	-		-		-	-						
	1645	6.22	7.95	7.98	6.66	40	180	4.6	2130	7.50		-		-	-						
	1715	-	-	-	-	38	120	-	2360	8.00		-		-	-						
	1716	-	-	-	-	38	152	4.3	-	8.00		-		-	-						
	1815	6.23	8.26	8.28	6.68	38	154	4.2	2680	-		-		-	-						
05/21/08	1030	6.33	9.25	9.33	6.99	42	100	3.4	6275	-		-		-	-						
	1115	-	-	-	-	70	300	6.0	6370	-		-		-	-						
	1128	6.34	9.40	-	-	70	300	6.0	-	-		-		-	-						
	1630	6.35	9.52	9.47	7.11	42	112	3.5	7180	-		-		-	-						
	1800	-	-	-	-	42	160	4.2	7380	-		-		-	-						
05/22/08	800	6.43	8.01	8.68	7.43	40	0	0.0	10120	-		-		-	-						
	1200	6.44	8.98	9.02	7.80	42	106	2.6	10900	10.75		-		-	-						
	2000	-	-	-	-	42	180	3.2	11150	-		-		-	-						
05/23/08	1345	6.42	7.08	7.23	7.51	48	240	5.1	11900	8.50		-		-	-						
05/27/08	1600	6.65	7.96	8.20	8.31	50	-	6.0	21980	15.00		382		-	-					382	
05/30/08	1000	6.48	6.42	6.51	7.54	45	240	5.0	22110	15.00		397	15	5.0	0.15	-500	3%			397	
06/03/08	1500	6.85	7.15	8.13	8.92	45	100	4.5	34100	-		599	202	50.5	1.47	3506	33%			599	
06/05/08	1500	7.07	8.74	9.11	8.92	45	212	4.5	40401	-		672	73	36.5	1.06	3235	24%			672	
06/09/08	1500	7.17	7.52	8.56	9.00	45	216	4.4	51570	-		896	224	56.0	1.63	1761	37%			896	
06/11/08	1500	7.96	7.09	8.00	9.00	45	-	-	54010	-		935	39	19.5	0.57	802	-			935	Pump not running efficiently - RRC installed new pump (#2)
06/13/08	1500	7.21	9.87	9.55	9.00	45	224	5.0	57750	6.50		193	-	-	-	-	-	6/11/2008	806	999	
06/17/08	1500	7.43	8.28	9.05	9.00	48	240	5.0	67950	-	5.79	389	196	49.0	1.43	1964	29%			1195	
06/23/08	1500	7.70	8.45	9.30	8.13	48	240	5.2	81810	-	6.25	420	31	5.2	0.15	12562	3%	6/17/2008	245	1471	
06/27/08	1500	7.51	9.98	9.82	9.00	45	236	5.5	90850	-	5.71	384	-	-	-	-	-	6/24/2008	221	1656	
07/01/08	1500	7.60	8.59	9.27	8.98	48	256.0	5.0	99610	7.20	8.25	554	171	42.7	1.24	1591	25%			1826	
07/03/08	1500	7.63	8.25	9.05	8.98	48	244	5.3	103920	7.25	2.92	196	-	-	-	-	-	7/2/2008	226	1694	
07/07/08	1500	7.69	8.60	9.21	8.98	48	256	5.0	111380	8.00	5.00	336	140	34.9	1.02	1589	20%	7/3/2008	235	2069	
07/10/08	1500	7.65	7.96	8.86	8.98	48	240	5.3	116320	7.00	3.22	216	-	-	-	-	-	7/9/2008	210	2159	
07/14/08	1100	7.25	7.36	8.26	8.98	48	228	5.0	120630	-	4.16	280	63	15.8	0.46	1657	9%			2223	Pump not running efficiently - RRC installed new pump (#3)
07/17/08	1500	7.27	7.35	8.26	8.98	48	248	5.0	124040	7.00	2.17	146	-	-	-	-	-	7/15/2008	238	2327	
07/21/08	1100	7.41	7.54	8.20	8.98	52	272	5.9	132900	-	3.63	244	98	24.5	0.71	4744	12%			2425	
07/23/08	1030	7.65	7.95	8.91	8.98	53	296	4.8	134910	7.20	4.10	276	32	16.0	0.47	669	10%			2457	

Table 4 - Groundwater Recovery System Operational Parameters
West O'Daniel Seep

Date	Time	OB-1 (DTW btoc)	Sump-1 (DTW btoc)	Sump-2 (DTW btoc)	OB-2 (DTW btoc)	Pump Inlet Air Pressure (psi)	Pump Strokes per minute	Flow Meter Measurements		AIR COMPRESSOR CYCLES ON and OFF (min)	Storage Tank Measurements					Flow Meter Error		Offsite Disposal		Cumulative Volume Removed (bbl)	Notes
								Flow Rate (gpm)	Totalized Flow (gal)		Tank Gauge Height (one tank only) (ft)	Total Tank Volume (bbl)	Change in Storage (bbl)	Average Flow Rate (bbl/day)	Average Flow Rate (gpm)	Volume Change (flow meter vs tanks)	Ratio of water to total flowmeter reading (% water)	Disposal Date	Disposal Volume		
07/25/08	1035	7.75	8.08	8.91	8.98	53	224	4.8	137440	3.45	4.84	325	50	24.9	0.73	441	15%			2506	
07/28/08	1315	7.63	9.37	9.27	8.98	53	220	4.8	141420	3.21	5.91	397	72	24.0	0.70	960	15%			2578	
07/30/08	1030	7.78	8.05	8.82	8.98	53	230	4.8	143190	3.40	6.80	457	60	29.9	0.87	-742	18%			2638	
08/01/08	1310	7.89	8.16	9.28	8.98	53	286	3.8	147590	3.25	0.96	65	-	-	-	-	-	8/1/2008	380	2626	
08/04/08	1105	7.53	9.04	8.99	8.98	50	240	5.0	150660	13.40	1.30	87	23	7.6	0.22	2110	4%			2648	

Notes

-Only the volume and flow rate values derived from storage tank measurements are considered valid. The volume and flow rate values from the flow meter measurements are considered invalid (biased high) due to air and water passing through the flow meter.
-DTW btoc = depth to water below top of casing
-psi = pounds per square inch
-gpm = gallons per minute
-gal = gallons
-min = minutes
-bbl = barrels [US, petroleum]

Table 5 - West O'Daniel Seep Recovery System
Chloride Loading Calculations

Period	5/19/08 - 5/21/08				
Sample Date	5/21/2008				
Extracted Water Volume	125 bbl				
	19873 L				
Location	**Chloride (mg/L)**	**Loading (mg)**	**Loading (lbs)**	**Cumulative Loading (lbs)**	**Loading Rate (lbs/day)**
OB-1	16,200	321,942,600	710	710	355
SUMP-1	16,100	319,955,300	705	705	353
SUMP-2	14,600	290,145,800	640	640	320
OB-2	2,060	40,938,380	90	90	45
PUMP EFFLUENT	12,000	238,476,000	526	526	263

Period	5/21/08 - 6/9/08				
Sample Date	6/9/2008				
Extracted Water Volume	771 bbl				
	122579 L				
Location	**Chloride (mg/L)**	**Loading (mg)**	**Loading (lbs)**	**Cumulative Loading (lbs)**	**Loading Rate (lbs/day)**
OB-1	NS	-	-	710	-
SUMP-1	16,100	1,973,521,900	4,351	5,056	229
SUMP-2	18,500	2,267,711,500	4,999	5,639	263
OB-2	NS	-	-	90	-
PUMP EFFLUENT	21,300	2,610,932,700	5,756	6,282	303

Period	6/9/08 - 6/26/08				
Sample Date	6/26/2008				
Extracted Water Volume	760 bbl				
	120830 L				
Location	**Chloride (mg/L)**	**Loading (mg)**	**Loading (lbs)**	**Cumulative Loading (lbs)**	**Loading Rate (lbs/day)**
OB-1	14,400	1,739,952,000	3,836	4,546	226
SUMP-1	18,600	2,247,438,000	4,955	10,011	291
SUMP-2	17,000	2,054,110,000	4,529	10,168	266
OB-2	16,600	2,005,778,000	4,422	4,512	260
PUMP EFFLUENT	17,900	2,162,857,000	4,768	11,050	280

Period	6/26/08 - 8/4/08				
Sample Date	8/4/2008				
Extracted Water Volume	992 bbl				
	157715 L				
Location	**Chloride (mg/L)**	**Loading (mg)**	**Loading (lbs)**	**Cumulative Loading (lbs)**	**Loading Rate (lbs/day)**
OB-1	17,400	2,744,241,000	6,050	10,596	155
SUMP-1	16,400	2,586,526,000	5,702	15,713	146
SUMP-2	18,900	2,980,813,500	6,572	16,739	169
OB-2	14,600	2,302,639,000	5,076	9,589	130
PUMP EFFLUENT	18,000	2,838,870,000	6,259	17,309	160

PUMP EFFLUENT Total Loading	**17,309 lbs**
PUMP EFFLUENT Loading Rate	**225 lbs/day**

Notes

- The extracted volume of water removed from 5/19/08 to 5/21/08 was approximated from the totalized flow meter reading on 5/21/08. The extracted volume of water removed from 5/21/08 to 6/9/08 was from the storage tank gauging data.
- NS = Not sampled
- L = liters
- mg = milligrams
- lbs = pounds
- bbl = barrels [US, petroleum]

Table 6 - West O'Daniel Seep Recovery System
TDS Loading Calculations

Period	5/19/08 - 5/21/08				
Sample Date	5/21/2008				
Extracted Water Volume	125 bbl				
	19873 L				
Location	**TDS (mg/L)**	**Loading (mg)**	**Loading (lbs)**	**Cumulative Loading (lbs)**	**Loading Rate (lbs/day)**
OB-1	31,800	631,961,400	1,393	1,393	697
SUMP-1	31,300	622,024,900	1,371	1,371	686
SUMP-2	27,800	552,469,400	1,218	1,218	609
OB-2	11,800	234,501,400	517	517	258
PUMP EFFLUENT	29,600	588,240,800	1,297	1,297	648

Period	5/21/08 - 6/9/08				
Sample Date	6/9/2008				
Extracted Water Volume	771 bbl				
	122579 L				
Location	**TDS (mg/L)**	**Loading (mg)**	**Loading (lbs)**	**Cumulative Loading (lbs)**	**Loading Rate (lbs/day)**
OB-1	NS	-	-	1,393	-
SUMP-1	31,300	3,836,722,700	8,459	9,830	445
SUMP-2	34,000	4,167,686,000	9,188	10,406	484
OB-2	NS	-	-	517	-
PUMP EFFLUENT	38,400	4,707,033,600	10,377	11,674	546

Period	6/9/08 - 6/26/08				
Sample Date	6/26/2008				
Extracted Water Volume	760 bbl				
	120830 L				
Location	**TDS (mg/L)**	**Loading (mg)**	**Loading (lbs)**	**Cumulative Loading (lbs)**	**Loading Rate (lbs/day)**
OB-1	31,300	3,781,979,000	8,338	9,731	490
SUMP-1	37,200	4,494,876,000	9,910	19,739	583
SUMP-2	35,200	4,253,216,000	9,377	19,783	552
OB-2	36,500	4,410,295,000	9,723	10,240	572
PUMP EFFLUENT	36,000	4,349,880,000	9,590	21,264	564

Period	6/26/08 - 8/4/08				
Sample Date	8/4/2008				
Extracted Water Volume	992 bbl				
	157715 L				
Location	**TDS (mg/L)**	**Loading (mg)**	**Loading (lbs)**	**Cumulative Loading (lbs)**	**Loading Rate (lbs/day)**
OB-1	30,700	4,841,850,500	10,674	20,406	274
SUMP-1	32,800	5,173,052,000	11,405	31,144	292
SUMP-2	33,100	5,220,366,500	11,509	31,292	295
OB-2	28,500	4,494,877,500	9,910	20,150	254
PUMP EFFLUENT	34,900	5,504,253,500	12,135	33,399	311

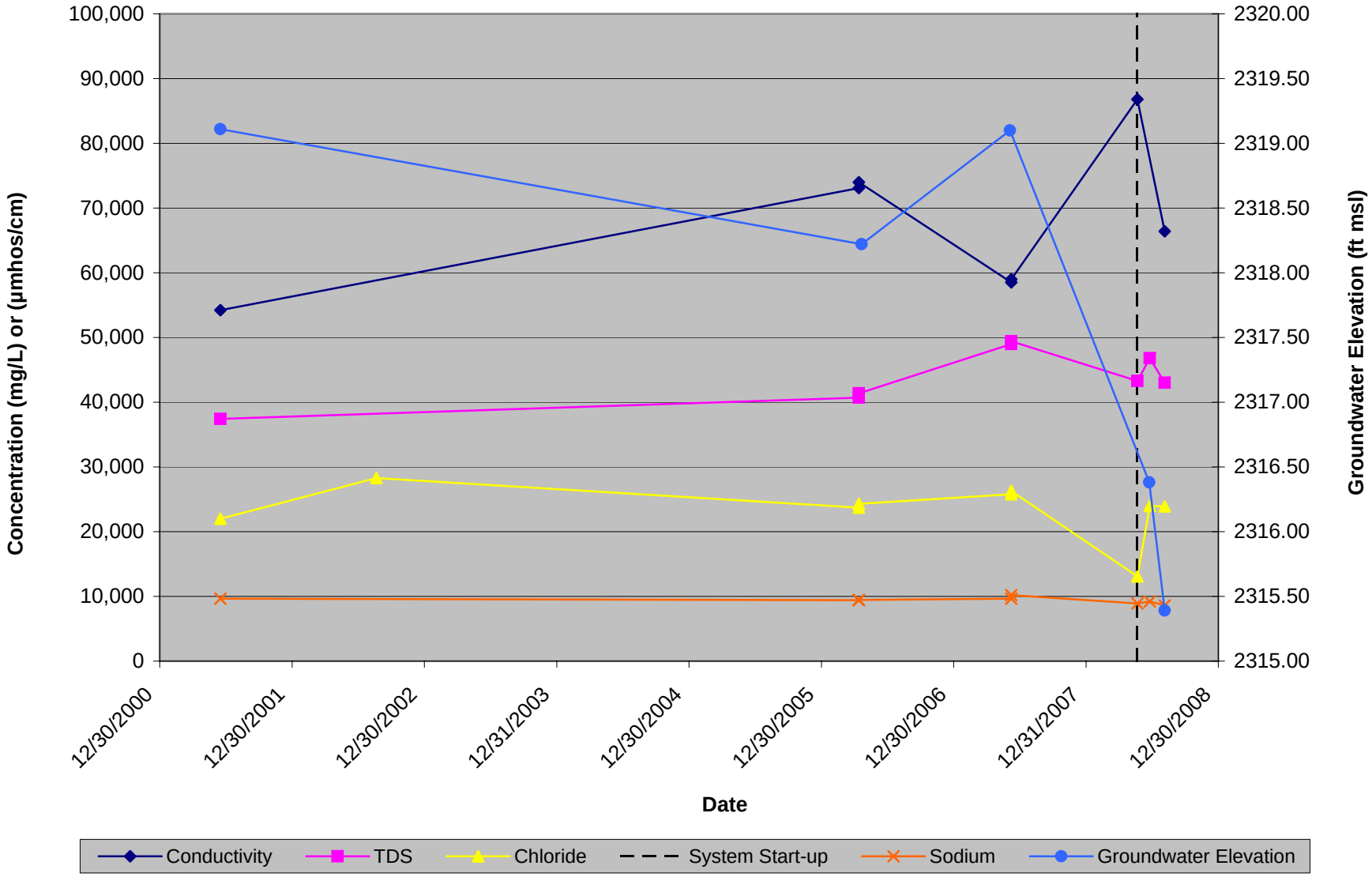
PUMP EFFLUENT Total Loading	**33,399 lbs**
PUMP EFFLUENT Loading Rate	**434 lbs/day**

Notes

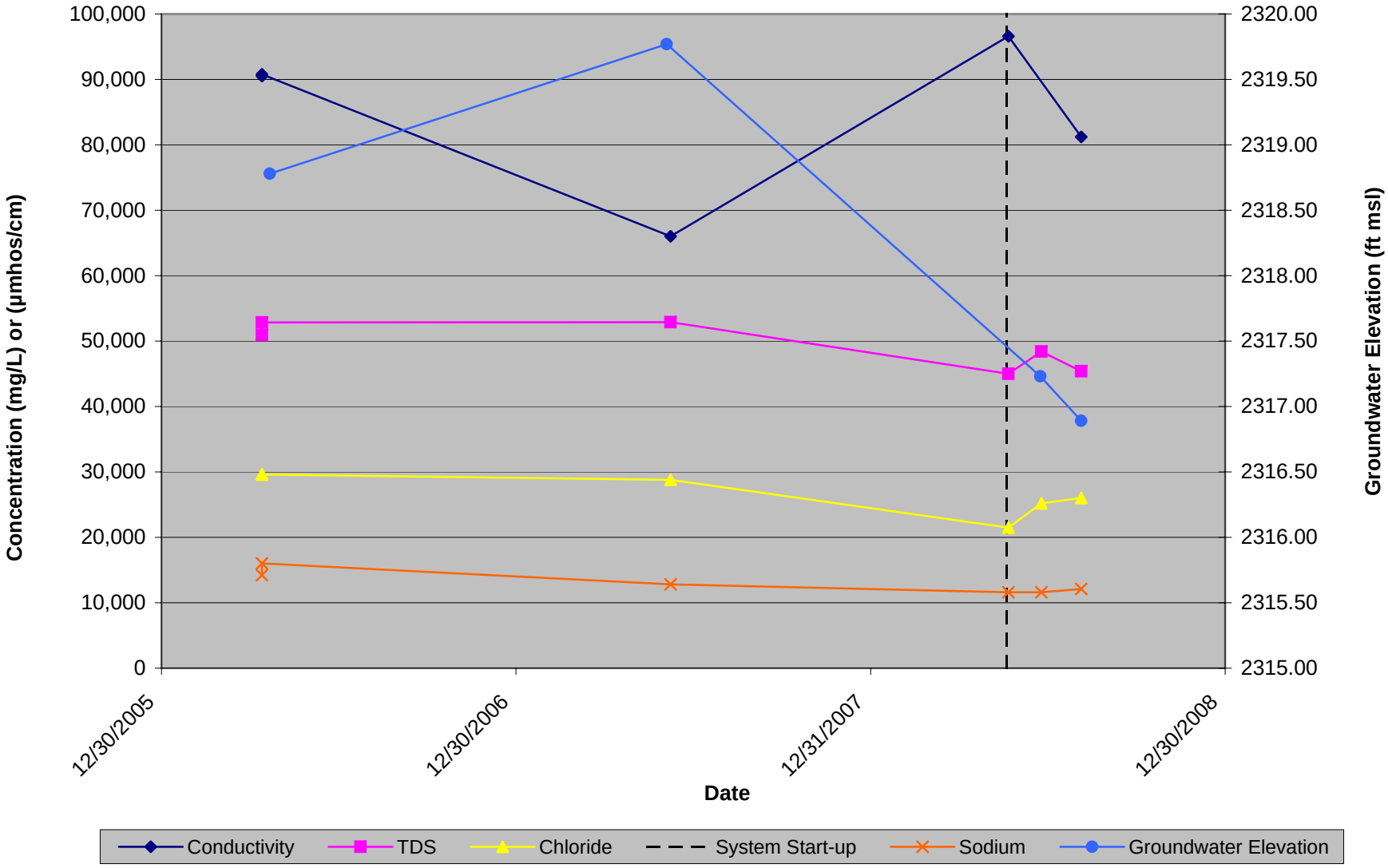
- The extracted volume of water removed from 5/19/08 to 5/21/08 was approximated from the totalized flow meter reading on 5/21/08. The extracted volume of water removed from 5/21/08 to 6/9/08 was from the storage tank gauging data.
- TDS = Total dissolved solids
- NS = Not sampled
- L = liters
- mg = milligrams
- lbs = pounds
- bbl = barrels [US, petroleum]

GRAPHS

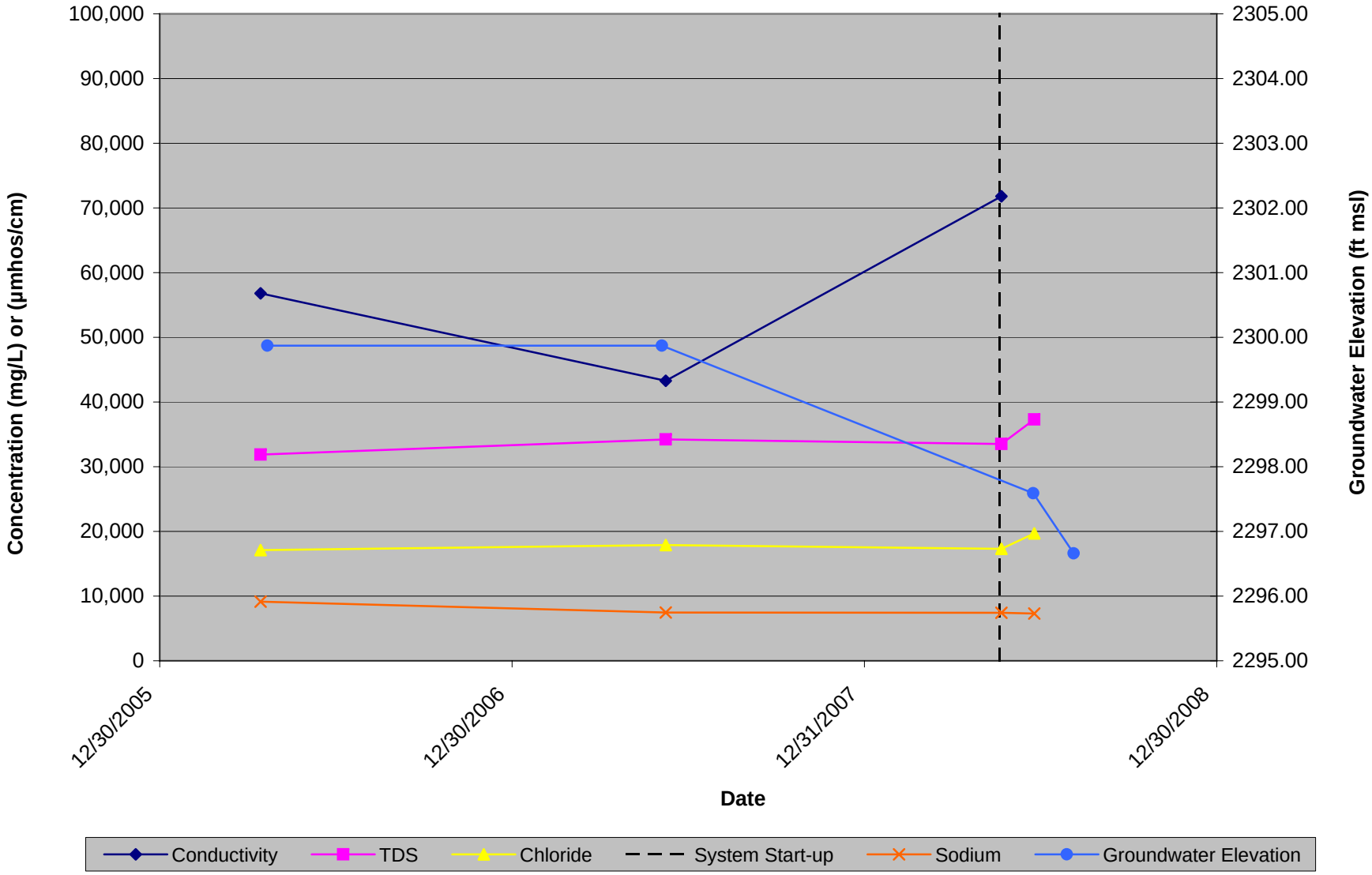
GRAPH 1 - S-MW-02 CONCENTRATIONS AND GROUNDWATER ELEVATIONS



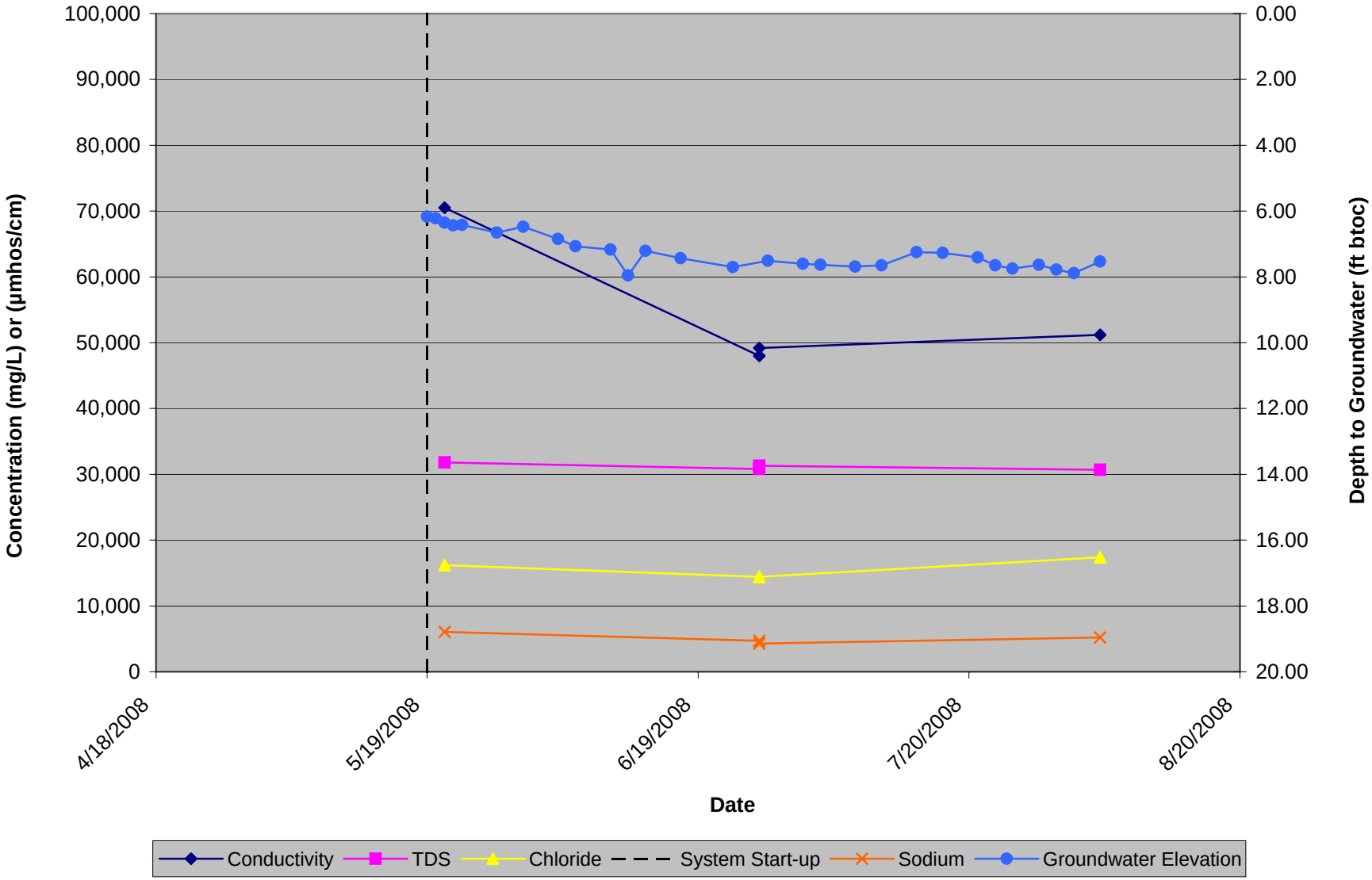
GRAPH 2 - S-MW-04 CONCENTRATIONS AND GROUNDWATER ELEVATIONS



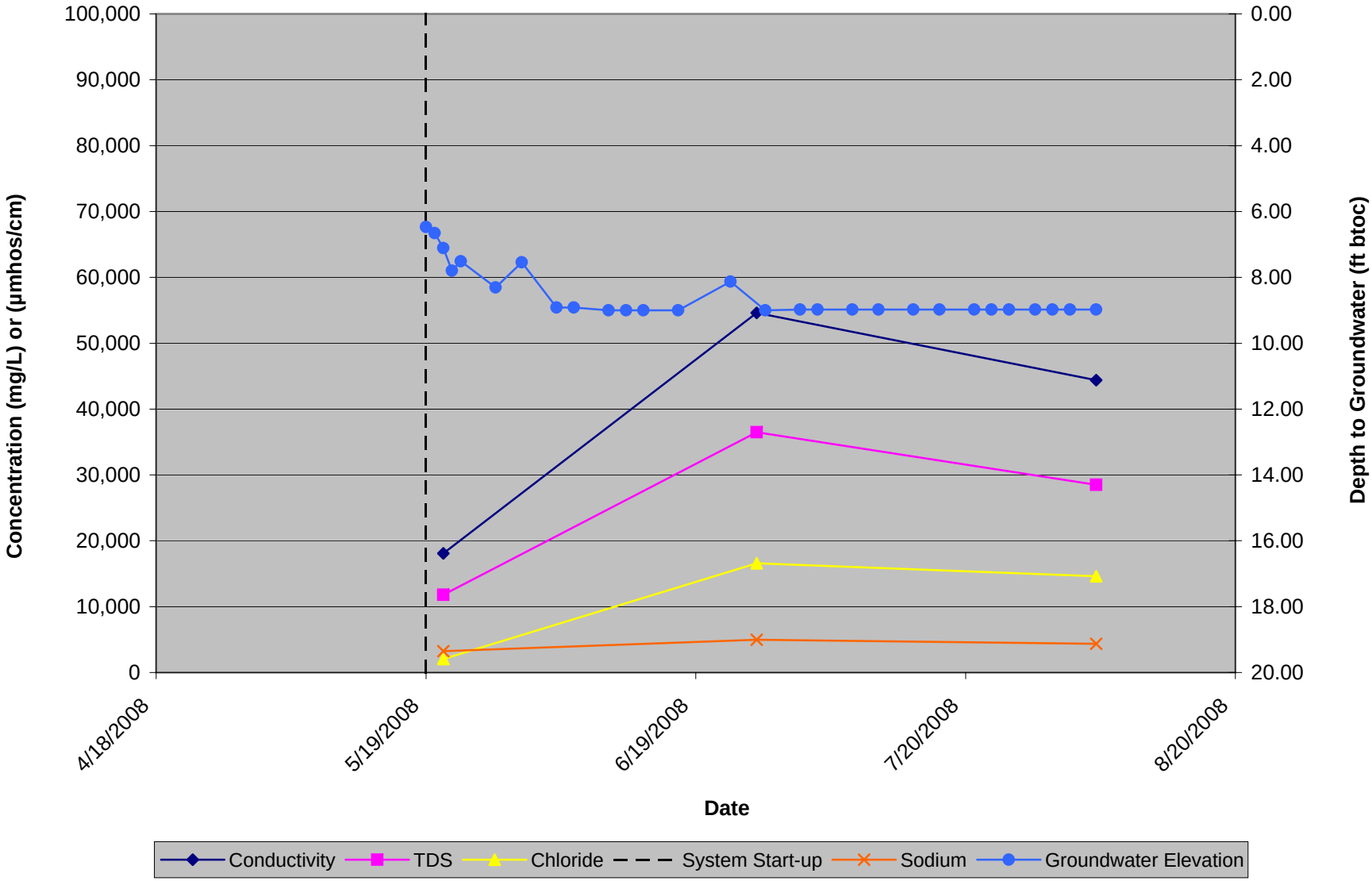
GRAPH 3 - S-MW-05 CONCENTRATIONS AND GROUNDWATER ELEVATIONS



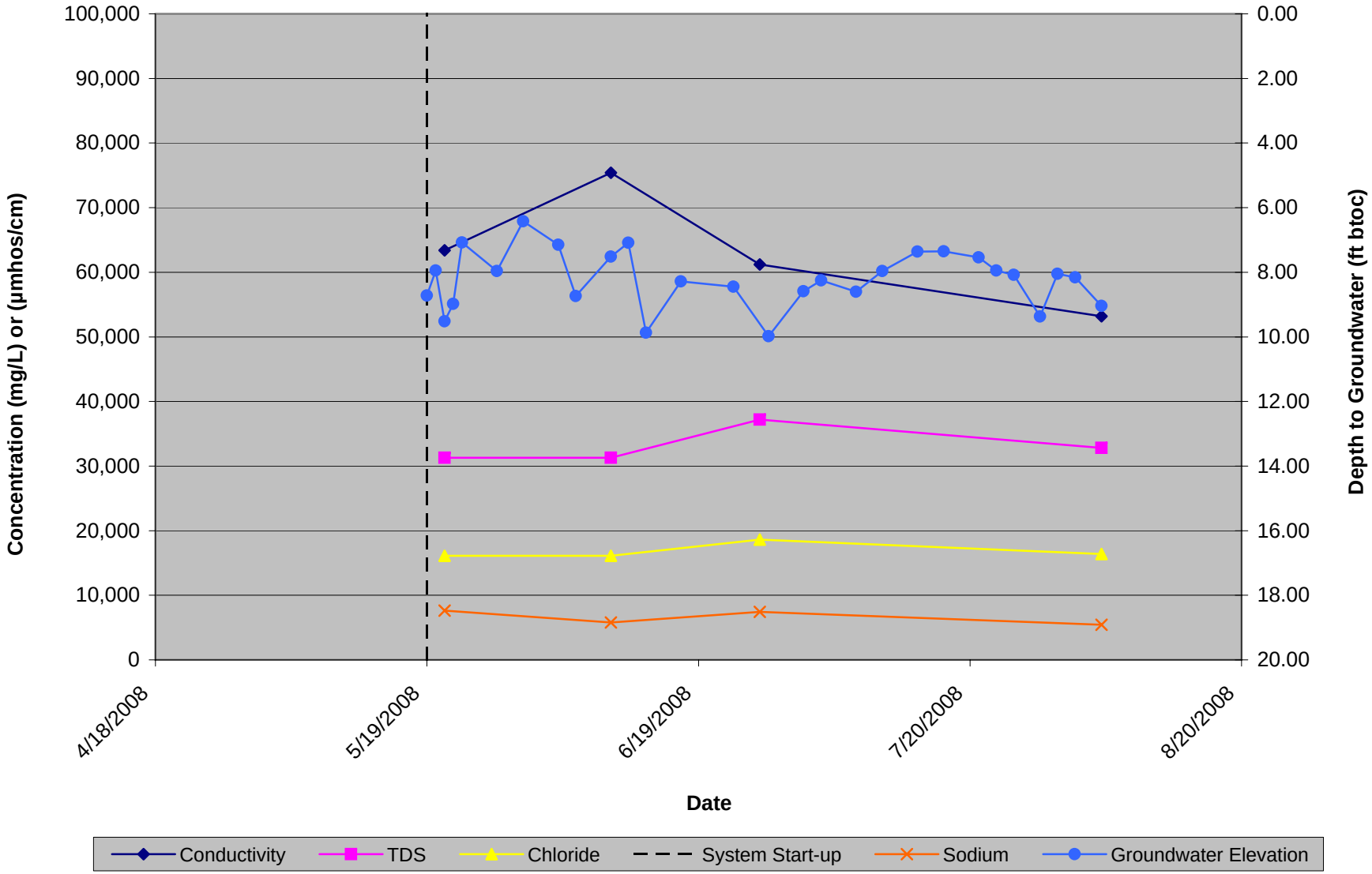
GRAPH 4 - OB-1 CONCENTRATIONS AND GROUNDWATER ELEVATIONS



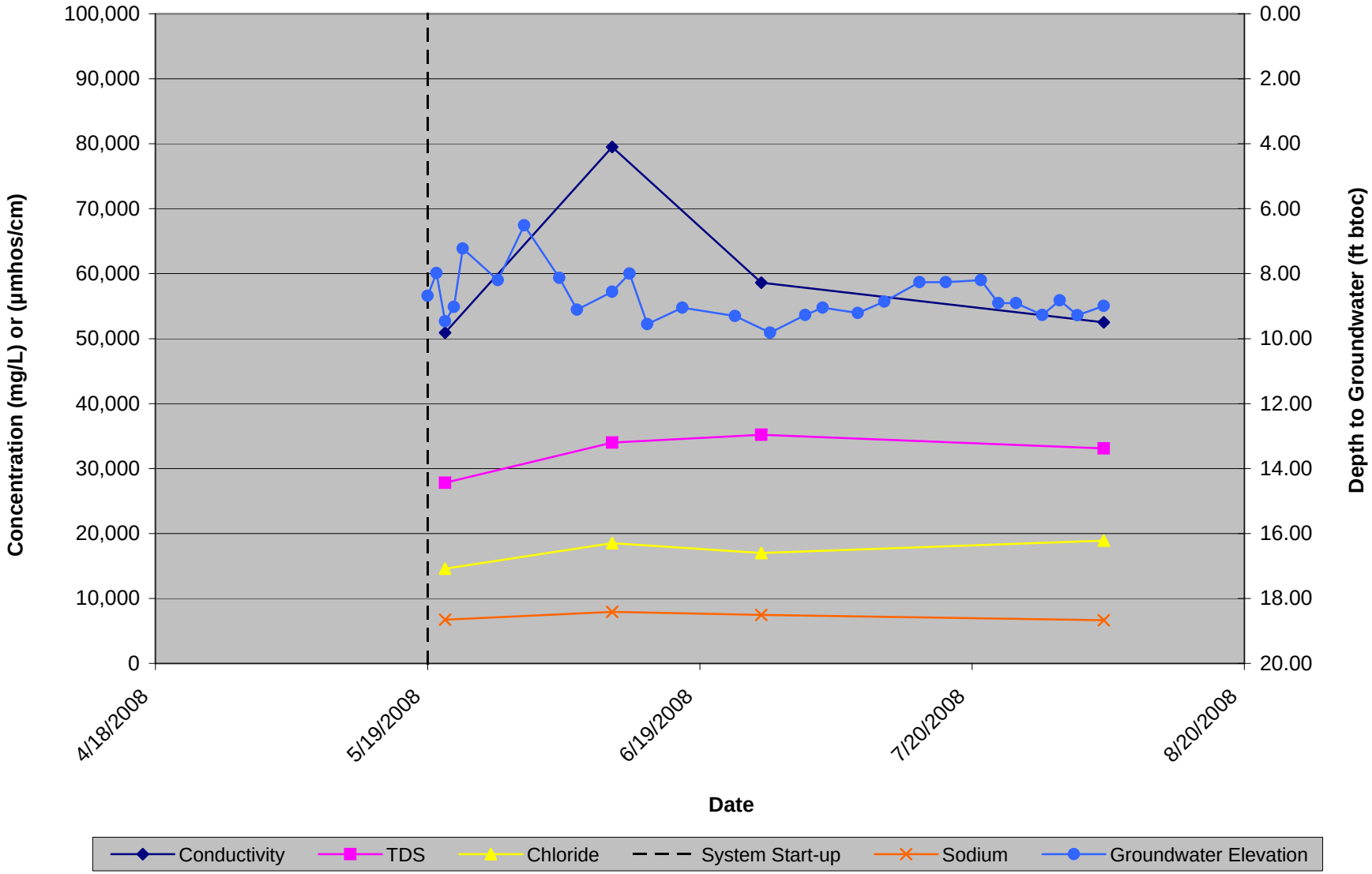
GRAPH 5 - OB-2 CONCENTRATIONS AND GROUNDWATER ELEVATIONS



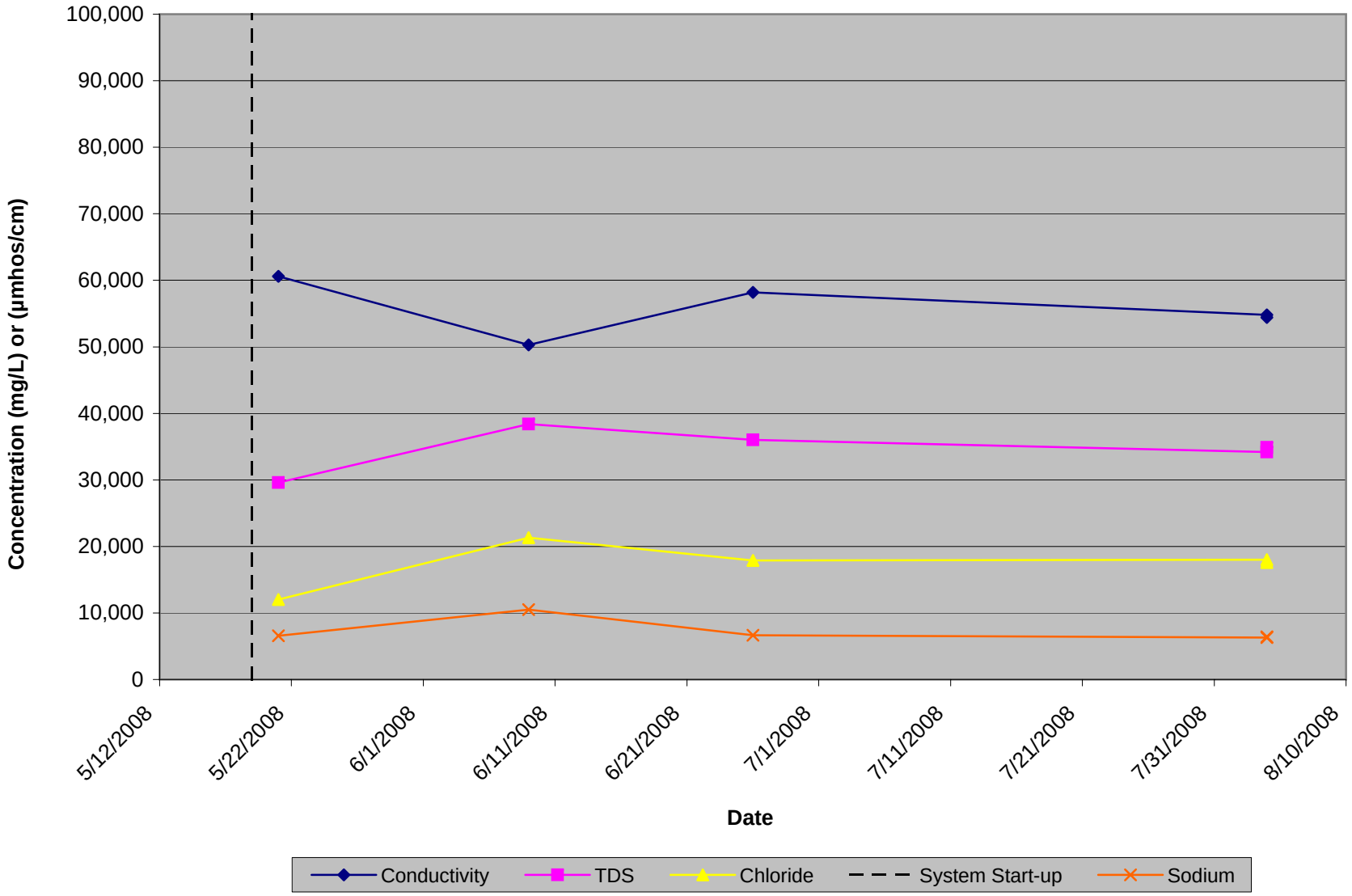
GRAPH 6 - SUMP-1 CONCENTRATIONS AND GROUNDWATER ELEVATIONS



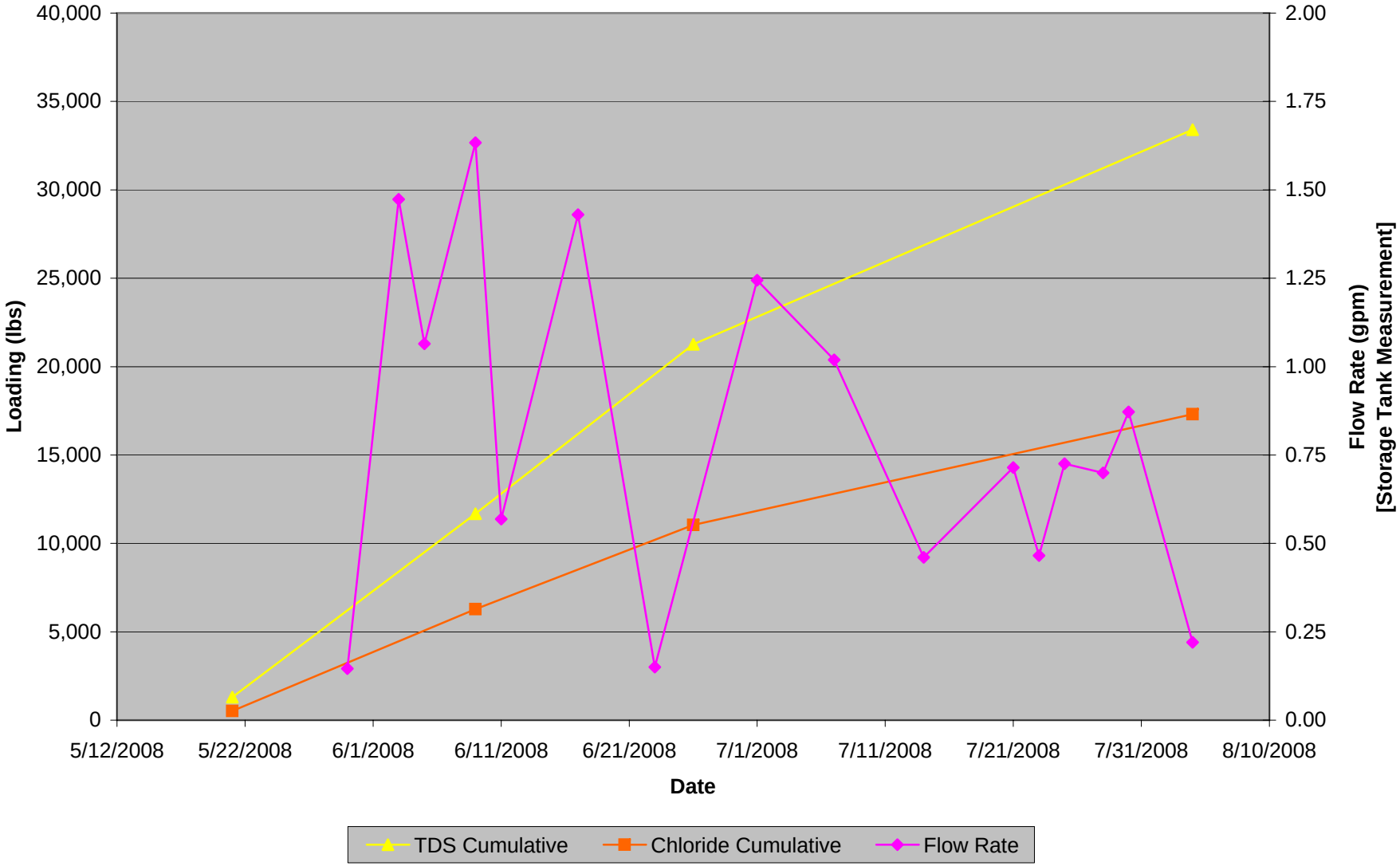
GRAPH 7 - SUMP-2 CONCENTRATIONS AND GROUNDWATER ELEVATIONS



GRAPH 8 - PUMP EFFLUENT CONCENTRATIONS



GRAPH 9 - PUMP EFFLUENT LOADING AND FLOW RATE



APPENDIX A

LABORATORY ANALYTICAL DATA REPORTS AND CHAIN-OF-CUSTODY FORMS

(NOTE: COPIES OF THE LABORATORY ANALYTICAL DATA ARE NOT INCLUDED IN THIS REPORT BUT ARE AVAIALBLE AT HTTP://WWW.RRC.STATE.TX.US/DIVISIONS/OG/SITE_REM/NPS/UPPER/INDEX.HTML)

August 13, 2008

Arsin Sahba
TRC Environmental Corp.
505 East Huntland Drive Suite 250
Austin, Texas 78752

TEL: (512) 329-6080
FAX: (512) 329-8750

Order No: 0808040

RE: RRC - West O'Daniel

Dear Arsin Sahba:

DHL Analytical received 8 sample(s) on 8/6/2008 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
Lab Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-08A-TX

Table of Contents

DHL ANALYTICAL

2300 Double Creek Drive • Round Rock, TX 78664
Phone (512) 388-8222 • FAX (512) 388-8229

№ 29764

CHAIN-OF-CUSTODY

CLIENT: TRC
ADDRESS: 505 E Huntland Dr Ste 250 Austin TX 78752
PHONE: 512-329-6080 FAX
DATA REPORTED TO: Arsin Sahba
ADDITIONAL REPORT COPIES TO: —

DATE: 8-4-08 PAGE 1 OF 1
PO #: DHL WORK ORDER #: 0808040
PROJECT LOCATION OR NAME: RRC – west of Daniel
CLIENT PROJECT #: 161641 COLLECTOR: BC/TK

Authorize 5% surcharge for TRRP report? ☐ Yes ☒ No

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

PRESERVATION: HCl, HNO_3, H_2SO_4 ☐ NaOH ☐, ICE, UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☐ ANIONS ☐ ALKALINITY ☒ | CATIONS (Ca, Na, Mg, Fe ☒) | ANIONS (Cl, Sulfates) | CONDUCTIVITY

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	FIELD NOTES
~~S-MW-05~~		~~8/4/08~~										
S-OB-01	01	8/4/08	1235	W		3		X		X	X	Alkalinity = carbonate + bicarbonate
S-SUMP-1	02	8/4/08	1250	W		3		X		X	X	
S-SUMP-2	03	8/4/08	1300	W		3		X		X	X	
S-OB-02	04	8/4/08	1345	W		2		X		X	X	Not enough for 3 bottles
S-MW-02	05	8/4/08	1410	W		3		X		X	X	
S-MW-04	06	8/4/08	1435	W		3		X		X	X	
Pump Effluent	07	8/4/08	1450	W		3		X		X	X	
Pump Effluent-D	08	8/4/08	1450	W		3		X		X	X	

** In accordance with Colorado River RRC-TRC QAPP

TOTAL

RELINQUISHED BY: (Signature) DATE/TIME 8/5/08 1800 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME 8/6/08 1030 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☒ 3-Day

LABORATORY USE ONLY:
RECEIVING TEMP: 3.2° THERM #: 57
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ APC DELIVERY
☐ HAND DELIVERED

FedEx. US Airbill
Express

FedEx Tracking Number: 8645 0316 9685

Form ID No. 0200 — Recipient's Copy

1 From

Date 8/5/08

Sender's Name Barrett Clark Phone 512 329 6080

Company TRC

Address 505 E. Huntland Dr 250

Dept./Floor/Suite/Room

City Austin State TX ZIP 78752

2 Your Internal Billing Reference 16164

3 To

Recipient's Name Receiving dept Phone 512 388-8222

Company DHL Analytical

Recipient's Address

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

Address 2300 Double Creek Dr

To request a package be held at a specific FedEx location, print FedEx address here.

City Round Rock State TX ZIP 78664

8645 0316 9685

4a Express Package Service — *Packages up to 150 lbs.*

- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One-pound rate. * To most locations.

4b Express Freight Service — *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation: ** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [x] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [ ] Other — * Declared value limit $500.

6 Special Handling — Include FedEx address in Section 3.

- [ ] SATURDAY Delivery — Not available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight.
- [ ] HOLD Saturday at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging. [ ] Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below. Obtain Recip. Acct. No. [ ]

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Total Packages: 1 | Total Weight: [redacted] | Total Declared Value†: $ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. Credit Card Auth.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. *Fee applies.*

520

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CUSTODY SEAL
DATE 8/5/08
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical

Sample Receipt Checklist

Client Name **TRC Environmental Corp.** Date Received: **8/6/2008**

Work Order Number **0808040** Received by **JB**

Checklist completed by: _____ 8/6/08 (Signature / Date) Reviewed by _____ 8/6/08 (Initials / Date)

Carrier name: FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Adjusted? NO Checked by SB3

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

CLIENT: TRC Environmental Corp.
Project: RRC - West O'Daniel
Lab Order: 0808040

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method E300 - Anions Analyis
Method SW6020 - Metals Analysis
Method M2320 B (18th edition) - Alkalinity Analysis
Method M2540C (18th edition) - TDS Analysis
Method M2540 B (18th edition) - Specific Conductance

LOG IN

Samples were received and log-in performed on 8/6/08. A total of 8 samples were received. The samples arrived in good condition and were properly packaged.

METALS ANALYSIS

For Metals analysis performed on 8/7/08 the matrix spike and matrix spike duplicate recoveries were out of control limits for a few analytes. These are flagged accordingly in the QC summary report. The reference sample selected for the matrix spike and matrix spike duplicate was not from this work order. The LCS was within control limits for these analytes. No further corrective actions were taken.

CLIENT: TRC Environmental Corp.
Project: RRC - West O'Daniel
Lab Order: 0808040

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recv'd
0808040-01	S-OB-01		08/04/08 12:35 PM	08/06/08
0808040-02	S-SUMP-1		08/04/08 12:50 PM	08/06/08
0808040-03	S-SUMP-2		08/04/08 01:00 PM	08/06/08
0808040-04	S-OB-02		08/04/08 01:45 PM	08/06/08
0808040-05	S-MW-02		08/04/08 02:10 PM	08/06/08
0808040-06	S-MW-04		08/04/08 02:35 PM	08/06/08
0808040-07	Pump Effluent		08/04/08 02:50 PM	08/06/08
0808040-08	Pump Effluent-D		08/04/08 02:50 PM	08/06/08

CLIENT: TRC Environmental Corp.
Project: RRC - West O'Daniel
Lab Order: 0808040

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
0808040-01A	S-OB-01	08/04/08 12:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-OB-01	08/04/08 12:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-OB-01	08/04/08 12:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-OB-01	08/04/08 12:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
0808040-01B	S-OB-01	08/04/08 12:35 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-OB-01	08/04/08 12:35 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-OB-01	08/04/08 12:35 PM	Aqueous	M2320 B	Alkalinity	08/07/08 01:02 PM	R39059
0808040-01C	S-OB-01	08/04/08 12:35 PM	Aqueous	M2510 B	Specific Conductance	08/07/08	CONDW-08/07/08
	S-OB-01	08/04/08 12:35 PM	Aqueous	M2540C	Total Dissolved Solids	08/07/08	TDS_W-8/7/08
0808040-02A	S-SUMP-1	08/04/08 12:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-SUMP-1	08/04/08 12:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-SUMP-1	08/04/08 12:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-SUMP-1	08/04/08 12:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
0808040-02B	S-SUMP-1	08/04/08 12:50 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-SUMP-1	08/04/08 12:50 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-SUMP-1	08/04/08 12:50 PM	Aqueous	M2320 B	Alkalinity	08/07/08 01:14 PM	R39059
0808040-02C	S-SUMP-1	08/04/08 12:50 PM	Aqueous	M2510 B	Specific Conductance	08/07/08	CONDW-08/07/08
	S-SUMP-1	08/04/08 12:50 PM	Aqueous	M2540C	Total Dissolved Solids	08/07/08	TDS_W-8/7/08
0808040-03A	S-SUMP-2	08/04/08 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-SUMP-2	08/04/08 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-SUMP-2	08/04/08 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-SUMP-2	08/04/08 01:00 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
0808040-03B	S-SUMP-2	08/04/08 01:00 PM	Aqueous	E300	Anions by IC method - Water	08/11/08	R39093
	S-SUMP-2	08/04/08 01:00 PM	Aqueous	E300	Anions by IC method - Water	08/11/08	R39093
	S-SUMP-2	08/04/08 01:00 PM	Aqueous	M2320 B	Alkalinity	08/07/08 01:30 PM	R39059
0808040-03C	S-SUMP-2	08/04/08 01:00 PM	Aqueous	M2510 B	Specific Conductance	08/07/08	CONDW-08/07/08
	S-SUMP-2	08/04/08 01:00 PM	Aqueous	M2540C	Total Dissolved Solids	08/07/08	TDS_W-8/7/08
0808040-04A	S-OB-02	08/04/08 01:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-OB-02	08/04/08 01:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240

CLIENT: TRC Environmental Corp.
Project: RRC - West O'Daniel
Lab Order: 0808040

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
	S-OB-02	08/04/08 01:45 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
0808040-04B	S-OB-02	08/04/08 01:45 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-OB-02	08/04/08 01:45 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-OB-02	08/04/08 01:45 PM	Aqueous	M2320 B	Alkalinity	08/07/08 01:44 PM	R39059
	S-OB-02	08/04/08 01:45 PM	Aqueous	M2510 B	Specific Conductance	08/07/08	CONDW-08/07/08
	S-OB-02	08/04/08 01:45 PM	Aqueous	M2540C	Total Dissolved Solids	08/07/08	TDS_W-8/7/08
0808040-05A	S-MW-02	08/04/08 02:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-MW-02	08/04/08 02:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-MW-02	08/04/08 02:10 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
0808040-05B	S-MW-02	08/04/08 02:10 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-MW-02	08/04/08 02:10 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-MW-02	08/04/08 02:10 PM	Aqueous	M2320 B	Alkalinity	08/07/08 01:51 PM	R39059
0808040-05C	S-MW-02	08/04/08 02:10 PM	Aqueous	M2510 B	Specific Conductance	08/07/08	CONDW-08/07/08
	S-MW-02	08/04/08 02:10 PM	Aqueous	M2540C	Total Dissolved Solids	08/07/08	TDS_W-8/7/08
0808040-06A	S-MW-04	08/04/08 02:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-MW-04	08/04/08 02:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-MW-04	08/04/08 02:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	S-MW-04	08/04/08 02:35 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
0808040-06B	S-MW-04	08/04/08 02:35 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-MW-04	08/04/08 02:35 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	S-MW-04	08/04/08 02:35 PM	Aqueous	M2320 B	Alkalinity	08/07/08 01:57 PM	R39059
0808040-06C	S-MW-04	08/04/08 02:35 PM	Aqueous	M2510 B	Specific Conductance	08/07/08	CONDW-08/07/08
	S-MW-04	08/04/08 02:35 PM	Aqueous	M2540C	Total Dissolved Solids	08/07/08	TDS_W-8/7/08
0808040-07A	Pump Effluent	08/04/08 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	Pump Effluent	08/04/08 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	Pump Effluent	08/04/08 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
0808040-07B	Pump Effluent	08/04/08 02:50 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	Pump Effluent	08/04/08 02:50 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	Pump Effluent	08/04/08 02:50 PM	Aqueous	E300	Anions by IC method - Water	08/11/08	R39093

CLIENT: TRC Environmental Corp.
Project: RRC - West O'Daniel
Lab Order: 0808040

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
	Pump Effluent	08/04/08 02:50 PM	Aqueous	M2320 B	Alkalinity	08/07/08 02:11 PM	R39059
0808040-07C	Pump Effluent	08/04/08 02:50 PM	Aqueous	M2510 B	Specific Conductance	08/07/08	CONDW-08/07/08
	Pump Effluent	08/04/08 02:50 PM	Aqueous	M2540C	Total Dissolved Solids	08/07/08	TDS_W-8/7/08
0808040-08A	Pump Effluent-D	08/04/08 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	Pump Effluent-D	08/04/08 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
	Pump Effluent-D	08/04/08 02:50 PM	Aqueous	SW3005A	Aq Prep Metals : ICP-MS	08/06/08 12:10 PM	31240
0808040-08B	Pump Effluent-D	08/04/08 02:50 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	Pump Effluent-D	08/04/08 02:50 PM	Aqueous	E300	Anions by IC method - Water	08/06/08	R39027
	Pump Effluent-D	08/04/08 02:50 PM	Aqueous	E300	Anions by IC method - Water	08/11/08	R39093
	Pump Effluent-D	08/04/08 02:50 PM	Aqueous	M2320 B	Alkalinity	08/07/08 02:20 PM	R39059
0808040-08C	Pump Effluent-D	08/04/08 02:50 PM	Aqueous	M2510 B	Specific Conductance	08/07/08	CONDW-08/07/08
	Pump Effluent-D	08/04/08 02:50 PM	Aqueous	M2540C	Total Dissolved Solids	08/07/08	TDS_W-8/7/08

CLIENT: TRC Environmental Corp.
Project: RRC - West O'Daniel
Lab Order: 0808040

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
0808040-01A	S-OB-01	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/06/08 06:17 PM	ICP-MS3_080806A
	S-OB-01	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	10	08/07/08 08:40 PM	ICP-MS3_080807A
	S-OB-01	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1	08/07/08 11:05 PM	ICP-MS3_080807A
	S-OB-01	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/11/08 05:42 PM	ICP-MS3_080811A
0808040-01B	S-OB-01	Aqueous	M2320 B	Alkalinity	R39059	1	08/07/08 01:02 PM	TITRATOR_080807B
	S-OB-01	Aqueous	E300	Anions by IC method - Water	R39027	500	08/06/08 02:45 PM	IC2_080806A
	S-OB-01	Aqueous	E300	Anions by IC method - Water	R39027	20	08/06/08 03:58 PM	IC2_080806A
0808040-01C	S-OB-01	Aqueous	M2510 B	Specific Conductance	CONDW-08/07/08	5	08/07/08 11:40 AM	WC_080807A
	S-OB-01	Aqueous	M2540C	Total Dissolved Solids	TDS_W-8/7/08	1	08/07/08 02:30 PM	WC_080807B
0808040-02A	S-SUMP-1	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/06/08 06:22 PM	ICP-MS3_080806A
	S-SUMP-1	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	10	08/07/08 08:45 PM	ICP-MS3_080807A
	S-SUMP-1	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1	08/07/08 11:10 PM	ICP-MS3_080807A
	S-SUMP-1	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/11/08 05:47 PM	ICP-MS3_080811A
0808040-02B	S-SUMP-1	Aqueous	M2320 B	Alkalinity	R39059	1	08/07/08 01:14 PM	TITRATOR_080807B
	S-SUMP-1	Aqueous	E300	Anions by IC method - Water	R39027	10	08/06/08 03:00 PM	IC2_080806A
	S-SUMP-1	Aqueous	E300	Anions by IC method - Water	R39027	500	08/06/08 05:27 PM	IC2_080806A
0808040-02C	S-SUMP-1	Aqueous	M2510 B	Specific Conductance	CONDW-08/07/08	5	08/07/08 11:40 AM	WC_080807A
	S-SUMP-1	Aqueous	M2540C	Total Dissolved Solids	TDS_W-8/7/08	1	08/07/08 02:30 PM	WC_080807B
0808040-03A	S-SUMP-2	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	5	08/08/08 01:23 PM	ICP-MS2_080808A
	S-SUMP-2	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/06/08 08:21 PM	ICP-MS3_080806A
	S-SUMP-2	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1	08/07/08 11:15 PM	ICP-MS3_080807A
	S-SUMP-2	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/11/08 10:59 PM	ICP-MS3_080811A
0808040-03B	S-SUMP-2	Aqueous	M2320 B	Alkalinity	R39059	1	08/07/08 01:30 PM	TITRATOR_080807B
	S-SUMP-2	Aqueous	E300	Anions by IC method - Water	R39093	500	08/11/08 12:15 PM	IC2_080811A
	S-SUMP-2	Aqueous	E300	Anions by IC method - Water	R39093	20	08/11/08 12:30 PM	IC2_080811A
0808040-03C	S-SUMP-2	Aqueous	M2510 B	Specific Conductance	CONDW-08/07/08	5	08/07/08 11:40 AM	WC_080807A
	S-SUMP-2	Aqueous	M2540C	Total Dissolved Solids	TDS_W-8/7/08	1	08/07/08 02:30 PM	WC_080807B
0808040-04A	S-OB-02	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	5	08/08/08 01:29 PM	ICP-MS2_080808A
	S-OB-02	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/06/08 08:27 PM	ICP-MS3_080806A

CLIENT: TRC Environmental Corp.
Project: RRC - West O'Daniel
Lab Order: 0808040

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
	S-OB-02	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1	08/07/08 11:20 PM	ICP-MS3_080807A
0808040-04B	S-OB-02	Aqueous	M2320 B	Alkalinity	R39059	1	08/07/08 01:44 PM	TITRATOR_080807B
	S-OB-02	Aqueous	E300	Anions by IC method - Water	R39027	20	08/06/08 03:29 PM	IC2_080806A
	S-OB-02	Aqueous	E300	Anions by IC method - Water	R39027	500	08/06/08 05:56 PM	IC2_080806A
	S-OB-02	Aqueous	M2510 B	Specific Conductance	CONDW-08/07/08	5	08/07/08 11:40 AM	WC_080807A
	S-OB-02	Aqueous	M2540C	Total Dissolved Solids	TDS_W-8/7/08	1	08/07/08 02:30 PM	WC_080807B
0808040-05A	S-MW-02	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/06/08 08:32 PM	ICP-MS3_080806A
	S-MW-02	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	10	08/07/08 08:50 PM	ICP-MS3_080807A
	S-MW-02	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/11/08 11:04 PM	ICP-MS3_080811A
0808040-05B	S-MW-02	Aqueous	M2320 B	Alkalinity	R39059	1	08/07/08 01:51 PM	TITRATOR_080807B
	S-MW-02	Aqueous	E300	Anions by IC method - Water	R39027	100	08/06/08 03:44 PM	IC2_080806A
	S-MW-02	Aqueous	E300	Anions by IC method - Water	R39027	1000	08/06/08 06:11 PM	IC2_080806A
0808040-05C	S-MW-02	Aqueous	M2510 B	Specific Conductance	CONDW-08/07/08	5	08/07/08 11:40 AM	WC_080807A
	S-MW-02	Aqueous	M2540C	Total Dissolved Solids	TDS_W-8/7/08	1	08/07/08 02:30 PM	WC_080807B
0808040-06A	S-MW-04	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	100	08/08/08 01:34 PM	ICP-MS2_080808A
	S-MW-04	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/06/08 08:37 PM	ICP-MS3_080806A
	S-MW-04	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	2000	08/07/08 01:02 PM	ICP-MS3_080807A
	S-MW-04	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1	08/07/08 11:25 PM	ICP-MS3_080807A
0808040-06B	S-MW-04	Aqueous	M2320 B	Alkalinity	R39059	1	08/07/08 01:57 PM	TITRATOR_080807B
	S-MW-04	Aqueous	E300	Anions by IC method - Water	R39027	100	08/06/08 04:28 PM	IC2_080806A
	S-MW-04	Aqueous	E300	Anions by IC method - Water	R39027	500	08/06/08 06:26 PM	IC2_080806A
0808040-06C	S-MW-04	Aqueous	M2510 B	Specific Conductance	CONDW-08/07/08	25	08/07/08 11:40 AM	WC_080807A
	S-MW-04	Aqueous	M2540C	Total Dissolved Solids	TDS_W-8/7/08	1	08/07/08 02:30 PM	WC_080807B
0808040-07A	Pump Effluent	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	5	08/08/08 01:39 PM	ICP-MS2_080808A
	Pump Effluent	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/06/08 08:42 PM	ICP-MS3_080806A
	Pump Effluent	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1	08/07/08 11:30 PM	ICP-MS3_080807A
0808040-07B	Pump Effluent	Aqueous	M2320 B	Alkalinity	R39059	1	08/07/08 02:11 PM	TITRATOR_080807B
	Pump Effluent	Aqueous	E300	Anions by IC method - Water	R39027	100	08/06/08 04:59 PM	IC2_080806A
	Pump Effluent	Aqueous	E300	Anions by IC method - Water	R39027	500	08/06/08 06:40 PM	IC2_080806A

CLIENT: TRC Environmental Corp.
Project: RRC - West O'Daniel
Lab Order: 0808040

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
	Pump Effluent	Aqueous	E300	Anions by IC method - Water	R39093	500	08/11/08 12:44 PM	IC2_080811A
0808040-07C	Pump Effluent	Aqueous	M2510 B	Specific Conductance	CONDW-08/07/08	5	08/07/08 11:40 AM	WC_080807A
	Pump Effluent	Aqueous	M2540C	Total Dissolved Solids	TDS_W-8/7/08	1	08/07/08 02:30 PM	WC_080807B
0808040-08A	Pump Effluent-D	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	5	08/08/08 01:45 PM	ICP-MS2_080808A
	Pump Effluent-D	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1000	08/06/08 08:47 PM	ICP-MS3_080806A
	Pump Effluent-D	Aqueous	SW6020	Trace Metals: ICP-MS - Water	31240	1	08/07/08 11:35 PM	ICP-MS3_080807A
0808040-08B	Pump Effluent-D	Aqueous	M2320 B	Alkalinity	R39059	1	08/07/08 02:20 PM	TITRATOR_080807B
	Pump Effluent-D	Aqueous	E300	Anions by IC method - Water	R39027	100	08/06/08 05:13 PM	IC2_080806A
	Pump Effluent-D	Aqueous	E300	Anions by IC method - Water	R39027	500	08/06/08 06:55 PM	IC2_080806A
	Pump Effluent-D	Aqueous	E300	Anions by IC method - Water	R39093	500	08/11/08 12:59 PM	IC2_080811A
0808040-08C	Pump Effluent-D	Aqueous	M2510 B	Specific Conductance	CONDW-08/07/08	5	08/07/08 11:40 AM	WC_080807A
	Pump Effluent-D	Aqueous	M2540C	Total Dissolved Solids	TDS_W-8/7/08	1	08/07/08 02:30 PM	WC_080807B

CLIENT:	TRC Environmental Corp.	**Client Sample ID:**	S-OB-01
Project:	RRC - West O'Daniel	**Lab ID:**	0808040-01
Project No:	161641	**Collection Date:**	08/04/08 12:35 PM
Lab Order:	0808040	**Matrix:**	Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
Trace Metals: ICP-MS - Water		**SW6020**					**Analyst: AJR**
Barium	0.289	0.00300	0.0100		mg/L	1	08/07/08 11:05 PM
Calcium	2590	100	100		mg/L	1000	08/11/08 05:42 PM
Iron	15.2	0.500	1.00		mg/L	10	08/07/08 08:40 PM
Magnesium	820	100	100		mg/L	1000	08/11/08 05:42 PM
Potassium	15.9	1.00	1.00		mg/L	10	08/07/08 08:40 PM
Sodium	5190	100	100		mg/L	1000	08/11/08 05:42 PM
Anions by IC method - Water		**E300**					**Analyst: JBC**
Chloride	17400	150	500		mg/L	500	08/06/08 02:45 PM
Sulfate	1610	20.0	60.0		mg/L	20	08/06/08 03:58 PM
Alkalinity		**M2320 B**					**Analyst: SW**
Alkalinity, Bicarbonate (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:02 PM
Alkalinity, Carbonate (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:02 PM
Alkalinity, Hydroxide (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:02 PM
Alkalinity, Total (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:02 PM
Specific Conductance		**M2510 B**					**Analyst: SW**
Specific Conductance	51200	50.0	50.0		µmhos/cm	5	08/07/08 11:40 AM
Total Dissolved Solids		**M2540C**					**Analyst: SW**
Total Dissolved Solids (Residue, Filterable)	30700	10.0	10.0		mg/L	1	08/07/08 02:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	J	Analyte detected between MDL and RL
B	Analyte detected in the associated Method Blank	MDL	Method Detection Limit
C	Sample Result or QC discussed in the Case Narrative	N	Parameter not NELAC certified
DF	Dilution Factor	ND	Not Detected at the Method Detection Limit
E	TPH pattern not Gas or Diesel Range Pattern	RL	Reporting Limit
		S	Spike Recovery outside control limits

CLIENT:	TRC Environmental Corp.	**Client Sample ID:**	S-SUMP-1
Project:	RRC - West O'Daniel	**Lab ID:**	0808040-02
Project No:	161641	**Collection Date:**	08/04/08 12:50 PM
Lab Order:	0808040	**Matrix:**	Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
Trace Metals: ICP-MS - Water		**SW6020**					**Analyst: AJR**
Barium	0.423	0.00300	0.0100		mg/L	1	08/07/08 11:10 PM
Calcium	2540	100	100		mg/L	1000	08/11/08 05:47 PM
Iron	19.3	0.500	1.00		mg/L	10	08/07/08 08:45 PM
Magnesium	703	100	100		mg/L	1000	08/06/08 06:22 PM
Potassium	14.7	1.00	1.00		mg/L	10	08/07/08 08:45 PM
Sodium	5420	100	100		mg/L	1000	08/11/08 05:47 PM
Anions by IC method - Water		**E300**					**Analyst: JBC**
Chloride	16400	150	500		mg/L	500	08/06/08 05:27 PM
Sulfate	1380	10.0	30.0		mg/L	10	08/06/08 03:00 PM
Alkalinity		**M2320 B**					**Analyst: SW**
Alkalinity, Bicarbonate (As CaCO3)	310	10.0	20.0		mg/L	1	08/07/08 01:14 PM
Alkalinity, Carbonate (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:14 PM
Alkalinity, Hydroxide (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:14 PM
Alkalinity, Total (As CaCO3)	310	10.0	20.0		mg/L	1	08/07/08 01:14 PM
Specific Conductance		**M2510 B**					**Analyst: SW**
Specific Conductance	53200	50.0	50.0		µmhos/cm	5	08/07/08 11:40 AM
Total Dissolved Solids		**M2540C**					**Analyst: SW**
Total Dissolved Solids (Residue, Filterable)	32800	10.0	10.0		mg/L	1	08/07/08 02:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level
B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL
MDL	Method Detection Limit
N	Parameter not NELAC certified
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
S	Spike Recovery outside control limits

CLIENT:	TRC Environmental Corp.	**Client Sample ID:**	S-SUMP-2
Project:	RRC - West O'Daniel	**Lab ID:**	0808040-03
Project No:	161641	**Collection Date:**	08/04/08 01:00 PM
Lab Order:	0808040	**Matrix:**	Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
Trace Metals: ICP-MS - Water		**SW6020**					**Analyst: AJR**
Barium	1.11	0.00300	0.0100		mg/L	1	08/07/08 11:15 PM
Calcium	2200	100	100		mg/L	1000	08/11/08 10:59 PM
Iron	17.4	0.250	0.500		mg/L	5	08/08/08 01:23 PM
Magnesium	615	100	100		mg/L	1000	08/06/08 08:21 PM
Potassium	13.0	0.500	0.500		mg/L	5	08/08/08 01:23 PM
Sodium	6670	100	100		mg/L	1000	08/11/08 10:59 PM
Anions by IC method - Water		**E300**					**Analyst: JBC**
Chloride	18900	150	500		mg/L	500	08/11/08 12:15 PM
Sulfate	1780	20.0	60.0		mg/L	20	08/11/08 12:30 PM
Alkalinity		**M2320 B**					**Analyst: SW**
Alkalinity, Bicarbonate (As CaCO3)	445	10.0	20.0		mg/L	1	08/07/08 01:30 PM
Alkalinity, Carbonate (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:30 PM
Alkalinity, Hydroxide (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:30 PM
Alkalinity, Total (As CaCO3)	445	10.0	20.0		mg/L	1	08/07/08 01:30 PM
Specific Conductance		**M2510 B**					**Analyst: SW**
Specific Conductance	52500	50.0	50.0		µmhos/cm	5	08/07/08 11:40 AM
Total Dissolved Solids		**M2540C**					**Analyst: SW**
Total Dissolved Solids (Residue, Filterable)	33100	10.0	10.0		mg/L	1	08/07/08 02:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	J	Analyte detected between MDL and RL
B	Analyte detected in the associated Method Blank	MDL	Method Detection Limit
C	Sample Result or QC discussed in the Case Narrative	N	Parameter not NELAC certified
DF	Dilution Factor	ND	Not Detected at the Method Detection Limit
E	TPH pattern not Gas or Diesel Range Pattern	RL	Reporting Limit
		S	Spike Recovery outside control limits

CLIENT:	TRC Environmental Corp.	**Client Sample ID:**	S-OB-02
Project:	RRC - West O'Daniel	**Lab ID:**	0808040-04
Project No:	161641	**Collection Date:**	08/04/08 01:45 PM
Lab Order:	0808040	**Matrix:**	Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
Trace Metals: ICP-MS - Water		**SW6020**					**Analyst: AJR**
Barium	0.760	0.00300	0.0100		mg/L	1	08/07/08 11:20 PM
Calcium	2800	100	100		mg/L	1000	08/06/08 08:27 PM
Iron	35.1	0.250	0.500		mg/L	5	08/08/08 01:29 PM
Magnesium	806	100	100		mg/L	1000	08/06/08 08:27 PM
Potassium	13.8	0.500	0.500		mg/L	5	08/08/08 01:29 PM
Sodium	4360	100	100		mg/L	1000	08/06/08 08:27 PM
Anions by IC method - Water		**E300**					**Analyst: JBC**
Chloride	14600	150	500		mg/L	500	08/06/08 05:56 PM
Sulfate	1300	20.0	60.0		mg/L	20	08/06/08 03:29 PM
Alkalinity		**M2320 B**					**Analyst: SW**
Alkalinity, Bicarbonate (As CaCO3)	431	10.0	20.0		mg/L	1	08/07/08 01:44 PM
Alkalinity, Carbonate (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:44 PM
Alkalinity, Hydroxide (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:44 PM
Alkalinity, Total (As CaCO3)	431	10.0	20.0		mg/L	1	08/07/08 01:44 PM
Specific Conductance		**M2510 B**					**Analyst: SW**
Specific Conductance	44400	50.0	50.0		µmhos/cm	5	08/07/08 11:40 AM
Total Dissolved Solids		**M2540C**					**Analyst: SW**
Total Dissolved Solids (Residue, Filterable)	28500	10.0	10.0		mg/L	1	08/07/08 02:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	J	Analyte detected between MDL and RL
B	Analyte detected in the associated Method Blank	MDL	Method Detection Limit
C	Sample Result or QC discussed in the Case Narrative	N	Parameter not NELAC certified
DF	Dilution Factor	ND	Not Detected at the Method Detection Limit
E	TPH pattern not Gas or Diesel Range Pattern	RL	Reporting Limit
		S	Spike Recovery outside control limits

CLIENT:	TRC Environmental Corp.	**Client Sample ID:**	S-MW-02
Project:	RRC - West O'Daniel	**Lab ID:**	0808040-05
Project No:	161641	**Collection Date:**	08/04/08 02:10 PM
Lab Order:	0808040	**Matrix:**	Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
Trace Metals: ICP-MS - Water		**SW6020**					**Analyst: AJR**
Barium	0.124	0.0300	0.100		mg/L	10	08/07/08 08:50 PM
Calcium	3120	100	100		mg/L	1000	08/11/08 11:04 PM
Iron	3.98	0.500	1.00		mg/L	10	08/07/08 08:50 PM
Magnesium	856	100	100		mg/L	1000	08/06/08 08:32 PM
Potassium	26.0	1.00	1.00		mg/L	10	08/07/08 08:50 PM
Sodium	8590	100	100		mg/L	1000	08/11/08 11:04 PM
Anions by IC method - Water		**E300**					**Analyst: JBC**
Chloride	23900	300	1000		mg/L	1000	08/06/08 06:11 PM
Sulfate	2170	100	300		mg/L	100	08/06/08 03:44 PM
Alkalinity		**M2320 B**					**Analyst: SW**
Alkalinity, Bicarbonate (As CaCO3)	197	10.0	20.0		mg/L	1	08/07/08 01:51 PM
Alkalinity, Carbonate (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:51 PM
Alkalinity, Hydroxide (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:51 PM
Alkalinity, Total (As CaCO3)	197	10.0	20.0		mg/L	1	08/07/08 01:51 PM
Specific Conductance		**M2510 B**					**Analyst: SW**
Specific Conductance	66400	50.0	50.0		µmhos/cm	5	08/07/08 11:40 AM
Total Dissolved Solids		**M2540C**					**Analyst: SW**
Total Dissolved Solids (Residue, Filterable)	43000	10.0	10.0		mg/L	1	08/07/08 02:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level
B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL
MDL	Method Detection Limit
N	Parameter not NELAC certified
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
S	Spike Recovery outside control limits

CLIENT:	TRC Environmental Corp.	**Client Sample ID:**	S-MW-04
Project:	RRC - West O'Daniel	**Lab ID:**	0808040-06
Project No:	161641	**Collection Date:**	08/04/08 02:35 PM
Lab Order:	0808040	**Matrix:**	Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
Trace Metals: ICP-MS - Water		**SW6020**					**Analyst: AJR**
Barium	0.191	0.00300	0.0100		mg/L	1	08/07/08 11:25 PM
Calcium	2450	100	100		mg/L	1000	08/06/08 08:37 PM
Iron	4.02	0.0500	0.100		mg/L	1	08/07/08 11:25 PM
Magnesium	548	100	100		mg/L	1000	08/06/08 08:37 PM
Potassium	180	10.0	10.0		mg/L	100	08/08/08 01:34 PM
Sodium	12100	200	200		mg/L	2000	08/07/08 01:02 PM
Anions by IC method - Water		**E300**					**Analyst: JBC**
Chloride	26000	150	500		mg/L	500	08/06/08 06:26 PM
Sulfate	2490	100	300		mg/L	100	08/06/08 04:28 PM
Alkalinity		**M2320 B**					**Analyst: SW**
Alkalinity, Bicarbonate (As CaCO3)	116	10.0	20.0		mg/L	1	08/07/08 01:57 PM
Alkalinity, Carbonate (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:57 PM
Alkalinity, Hydroxide (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 01:57 PM
Alkalinity, Total (As CaCO3)	116	10.0	20.0		mg/L	1	08/07/08 01:57 PM
Specific Conductance		**M2510 B**					**Analyst: SW**
Specific Conductance	81200	250	250		µmhos/cm	25	08/07/08 11:40 AM
Total Dissolved Solids		**M2540C**					**Analyst: SW**
Total Dissolved Solids (Residue, Filterable)	45400	10.0	10.0		mg/L	1	08/07/08 02:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	J	Analyte detected between MDL and RL
B	Analyte detected in the associated Method Blank	MDL	Method Detection Limit
C	Sample Result or QC discussed in the Case Narrative	N	Parameter not NELAC certified
DF	Dilution Factor	ND	Not Detected at the Method Detection Limit
E	TPH pattern not Gas or Diesel Range Pattern	RL	Reporting Limit
		S	Spike Recovery outside control limits

CLIENT:	TRC Environmental Corp.	**Client Sample ID:**	Pump Effluent
Project:	RRC - West O'Daniel	**Lab ID:**	0808040-07
Project No:	161641	**Collection Date:**	08/04/08 02:50 PM
Lab Order:	0808040	**Matrix:**	Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
Trace Metals: ICP-MS - Water		**SW6020**					**Analyst: AJR**
Barium	0.272	0.00300	0.0100		mg/L	1	08/07/08 11:30 PM
Calcium	2380	100	100		mg/L	1000	08/06/08 08:42 PM
Iron	4.51	0.0500	0.100		mg/L	1	08/07/08 11:30 PM
Magnesium	667	100	100		mg/L	1000	08/06/08 08:42 PM
Potassium	12.0	0.500	0.500		mg/L	5	08/08/08 01:39 PM
Sodium	6310	100	100		mg/L	1000	08/06/08 08:42 PM
Anions by IC method - Water		**E300**					**Analyst: JBC**
Chloride	18000	150	500		mg/L	500	08/11/08 12:44 PM
Sulfate	1750	500	1500		mg/L	500	08/11/08 12:44 PM
Alkalinity		**M2320 B**					**Analyst: SW**
Alkalinity, Bicarbonate (As CaCO3)	236	10.0	20.0		mg/L	1	08/07/08 02:11 PM
Alkalinity, Carbonate (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 02:11 PM
Alkalinity, Hydroxide (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 02:11 PM
Alkalinity, Total (As CaCO3)	236	10.0	20.0		mg/L	1	08/07/08 02:11 PM
Specific Conductance		**M2510 B**					**Analyst: SW**
Specific Conductance	54800	50.0	50.0		µmhos/cm	5	08/07/08 11:40 AM
Total Dissolved Solids		**M2540C**					**Analyst: SW**
Total Dissolved Solids (Residue, Filterable)	34200	10.0	10.0		mg/L	1	08/07/08 02:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	J	Analyte detected between MDL and RL
B	Analyte detected in the associated Method Blank	MDL	Method Detection Limit
C	Sample Result or QC discussed in the Case Narrative	N	Parameter not NELAC certified
DF	Dilution Factor	ND	Not Detected at the Method Detection Limit
E	TPH pattern not Gas or Diesel Range Pattern	RL	Reporting Limit
		S	Spike Recovery outside control limits

CLIENT:	TRC Environmental Corp.	**Client Sample ID:**	Pump Effluent-D
Project:	RRC - West O'Daniel	**Lab ID:**	0808040-08
Project No:	161641	**Collection Date:**	08/04/08 02:50 PM
Lab Order:	0808040	**Matrix:**	Aqueous

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
Trace Metals: ICP-MS - Water		**SW6020**					**Analyst: AJR**
Barium	0.282	0.00300	0.0100		mg/L	1	08/07/08 11:35 PM
Calcium	2480	100	100		mg/L	1000	08/06/08 08:47 PM
Iron	4.66	0.0500	0.100		mg/L	1	08/07/08 11:35 PM
Magnesium	687	100	100		mg/L	1000	08/06/08 08:47 PM
Potassium	12.6	0.500	0.500		mg/L	5	08/08/08 01:45 PM
Sodium	6430	100	100		mg/L	1000	08/06/08 08:47 PM
Anions by IC method - Water		**E300**					**Analyst: JBC**
Chloride	17600	150	500		mg/L	500	08/11/08 12:59 PM
Sulfate	1640	500	1500		mg/L	500	08/11/08 12:59 PM
Alkalinity		**M2320 B**					**Analyst: SW**
Alkalinity, Bicarbonate (As CaCO3)	240	10.0	20.0		mg/L	1	08/07/08 02:20 PM
Alkalinity, Carbonate (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 02:20 PM
Alkalinity, Hydroxide (As CaCO3)	ND	10.0	20.0		mg/L	1	08/07/08 02:20 PM
Alkalinity, Total (As CaCO3)	240	10.0	20.0		mg/L	1	08/07/08 02:20 PM
Specific Conductance		**M2510 B**					**Analyst: SW**
Specific Conductance	54400	50.0	50.0		µmhos/cm	5	08/07/08 11:40 AM
Total Dissolved Solids		**M2540C**					**Analyst: SW**
Total Dissolved Solids (Residue, Filterable)	34900	10.0	10.0		mg/L	1	08/07/08 02:30 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level
B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative
DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern
J	Analyte detected between MDL and RL
MDL	Method Detection Limit
N	Parameter not NELAC certified
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
S	Spike Recovery outside control limits

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS2_080808A

Sample ID:	**ICV1-080808**	**Batch ID:**	**R39078**	**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**ICV**	**Run ID:**	**ICP-MS2_080808A**	**Analysis Date:**		**08/08/08 01:07 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Iron		2.64	0.100	2.50	0	105	90	110			
Potassium		2.43	0.100	2.50	0	97.4	90	110			

Sample ID:	**CCV1-080808**	**Batch ID:**	**R39078**	**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS2_080808A**	**Analysis Date:**		**08/08/08 02:06 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Iron		4.85	0.100	5.00	0	97.1	90	110			
Potassium		4.93	0.100	5.00	0	98.6	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_080806A

Sample ID:	**MB-31240**	**Batch ID:**	**31240**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**MBLK**	**Run ID:**	**ICP-MS3_080806A**		**Analysis Date:**		**08/06/08 05:29 PM**		**Prep Date:**		**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		ND	0.0100								
Calcium		ND	0.100								
Iron		ND	0.100								
Magnesium		ND	0.100								
Potassium		ND	0.100								
Sodium		ND	0.100								

Sample ID:	**LCS-31240**	**Batch ID:**	**31240**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**LCS**	**Run ID:**	**ICP-MS3_080806A**		**Analysis Date:**		**08/06/08 05:34 PM**		**Prep Date:**		**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		0.182	0.0100	0.200	0	91.0	80	120			
Calcium		4.45	0.100	5.00	0	89.1	80	120			
Iron		4.57	0.100	5.00	0	91.4	80	120			
Magnesium		4.32	0.100	5.00	0	86.3	80	120			
Potassium		4.70	0.100	5.00	0	94.0	80	120			
Sodium		4.26	0.100	5.00	0	85.3	80	120			

Sample ID:	**LCSD-31240**	**Batch ID:**	**31240**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**LCSD**	**Run ID:**	**ICP-MS3_080806A**		**Analysis Date:**		**08/06/08 05:39 PM**		**Prep Date:**		**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		0.181	0.0100	0.200	0	90.5	80	120	0.606	15	
Calcium		4.39	0.100	5.00	0	87.8	80	120	1.42	15	
Iron		4.52	0.100	5.00	0	90.4	80	120	1.19	15	
Magnesium		4.34	0.100	5.00	0	86.8	80	120	0.531	15	
Potassium		4.67	0.100	5.00	0	93.3	80	120	0.747	15	
Sodium		4.27	0.100	5.00	0	85.5	80	120	0.234	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_080806A

Sample ID:	**ICV1-080806**	**Batch ID:**	**R39067**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**ICV**	**Run ID:**	**ICP-MS3_080806A**		**Analysis Date:**		**08/06/08 01:49 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		0.101	0.0100	0.100	0	101	90	110			
Calcium		2.49	0.100	2.50	0	99.4	90	110			
Iron		2.58	0.100	2.50	0	103	90	110			
Magnesium		2.46	0.100	2.50	0	98.4	90	110			
Potassium		2.48	0.100	2.50	0	99.2	90	110			
Sodium		2.46	0.100	2.50	0	98.5	90	110			

Sample ID:	**CCV1-080806**	**Batch ID:**	**R39067**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080806A**		**Analysis Date:**		**08/06/08 06:27 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		0.201	0.0100	0.200	0	101	90	110			
Calcium		4.86	0.100	5.00	0	97.2	90	110			
Iron		4.86	0.100	5.00	0	97.1	90	110			
Magnesium		4.84	0.100	5.00	0	96.7	90	110			
Potassium		5.14	0.100	5.00	0	103	90	110			
Sodium		4.78	0.100	5.00	0	95.6	90	110			

Sample ID:	**CCV2-080806**	**Batch ID:**	**R39067**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080806A**		**Analysis Date:**		**08/06/08 07:50 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Calcium		4.86	0.100	5.00	0	97.2	90	110			
Magnesium		4.88	0.100	5.00	0	97.5	90	110			
Sodium		4.76	0.100	5.00	0	95.2	90	110			

Sample ID:	**CCV3-080806**	**Batch ID:**	**R39067**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080806A**		**Analysis Date:**		**08/06/08 09:14 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Calcium		4.87	0.100	5.00	0	97.4	90	110			
Magnesium		4.88	0.100	5.00	0	97.5	90	110			
Sodium		4.78	0.100	5.00	0	95.5	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_080807A

Sample ID:	0808041-04A SD	Batch ID:	31240	TestNo:	SW6020	Units:	mg/L
SampType:	SD	Run ID:	ICP-MS3_080807A	Analysis Date:	08/07/08 01:18 PM	Prep Date:	08/06/08

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Calcium	376	50.0	0	373				0.681	10	
Magnesium	136	50.0	0	137				1.10	10	
Sodium	231	50.0	0	235				1.78	10	

Sample ID:	0808041-04A PDS	Batch ID:	31240	TestNo:	SW6020	Units:	mg/L
SampType:	PDS	Run ID:	ICP-MS3_080807A	Analysis Date:	08/07/08 01:23 PM	Prep Date:	08/06/08

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Calcium	892	10.0	500	373	104	75	125			
Magnesium	667	10.0	500	137	106	75	125			
Sodium	779	10.0	500	235	109	75	125			

Sample ID:	0808041-04A MS	Batch ID:	31240	TestNo:	SW6020	Units:	mg/L
SampType:	MS	Run ID:	ICP-MS3_080807A	Analysis Date:	08/07/08 01:28 PM	Prep Date:	08/06/08

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Calcium	368	10.0	5.00	373	-92.0	80	120			S
Magnesium	136	10.0	5.00	137	-20.0	80	120			S
Sodium	229	10.0	5.00	235	-124	80	120			S

Sample ID:	0808041-04A MSD	Batch ID:	31240	TestNo:	SW6020	Units:	mg/L
SampType:	MSD	Run ID:	ICP-MS3_080807A	Analysis Date:	08/07/08 01:34 PM	Prep Date:	08/06/08

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Calcium	379	10.0	5.00	373	112	80	120	2.73	15	
Magnesium	139	10.0	5.00	137	38.0	80	120	2.11	15	S
Sodium	235	10.0	5.00	235	-2.00	80	120	2.63	15	S

Sample ID:	0808041-04A SD	Batch ID:	31240	TestNo:	SW6020	Units:	mg/L
SampType:	SD	Run ID:	ICP-MS3_080807A	Analysis Date:	08/07/08 09:37 PM	Prep Date:	08/06/08

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Barium	0.0742	0.0500	0	0.0760				2.40	10	
Iron	0.276	0.500	0	0.292				5.63	10	
Potassium	5.99	0.500	0	6.09				1.67	10	

Sample ID:	0808041-04A PDS	Batch ID:	31240	TestNo:	SW6020	Units:	mg/L
SampType:	PDS	Run ID:	ICP-MS3_080807A	Analysis Date:	08/07/08 09:42 PM	Prep Date:	08/06/08

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Barium	0.272	0.0100	0.200	0.0760	98.2	75	125			
Iron	5.10	0.100	5.00	0.292	96.1	75	125			
Potassium	10.4	0.100	5.00	6.09	85.2	75	125			

Sample ID:	0808041-04A MS	Batch ID:	31240	TestNo:	SW6020	Units:	mg/L
SampType:	MS	Run ID:	ICP-MS3_080807A	Analysis Date:	08/07/08 09:47 PM	Prep Date:	08/06/08

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Barium	0.278	0.0100	0.200	0.0760	101	80	120			
Iron	5.06	0.100	5.00	0.292	95.3	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_080807A

Potassium	10.7	0.100	5.00	6.09	91.4	80	120	

Sample ID:	**0808041-04A MSD**	**Batch ID:**	**31240**	**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**MSD**	**Run ID:**	**ICP-MS3_080807A**	**Analysis Date:**		**08/07/08 09:52 PM**		**Prep Date:**		**08/06/08**
Analyte	**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium	0.275	0.0100	0.200	0.0760	99.5	80	120	1.09	15	
Iron	4.94	0.100	5.00	0.292	93.0	80	120	2.34	15	
Potassium	10.4	0.100	5.00	6.09	86.8	80	120	2.18	15	

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_080807A

Sample ID:	**ICV1-080807**	**Batch ID:**	**R39068**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**ICV**	**Run ID:**	**ICP-MS3_080807A**		**Analysis Date:**		**08/07/08 12:31 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Calcium		2.41	0.100	2.50	0	96.4	90	110			
Magnesium		2.44	0.100	2.50	0	97.5	90	110			
Sodium		2.45	0.100	2.50	0	98.0	90	110			

Sample ID:	**CCV1-080807**	**Batch ID:**	**R39068**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080807A**		**Analysis Date:**		**08/07/08 01:55 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Calcium		4.89	0.100	5.00	0	97.8	90	110			
Magnesium		4.78	0.100	5.00	0	95.6	90	110			
Sodium		4.74	0.100	5.00	0	94.8	90	110			

Sample ID:	**ICV2-080807**	**Batch ID:**	**R39068**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**ICV**	**Run ID:**	**ICP-MS3_080807A**		**Analysis Date:**		**08/07/08 06:15 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		0.101	0.0100	0.100	0	101	90	110			
Iron		2.58	0.100	2.50	0	103	90	110			
Potassium		2.43	0.100	2.50	0	97.0	90	110			

Sample ID:	**CCV3-080807**	**Batch ID:**	**R39068**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080807A**		**Analysis Date:**		**08/07/08 07:38 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		0.201	0.0100	0.200	0	101	90	110			
Iron		5.05	0.100	5.00	0	101	90	110			
Potassium		4.97	0.100	5.00	0	99.5	90	110			

Sample ID:	**CCV4-080807**	**Batch ID:**	**R39068**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080807A**		**Analysis Date:**		**08/07/08 09:01 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		0.203	0.0100	0.200	0	101	90	110			
Iron		5.08	0.100	5.00	0	102	90	110			
Potassium		4.99	0.100	5.00	0	99.8	90	110			

Sample ID:	**CCV5-080807**	**Batch ID:**	**R39068**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080807A**		**Analysis Date:**		**08/07/08 10:28 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		0.199	0.0100	0.200	0	99.6	90	110			
Iron		5.00	0.100	5.00	0	100	90	110			
Potassium		4.96	0.100	5.00	0	99.1	90	110			

Sample ID:	**CCV6-080807**	**Batch ID:**	**R39068**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080807A**		**Analysis Date:**		**08/07/08 11:51 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Barium		0.197	0.0100	0.200	0	98.7	90	110			
Iron		4.80	0.100	5.00	0	96.0	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_080811A

Sample ID:	**ICV1-080811**	**Batch ID:**	**R39104**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**ICV**	**Run ID:**	**ICP-MS3_080811A**		**Analysis Date:**		**08/11/08 01:19 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Calcium		2.41	0.100	2.50	0	96.4	90	110			
Magnesium		2.43	0.100	2.50	0	97.0	90	110			
Sodium		2.42	0.100	2.50	0	96.8	90	110			

Sample ID:	**CCV3-080811**	**Batch ID:**	**R39104**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080811A**		**Analysis Date:**		**08/11/08 04:57 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Calcium		4.95	0.100	5.00	0	98.9	90	110			
Magnesium		4.90	0.100	5.00	0	98.0	90	110			
Sodium		4.78	0.100	5.00	0	95.6	90	110			

Sample ID:	**CCV4-080811**	**Batch ID:**	**R39104**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080811A**		**Analysis Date:**		**08/11/08 06:13 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Calcium		4.86	0.100	5.00	0	97.3	90	110			
Magnesium		4.91	0.100	5.00	0	98.2	90	110			
Sodium		4.76	0.100	5.00	0	95.3	90	110			

Sample ID:	**CCV7-080811**	**Batch ID:**	**R39104**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080811A**		**Analysis Date:**		**08/11/08 10:28 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Calcium		4.85	0.100	5.00	0	96.9	90	110			
Sodium		4.74	0.100	5.00	0	94.7	90	110			

Sample ID:	**CCV8-080811**	**Batch ID:**	**R39104**		**TestNo:**		**SW6020**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**ICP-MS3_080811A**		**Analysis Date:**		**08/11/08 11:15 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Calcium		4.87	0.100	5.00	0	97.3	90	110			
Sodium		4.68	0.100	5.00	0	93.5	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080806A

Sample ID:	**ICV-080806**	**Batch ID:**	**R39027**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**ICV**	**Run ID:**	**IC2_080806A**		**Analysis Date:**		**08/06/08 10:09 AM**			**Prep Date:**	**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		25.3	1.00	25.00	0	101	90	110			
Sulfate		76.4	3.00	75.00	0	102	90	110			

Sample ID:	**MB-080806**	**Batch ID:**	**R39027**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**MBLK**	**Run ID:**	**IC2_080806A**		**Analysis Date:**		**08/06/08 10:32 AM**			**Prep Date:**	**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		ND	1.00								
Sulfate		ND	3.00								

Sample ID:	**LCS-080806**	**Batch ID:**	**R39027**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**LCS**	**Run ID:**	**IC2_080806A**		**Analysis Date:**		**08/06/08 10:46 AM**			**Prep Date:**	**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		10.0	1.00	10.00	0	100	90	110			
Sulfate		30.4	3.00	30.00	0	101	90	110			

Sample ID:	**LCSD-080806**	**Batch ID:**	**R39027**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**LCSD**	**Run ID:**	**IC2_080806A**		**Analysis Date:**		**08/06/08 11:01 AM**			**Prep Date:**	**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		10.0	1.00	10.00	0	100	90	110	0.201	20	
Sulfate		30.6	3.00	30.00	0	102	90	110	0.595	20	

Sample ID:	**CCV1-080806**	**Batch ID:**	**R39027**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**CCV**	**Run ID:**	**IC2_080806A**		**Analysis Date:**		**08/06/08 01:26 PM**			**Prep Date:**	**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		10.4	1.00	10.00	0	104	90	110			
Sulfate		31.3	3.00	30.00	0	104	90	110			

Sample ID:	**0808032-02F MS**	**Batch ID:**	**R39027**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**MS**	**Run ID:**	**IC2_080806A**		**Analysis Date:**		**08/06/08 02:02 PM**			**Prep Date:**	**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		564	20.0	200.0	360.6	102	90	110			
Sulfate		877	60.0	600.0	262.0	103	90	110			

Sample ID:	**0808032-02F MSD**	**Batch ID:**	**R39027**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**MSD**	**Run ID:**	**IC2_080806A**		**Analysis Date:**		**08/06/08 02:16 PM**			**Prep Date:**	**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		567	20.0	200.0	360.6	103	90	110	0.423	20	
Sulfate		888	60.0	600.0	262.0	104	90	110	1.26	20	

Sample ID:	**CCV2-080806**	**Batch ID:**	**R39027**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**CCV**	**Run ID:**	**IC2_080806A**		**Analysis Date:**		**08/06/08 04:42 PM**			**Prep Date:**	**08/06/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		10.2	1.00	10.00	0	102	90	110			
Sulfate		30.3	3.00	30.00	0	101	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080806A

Sample ID:	**CCV3-080806**	**Batch ID:**	**R39027**	**TestNo:**	**E300**		**Units:**	**mg/L**	
SampType:	**CCV**	**Run ID:**	**IC2_080806A**	**Analysis Date:**	**08/06/08 07:10 PM**		**Prep Date:**	**08/06/08**	
Analyte	**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride	10.0	1.00	10.00	0	100	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080811A

Sample ID:	**ICV-080811**	**Batch ID:**	**R39093**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**ICV**	**Run ID:**	**IC2_080811A**		**Analysis Date:**		**08/11/08 09:12 AM**			**Prep Date:**	**08/11/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		26.3	1.00	25.00	0	105	90	110			
Sulfate		77.4	3.00	75.00	0	103	90	110			
Sample ID:	**MB-080811**	**Batch ID:**	**R39093**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**MBLK**	**Run ID:**	**IC2_080811A**		**Analysis Date:**		**08/11/08 09:34 AM**			**Prep Date:**	**08/11/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		ND	1.00								
Sulfate		ND	3.00								
Sample ID:	**LCS-080811**	**Batch ID:**	**R39093**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**LCS**	**Run ID:**	**IC2_080811A**		**Analysis Date:**		**08/11/08 09:48 AM**			**Prep Date:**	**08/11/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		9.86	1.00	10.00	0	98.6	90	110			
Sulfate		29.8	3.00	30.00	0	99.3	90	110			
Sample ID:	**LCSD-080811**	**Batch ID:**	**R39093**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**LCSD**	**Run ID:**	**IC2_080811A**		**Analysis Date:**		**08/11/08 10:03 AM**			**Prep Date:**	**08/11/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		9.75	1.00	10.00	0	97.5	90	110	1.14	20	
Sulfate		29.6	3.00	30.00	0	98.7	90	110	0.602	20	
Sample ID:	**CCV1-080811**	**Batch ID:**	**R39093**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**CCV**	**Run ID:**	**IC2_080811A**		**Analysis Date:**		**08/11/08 12:00 PM**			**Prep Date:**	**08/11/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		9.79	1.00	10.00	0	97.9	90	110			
Sulfate		29.6	3.00	30.00	0	98.7	90	110			
Sample ID:	**0808040-03B MS**	**Batch ID:**	**R39093**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**MS**	**Run ID:**	**IC2_080811A**		**Analysis Date:**		**08/11/08 01:14 PM**			**Prep Date:**	**08/11/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		16700	500	5000	11340	107	90	110			
Sample ID:	**0808040-03B MSD**	**Batch ID:**	**R39093**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**MSD**	**Run ID:**	**IC2_080811A**		**Analysis Date:**		**08/11/08 01:28 PM**			**Prep Date:**	**08/11/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		16700	500	5000	11340	106	90	110	0.285	20	
Sample ID:	**0808040-03B MS**	**Batch ID:**	**R39093**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**MS**	**Run ID:**	**IC2_080811A**		**Analysis Date:**		**08/11/08 01:43 PM**			**Prep Date:**	**08/11/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Sulfate		1700	60.0	600.0	1065	106	90	110			
Sample ID:	**0808040-03B MSD**	**Batch ID:**	**R39093**		**TestNo:**		**E300**			**Units:**	**mg/L**
SampType:	**MSD**	**Run ID:**	**IC2_080811A**		**Analysis Date:**		**08/11/08 01:58 PM**			**Prep Date:**	**08/11/08**

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080811A

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Sulfate	1700	60.0	600.0	1065	106	90	110	0.131	20	

Sample ID:	**CCV2-080811**	**Batch ID:**	**R39093**	**TestNo:**	**E300**	**Units:**	**mg/L**
SampType:	**CCV**	**Run ID:**	**IC2_080811A**	**Analysis Date:**	**08/11/08 02:42 PM**	**Prep Date:**	**08/11/08**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Chloride	9.83	1.00	10.00	0	98.3	90	110			
Sulfate	29.5	3.00	30.00	0	98.3	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_080807B

Sample ID:	**ICV-080807**	**Batch ID:**	**R39059**		**TestNo:**		**M2320 B**			**Units:**	**mg/L**
SampType:	**ICV**	**Run ID:**	**TITRATOR_080807B**		**Analysis Date:**		**08/07/08 08:27 AM**			**Prep Date:**	**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Alkalinity, Bicarbonate (As CaCO3)		15.7	20.0	0							
Alkalinity, Carbonate (As CaCO3)		86.6	20.0	0							
Alkalinity, Hydroxide (As CaCO3)		0	20.0	0							
Alkalinity, Total (As CaCO3)		102	20.0	100.0	0	102	98	102			
Sample ID:	**MB2-080807**	**Batch ID:**	**R39059**		**TestNo:**		**M2320 B**			**Units:**	**mg/L**
SampType:	**MBLK**	**Run ID:**	**TITRATOR_080807B**		**Analysis Date:**		**08/07/08 11:19 AM**			**Prep Date:**	**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Alkalinity, Bicarbonate (As CaCO3)		ND	20.0								
Alkalinity, Carbonate (As CaCO3)		ND	20.0								
Alkalinity, Hydroxide (As CaCO3)		ND	20.0								
Alkalinity, Total (As CaCO3)		ND	20.0								
Sample ID:	**LCS2-080807**	**Batch ID:**	**R39059**		**TestNo:**		**M2320 B**			**Units:**	**mg/L**
SampType:	**LCS**	**Run ID:**	**TITRATOR_080807B**		**Analysis Date:**		**08/07/08 11:23 AM**			**Prep Date:**	**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Alkalinity, Bicarbonate (As CaCO3)		0	20.0	0							
Alkalinity, Carbonate (As CaCO3)		47.0	20.0	0							
Alkalinity, Hydroxide (As CaCO3)		0	20.0	0							
Alkalinity, Total (As CaCO3)		51.7	20.0	50.00	0	103	74	129			
Sample ID:	**CCV3-080807**	**Batch ID:**	**R39059**		**TestNo:**		**M2320 B**			**Units:**	**mg/L**
SampType:	**CCV**	**Run ID:**	**TITRATOR_080807B**		**Analysis Date:**		**08/07/08 12:20 PM**			**Prep Date:**	**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Alkalinity, Bicarbonate (As CaCO3)		21.1	20.0	0							
Alkalinity, Carbonate (As CaCO3)		80.8	20.0	0							
Alkalinity, Hydroxide (As CaCO3)		0	20.0	0							
Alkalinity, Total (As CaCO3)		102	20.0	100.0	0	102	90	110			
Sample ID:	**0808040-01B DUP**	**Batch ID:**	**R39059**		**TestNo:**		**M2320 B**			**Units:**	**mg/L**
SampType:	**DUP**	**Run ID:**	**TITRATOR_080807B**		**Analysis Date:**		**08/07/08 01:03 PM**			**Prep Date:**	**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Alkalinity, Bicarbonate (As CaCO3)		0	20.0	0	0				0	20	
Alkalinity, Carbonate (As CaCO3)		0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)		0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)		0	20.0	0	0				0	20	
Sample ID:	**CCV4-080807**	**Batch ID:**	**R39059**		**TestNo:**		**M2320 B**			**Units:**	**mg/L**
SampType:	**CCV**	**Run ID:**	**TITRATOR_080807B**		**Analysis Date:**		**08/07/08 02:01 PM**			**Prep Date:**	**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Alkalinity, Bicarbonate (As CaCO3)		20.2	20.0	0							
Alkalinity, Carbonate (As CaCO3)		82.1	20.0	0							
Alkalinity, Hydroxide (As CaCO3)		0	20.0	0							
Alkalinity, Total (As CaCO3)		102	20.0	100.0	0	102	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: TITRATOR_080807B

Sample ID:	**0808032-02F DUP**	**Batch ID:**	**R39059**	**TestNo:**		**M2320 B**		**Units:**	**mg/L**	
SampType:	**DUP**	**Run ID:**	**TITRATOR_080807B**	**Analysis Date:**		**08/07/08 02:40 PM**		**Prep Date:**	**08/07/08**	
Analyte	**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Alkalinity, Bicarbonate (As CaCO3)	275	20.0	0	277.2				0.811	20	
Alkalinity, Carbonate (As CaCO3)	0	20.0	0	0				0	20	
Alkalinity, Hydroxide (As CaCO3)	0	20.0	0	0				0	20	
Alkalinity, Total (As CaCO3)	275	20.0	0	277.2				0.811	20	

Sample ID:	**CCV5-080807**	**Batch ID:**	**R39059**	**TestNo:**		**M2320 B**		**Units:**	**mg/L**	
SampType:	**CCV**	**Run ID:**	**TITRATOR_080807B**	**Analysis Date:**		**08/07/08 02:45 PM**		**Prep Date:**	**08/07/08**	
Analyte	**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Alkalinity, Bicarbonate (As CaCO3)	25.0	20.0	0							
Alkalinity, Carbonate (As CaCO3)	76.8	20.0	0							
Alkalinity, Hydroxide (As CaCO3)	0	20.0	0							
Alkalinity, Total (As CaCO3)	102	20.0	100.0	0	102	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: WC_080807A

Sample ID:	**ICV-088007**	**Batch ID:**	**CONDW-08/07/08**	**TestNo:**		**M2510 B**			**Units:**		**µmhos/cm**
SampType:	**ICV**	**Run ID:**	**WC_080807A**	**Analysis Date:**		**08/07/08 11:40 AM**			**Prep Date:**		**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Specific Conductance		12800	10.0	12880	0	99.5	95	105			

Sample ID:	**MBLK-080807**	**Batch ID:**	**CONDW-08/07/08**	**TestNo:**		**M2510 B**			**Units:**		**µmhos/cm**
SampType:	**MBLK**	**Run ID:**	**WC_080807A**	**Analysis Date:**		**08/07/08 11:40 AM**			**Prep Date:**		**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Specific Conductance		ND	10.0								

Sample ID:	**LCS-080807**	**Batch ID:**	**CONDW-08/07/08**	**TestNo:**		**M2510 B**			**Units:**		**µmhos/cm**
SampType:	**LCS**	**Run ID:**	**WC_080807A**	**Analysis Date:**		**08/07/08 11:40 AM**			**Prep Date:**		**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Specific Conductance		1360	10.0	1413	0	96.3	95	105			

Sample ID:	**0808039-13D DUP**	**Batch ID:**	**CONDW-08/07/08**	**TestNo:**		**M2510 B**			**Units:**		**µmhos/cm**
SampType:	**DUP**	**Run ID:**	**WC_080807A**	**Analysis Date:**		**08/07/08 11:40 AM**			**Prep Date:**		**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Specific Conductance		1960	10.0	0	1928				1.80	2	

Sample ID:	**CCV1-080807**	**Batch ID:**	**CONDW-08/07/08**	**TestNo:**		**M2510 B**			**Units:**		**µmhos/cm**
SampType:	**CCV**	**Run ID:**	**WC_080807A**	**Analysis Date:**		**08/07/08 11:40 AM**			**Prep Date:**		**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Specific Conductance		12700	10.0	12880	0	98.3	95	105			

Sample ID:	**0808040-08C DUP**	**Batch ID:**	**CONDW-08/07/08**	**TestNo:**		**M2510 B**			**Units:**		**µmhos/cm**
SampType:	**DUP**	**Run ID:**	**WC_080807A**	**Analysis Date:**		**08/07/08 11:40 AM**			**Prep Date:**		**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Specific Conductance		55200	50.0	0	54350				1.46	2	

Sample ID:	**CCV2-080807**	**Batch ID:**	**CONDW-08/07/08**	**TestNo:**		**M2510 B**			**Units:**		**µmhos/cm**
SampType:	**CCV**	**Run ID:**	**WC_080807A**	**Analysis Date:**		**08/07/08 11:40 AM**			**Prep Date:**		**08/07/08**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Specific Conductance		12600	10.0	12880	0	97.4	95	105			

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

CLIENT: TRC Environmental Corp.
Work Order: 0808040
Project: RRC - West O'Daniel

ANALYTICAL QC SUMMARY REPORT

RunID: WC_080807B

Sample ID:	**MB-080807**	**Batch ID:**	**TDS_W-8/7/08**	**TestNo:**	**M2540C**			**Units:**		**mg/L**	
SampType:	**MBLK**	**Run ID:**	**WC_080807B**	**Analysis Date:**	**08/07/08 02:30 PM**			**Prep Date:**		**08/07/08**	
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		ND	10.0								

Sample ID:	**LCS-080807**	**Batch ID:**	**TDS_W-8/7/08**	**TestNo:**	**M2540C**			**Units:**		**mg/L**	
SampType:	**LCS**	**Run ID:**	**WC_080807B**	**Analysis Date:**	**08/07/08 02:30 PM**			**Prep Date:**		**08/07/08**	
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		765	10.0	745.6	0	103	90	113			

Sample ID:	**0808040-04B DUP**	**Batch ID:**	**TDS_W-8/7/08**	**TestNo:**	**M2540C**			**Units:**		**mg/L**	
SampType:	**DUP**	**Run ID:**	**WC_080807B**	**Analysis Date:**	**08/07/08 02:30 PM**			**Prep Date:**		**08/07/08**	
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		28000	10.0	0	28500				1.63	5	

Sample ID:	**0808032-02E DUP**	**Batch ID:**	**TDS_W-8/7/08**	**TestNo:**	**M2540C**			**Units:**		**mg/L**	
SampType:	**DUP**	**Run ID:**	**WC_080807B**	**Analysis Date:**	**08/07/08 02:30 PM**			**Prep Date:**		**08/07/08**	
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		2050	10.0	0	2083				1.40	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	R	RPD outside accepted control limits
DF	Dilution Factor	RL	Reporting Limit
J	Analyte detected between MDL and RL	S	Spike Recovery outside control limits
MDL	Method Detection Limit	J	Analyte detected between SDL and RL
ND	Not Detected at the Method Detection Limit	N	Parameter not NELAC certified

APPENDIX B

ANALYTICAL DATA REVIEW/VALIDATION CHECKLIST

QA Data Evaluation Results
RRC – West O'Daniel Seep

Background

Water samples were collected on August 4, 2008. The samples were submitted to DHL Analytical in Round Rock, Texas for analysis. Results for the following methods are reported:

- Chloride and Sulfate by U.S. EPA Method 300.0
- Alkalinity by SM 2320 B
- Specific Conductance by SM 2510 B
- Total Dissolved Solids (TDS) by SM 2540 C
- Barium, Calcium, Iron, Magnesium, Potassium, and Sodium by SW846 Method 6020

TRC QA staff performed a review of quality control (QC) data associated with the samples to ensure that the reported analytical results are valid, accurate, and sufficient to meet quality objectives. Data were reviewed for compliance with the requirements given in *Investigations and Abatement of Produced Water Impacts and Seeps to Surface Water in the Upper Colorado River Basin Upstream of Spence Reservoir (Segment 1411) Quality Assurance Project Plan* (Railroad Commission of Texas, Oil and Gas Division, Revision 2, March 7, 2008)(the QAPP). Items reviewed during the data validation process included sample integrity, blank analyses, spike recoveries, and duplicate recoveries. Samples reviewed to prepare this evaluation are presented in Table 1.

The following is a discussion of the QC analyses performed with the site samples and any potential data limitations associated with the results of analyses.

Sample Integrity

All samples were adequately preserved and arrived at the laboratory in good condition. All preparatory steps were performed within method-defined holding times. All samples were analyzed within method-defined holding times.

Blank Analyses

Target analytes were not detected in reported blanks indicating that laboratory contamination did not impact analytical results.

Spike Recoveries

All reported LCS recoveries fall within QAPP-derived QC limits. These results are indicative adequate laboratory measurement control in the absence of potential matrix interferences at the time of sample analyses.

Sample S-SUMP-2 was analyzed as MS/MSD pairs for chloride and sulfate. All recoveries fall within QAPP-specified limits indicating that potential matrix interferences with target analyte recoveries are minimal.

Duplicate Sample Analyses

All reported RPD values for LCS/LCSD pairs are within laboratory-derived limits indicating that the laboratory achieved adequate precision in the absence of potential matrix interferences at the time of sample analysis.

RPD values associated with MS/MSD analyses are within laboratory-specified limits indicating that the sample matrix has minimal impact, if any, on analytical precision.

Sample Pump Effluent-D was collected as a field duplicate of sample Pump Effluent. Calculated RPD values for detected analytes in these analyses are presented in Table 2. Adequate precision is exhibited for all detected analytes and data interpretation issues are not indicated.

The following samples were analyzed as laboratory duplicates for which all RPD values are within laboratory-specified control limits and no data interpretation issues are indicated:

- S-OB-01 for Alkalinity
- S-OB-2 for TDS
- Pump Effluent-D for Specific Conductance

Conclusions

QC data associated with laboratory measurements indicate that data are defensible and that measurement data reliability within expected limits of sampling and analytical error. No interpretation issues were identified during this evaluation of the analytical data.

Table 1. Evaluated Samples

TRC ID	Collected	Matrix	DHL ID
S-OB-01	8/4/2008	Water	0808040-01
S-SUMP-1	8/4/2008	Water	0808040-02
S-SUMP-2	8/4/2008	Water	0808040-03
S-OB-02	8/4/2008	Water	0808040-04
S-MW-02	8/4/2008	Water	0808040-05
S-MW-04	8/4/2008	Water	0808040-06
Pump Effluent	8/4/2008	Water	0808040-07
Pump-Effluent-D	8/4/2008	Water	0808040-08

Table 2. Calculated RPD Values for Field Duplicate Analyses of Sample Pump Effluent

Analyte	Result	Duplicate Result	Units	RPD	Flag
Barium	0.272	0.282	mg/L	3.61	
Calcium	2380	2480	mg/L	4.12	
Iron	4.51	4.66	mg/L	3.27	
Magnesium	667	687	mg/L	2.95	
Potassium	12	12.6	mg/L	4.88	
Sodium	6310	6430	mg/L	1.88	
Chloride	18000	17600	mg/L	2.25	
Sulfate	1750	1640	mg/L	6.49	
Alkalinity	236	240	mg/L	1.68	
Specific Conductance	54800	54400	umhos/cm	0.73	
TDS	34200	34900	mg/L	2.03	

* RPD Greater than expected (i.e., RPD > 20)

Attachment B

Comprehensive Summary Report for the Dugout Creek Area (Including O'Ryan Seep, Pharaoh Seep, and Dugout Creek), Howard and Mitchell Counties, Texas

Sitewide Groundwater and Surface Water Monitoring Report for the Dugout Creek Area (Including O'Ryan Seep, Pharaoh Seep, and Dugout Creek)

Howard and Mitchell Counties, Texas

Prepared for:

Railroad Commission of Texas

Prepared by:

INTERA Incorporated
1812 Centre Creek Drive
Suite 300
Austin, Texas 78754

May 2008

Sitewide Groundwater and Surface Water Monitoring Report for the Dugout Creek Area

Howard and Mitchell Counties, Texas

The information in this report was prepared under my supervision. The information is accurate and correct to the best of my knowledge. The information, data, and figures should not be used for purposes other than as elements of this overall report.

Richard A Scadden

27 may 2008

Richard Scadden, P.E.

Senior Engineer

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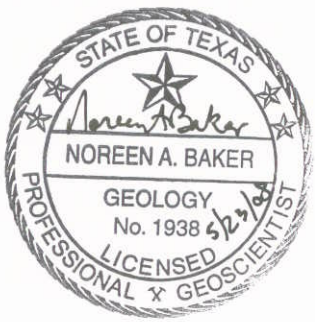

Noreen A. Baker, P.G.

Senior Geologist

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1.0 INTRODUCTION

INTERA Incorporated (INTERA) was contracted by the Railroad Commission of Texas (RRC) to provide professional environmental engineering services at oil and gas industry exploration and production sites and associated facilities across the State of Texas. Under this contract, INTERA has prepared this Report to document the current groundwater and surface water conditions in the Dugout Creek area, including O' Ryan Seep and Pharaoh Seep in Howard and Mitchell Counties, Texas. A site location map is included as Figure 1A.

1.1 Background

INTERA conducted environmental assessments at the O' Ryan and Pharaoh Seeps during several previous field events in an effort to delineate the extent of chloride-impacted groundwater at these locations and to determine the source of the chlorides. The results of these assessments have been documented in several reports (DE&S 2001a, DE&S 2001b, INTERA 2002a, INTERA 2002b, INTERA 2003a, INTERA 2006a, and INTERA 2006b). In addition, initial assessment activities were conducted along Dugout Creek in 2006, the results of which are documented in *Environmental Assessment of Dugout Creek, Howard and Mitchell Counties, Texas* (INTERA 2006c). Additional investigation of Dugout Creek and preparation of a memorandum regarding evaluation and development of best management practices was provided in August 2007 (INTERA, 2007). This report describes conduct of a sitewide groundwater and surface water monitoring event for collection of groundwater elevation data and water quality data for all wells and available surface water.

1.2 Objectives

The objective of this fieldwork was to conduct a sitewide groundwater and surface water monitoring event to collect additional data that will be used to help develop the best management practices (BMPs) for the mitigation of chloride impacts from O'Ryan Seep, Pharaoh Seep or other sources along Dugout Creek. The overall BMP objective is to reduce the salinity load to the Colorado River. A complete round of groundwater data and water quality data will provide necessary data to focus each management practice before feasibility testing of the BMPs occurs.

The objectives of the monitoring event were as follows:

- Perform a site visit to assess current conditions and collect groundwater and surface water samples from the site monitor wells, Dugout Creek, O'Ryan Seep and Pharaoh Seep, if possible,
- Compare the groundwater and surface water data to current regulatory standards,
- Determine if additional data collection is warranted, and

- Gather logistical information needed to proceed with selection of BMPs to reduce the chloride load to Dugout Creek, and eventually, the Colorado River.

2.0 SITE CONCEPTUAL MODEL

As described in the August 2007 INTERA report, the working hypothesis for the process by which chloride moves from the seeps to Dugout Creek in the absence of continuous surface water flow or groundwater flow is as follows. Groundwater-bearing alluvium is limited in the channels to the area just downstream of the seeps and to the area just up-channel of the confluences with Dugout Creek. Groundwater in the alluvium downgradient of the seeps receives chloride-containing recharge water directly from the seeps. As the groundwater moves downgradient through the alluvium, the chlorides become concentrated as water is removed through evapotranspiration (i.e. at MW-O-07 downgradient of the O'Ryan Seep). Evapotranspiration not only works to concentrate chloride in the groundwater, but as the process continues, evapotranspiration also draws the chloride-laden groundwater to the soil surface where the water evaporates and chloride salts are left behind on the soil surface. The chloride salt deposits on the soil surface are then available to be dissolved and carried downstream by surface water runoff during precipitation events. Depending on the amount of surface water runoff, the chloride may be carried all the way to Dugout Creek or only down the channel until the surface water dries up and the process starts again. In this way, chloride can migrate in slugs down the channel until reaching the alluvium just upstream of the confluence with Dugout Creek where it may migrate into Dugout Creek either via surface water flow or by groundwater flow in the alluvium. Once in the Dugout Creek flow system, chloride transport may continue in a similar fashion to the Colorado River. The collection of analytical data during a single event along Dugout Creek and from the O' Ryan and Pharaoh Seeps during a single event has helped to determine the current site conditions. This information will aid in the selection of a suitable BMP for the mitigation of chloride impacts to the Colorado River.

3.0 FIELD ACTIVITIES

The objective of the sitewide monitoring event was to collect groundwater elevation data for monitor wells and water samples from groundwater monitor wells and from surface water bodies and seeps, if available, in the Dugout Creek, O' Ryan Seep and Pharaoh Seep study area. A total of 37 groundwater monitor wells are present in the Dugout Creek, O' Ryan Seep and Pharaoh Seep study area. These wells are summarized in Table 1 and located on Figure 1B. The wells were gauged and sampled as planned with two exceptions. MW-O-07, which was located in the drainage way downstream of the O'Ryan Seep, has been destroyed as a result of erosion in the drainage way. However, at the recommendation of Tim Prude, RRC Midland District office site remediation coordinator, an auger was used to dig a hole adjacent to the former well location so that a sample could be obtained at this location. MW-D-03, which is located along Dugout Creek, was overlooked during the sampling event, and a sample was not collected from this well during the January 2008 field effort. Subsequent to the

discovery that the sample was missing, INTERA arranged for the RRC Midland District office site remediation coordinator to collect a groundwater sample from MW-D-03 for field titration with a Hach chloride test kit so that information on the concentration of chloride in this well could be obtained.

Surface water was not present in Dugout Creek at the time of the field effort, therefore a surface water sample could not be collected. Both the O'Ryan Seep and the Pharaoh Seep were flowing, and surface water samples were collected from each of the seeps. Therefore, a total of 36 groundwater samples and two surface water samples were collected.

Groundwater samples and surface water samples were analyzed for total dissolved solids (TDS) and anions (chloride, sulfate, bromide). Based on previous results, a set of select wells were also analyzed for benzene, toluene, ethyl benzene and xylene plus methyl tert-butyl ether (BTEX/MTBE). QA/QC samples for BTEX included a trip blank, an equipment rinsate and sample replicate. QA/QC samples for TDS and chloride included a sample replicate only.

Groundwater sampling was conducted using a bladder pump or disposable bailer depending on the analyses required for each well. The bladder pump was used to collect samples at wells where BTEX analyses were specified, and disposable bailers were used to collect samples at wells where only TDS and anion analyses were specified. Prior to collecting groundwater samples, the wells were purged per INTERA standard operating procedures as provided in the INTERA Sampling and Analysis Plan for the RRC (INTERA, 2003b). Purge water was collected and contained in 55-gallon drums staged at each well location. The drums were labeled with the contents, date, and monitor well number. These drums will remain staged at the study areas for later disposal at an appropriate facility by the RRC.

4.0 RESULTS

4.1 Groundwater Elevation Data

Depth to water measurements were made at all monitor wells except MW-O-07, which was destroyed as noted above, and groundwater elevations were calculated based on previously-surveyed top of PVC casing elevations, where available (Table 1). Surveyed top of casing data is not available for any of the monitor wells located along Dugout Creek (MW-D-01 through MW-D-10), or the three wells installed during the September 2007 field effort (MW-07-01 through MW-07-03). Survey locations and elevations were not conducted by a professionally licensed surveyor for these wells due to the terrain and long distances between monitor wells. RRC staff determined that a survey was cost prohibitive and decided to assume that groundwater flowed in the direction of the topographical gradient of Dugout Creek. This is a valid assumption because the shallow groundwater in this area is perched on the surface of the red clay of the

Dockum Group that outcrops in this area and is only found along creek beds. As such, groundwater elevations cannot be determined for wells in Dugout Creek. Locations of the monitor wells in Dugout Creek were determined in UTM coordinates using a handheld GPS unit.

Potentiometric surface maps were generated for the O' Ryan and Pharaoh Seep study areas and are provided as Figures 2A and 2B. Groundwater elevation and flow direction in January 2008 for the study areas are similar to those determined during the last monitoring event at each study area in March 2006 (refer to INTERA, 2006a and INTERA, 2006b).

Groundwater flow in the area of the O' Ryan Seep is to the southeast, east and northeast toward the seeps and then continues to the northeast along the drainage way away from the seeps and toward Dugout Creek. Elevations in January 2008 are approximately one to two feet higher than those measured in August 2006; these differences are likely due to variations in rainfall and seasonal fluctuations. Monitor wells MW-O-04 and MW-O-02 remain dry.

Groundwater flow in the area of the Pharaoh Seep is to the southeast directed toward Pharaoh Seep and the associated drainage way. Similar to the observations in the O'Ryan Seep area, groundwater elevations in January 2008 around the Pharaoh Seep area are approximately two feet higher than those measured in August 2006. In addition, while MW-P-07 remains dry, groundwater is again present in MW-P-02.

4.2 Groundwater Analytical Results

During the January 2008 field effort, INTERA sampled 36 wells and two seeps for a total of 38 samples. Groundwater and surface water analytical results are presented in Tables 2 through 4. Groundwater samples were analyzed for anions (chloride, sulfate, bromide) and TDS, and select samples were analyzed for BTEX/MTBE. Petroleum hydrocarbon-related odors were not noted during the purging and sampling of the wells.

Chloride

In general, chloride distribution and pattern of occurrence remains essentially unchanged for data obtained in January 2008 as compared to data obtained in March 2006 and August 2007. The lowest chloride value observed in the Dugout Creek, O' Ryan Seep and Pharaoh Seep area was in MW-O-23 at 43.6 mg/L and the highest value was observed in MW-07-03 just upstream of the confluence of the Pharaoh Seep drainage with Dugout Creek at 33,500 mg/L.

In the O'Ryan Seep study area, chloride concentrations remain highest in upgradient well MW-O-21 at 17,200 mg/L and in downgradient well MW-O-07 at 13,100 mg/L. Out of the 15 wells with data from both time periods, 9 wells show decreases in chloride concentrations while 6 wells show increases. Significant increases (increase of 40% or more) were noted in MW-O-03, MW-O-05 and MW-O-11 while significant decreases

(decrease of 40% or more) were noted in MW-O-07, MW-O-12, MW-O-13 and MW-O-23. Wells with increasing chloride concentrations appear confined to upgradient portions of the study area while wells with decreasing concentrations are located throughout the O'Ryan Seep area.

As noted above in Section 3, during the January 2008 field effort, MW-O-07 was discovered washed away. The well completion pad with protective steel casing was eroded away and was broken off from the PVC riser pipe, and therefore, in no condition to sample. A sample was collected approximately fifteen feet up the channel from the original MW-O-07 well location. A sample hole was dug using an auger that penetrated to three and a half feet, and the sample was withdrawn from the hole using a bailer.

In the Pharaoh Seep study area, chloride concentrations remain highest in FINA-01 at 33,300 mg/L and at downgradient well MW-P-01 at 16,900 mg/L. Out of the 6 wells with data from both time periods, 3 wells show decreases in chloride concentrations while 3 wells show increases. Significant increases (increase of 40% or more) were noted in MW-P-01 and MW-P-10 while the largest decrease was noted in MW-P-09 with a decrease in chloride concentration of approximately 26%. Wells with increasing chloride concentrations are located throughout the study area while wells with decreasing concentrations are located in upgradient portions of the Pharaoh Seep area.

Along Dugout Creek, chloride concentrations remain highest at the confluences of the O'Ryan Seep drainage and the Pharaoh Seep drainage at 11,600 mg/L and 33,500 mg/L, respectively. Out of the 6 wells with data from both time periods, 2 wells show decreases in chloride concentrations while 4 wells show increases. Wells with increases were noted throughout the length of the creek sampled and include MW-D-01, MW-D-02, MW-D-06 and MW-D-08 while decreases in chloride concentrations were noted in upgradient well MW-D-10 and in MW-07-03. Chloride concentrations in MW-D-05 and MW-D-07, which were dry in August 2007, are very high at 11,400 mg/L and 10,400 mg/L, respectively, and indicate that chloride impacts persist throughout the sampled length of Dugout Creek.

The high chloride concentration in MW-07-03, which is located in the Pharaoh Seep drainage just above the confluence with Dugout Creek supports the working hypothesis described above in Section 2 and indicates that Pharaoh Seep is contributing a significant amount of chloride to Dugout Creek. Similar results were anticipated for MW-07-02, which is located in the O'Ryan Seep drainage just above its confluence with Dugout Creek. Chloride was detected in MW-07-02 at a concentration of 7,480 mg/L which is an order of magnitude lower than that in MW-07-03. However, chloride in MW-07-02 is still significantly elevated as is the chloride concentration in MW-D-01, which is located in Dugout Creek right at the confluence with the O'Ryan drainage way, both of which indicate that the O'Ryan Seep is also contributing significant amounts of chloride to Dugout Creek.

TDS

TDS concentrations in the Dugout Creek, O' Ryan Seep and Pharaoh Seep groundwater show a positive correlation, as expected, to the chloride concentrations. The TDS values are approximately twice as high as the chloride values, and also appear to be increasing slightly as compared to March 2006 and August 2007 data. The lowest TDS value observed in the Dugout Creek, O' Ryan Seep and Pharaoh Seep area was in MW-D-10 at 544 mg/L and the highest value was observed in MW-07-03 along Dugout Creek at 61,500 mg/L.

BTEX

Six wells were analyzed for BTEX/MTBE; three wells, MW-O-07, MW-O-21 and MW-07-01, were in the O'Ryan Seep study area and three wells, MW-P-01, MW-P-09, and Fina-01, are in the Pharaoh Seep study area. Of the six wells analyzed for BTEX/MTBE, four wells (MW-07-01, MW-O-21, MW-O-07 and MW-P-09) were below detection limits for benzene, toluene, ethylbenzene, xylenes and MTBE. The two remaining wells, FINA-01 and MW-P-01 were nondetect for all constituents except benzene which was detected at 0.0125 mg/L and 0.0136 mg/L, respectively. These values are similar to previous results at these wells and both values exceed the maximum contaminant level of 0.005 mg/L. The BTEX sample for MW-O-07 was collected from the auger-dug hole.

4.3 Surface Water Analytical Results

No flow was present in Dugout Creek at any point during the field effort, therefore a Dugout Creek surface water sample was not collected. However, precipitation has been such over the last several months that both the O' Ryan Seep and Pharaoh Seep were flowing and were sampled. Two field replicate samples were taken at O' Ryan and Pharaoh Seeps by a RRC site remediation coordinator for chloride analyses to be conducted at the RRC District Office in Midland. The replicate samples were analyzed using a Hach test kit for chloride, and were compared to chloride lab analyses for the same sample locations. The analytical results from surface water samples taken at the two seeps are listed in Table 5. Chloride concentration in the O'Ryan Seep surface water sample was detected at 1,740 mg/L chloride based on Hach kit test results as compared to 1,090 mg/L based on laboratory analytical results. Chloride concentration in the Pharaoh Seep surface water sample was detected at 12,040 mg/L chloride based on Hach kit test results as compared to 13,000 mg/L based on laboratory analytical results. These results are similar to those from March 2006 results at 1,210 mg/L and 13,800 mg/L, respectively.

The laboratory data packages from DHL Analytical along with the data review checklists completed by INTERA are included in Appendix A. The data review was conducted in accordance with the Quality Assurance Project Plan (RRC, 2007). Deviations from quality control criteria as presented in the QAPP are noted on the checklists provided in Appendix A. None of the deviations caused significant effects on the data results as

provided by the laboratory. The data presented herein passed data quality review and is considered useable for project purposes.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on analytical data from this field effort, the groundwater at Dugout Creek, O' Ryan and Pharaoh Seeps continue to be impacted by chloride, likely due to reinjection of produced water during the oil production activities that have been underway since at least the 1950's. Chloride concentrations are elevated and exceed the TCEQ drinking water standard of 300 mg/L in 27 out of 33 monitor wells where a sample could be collected. TDS data correlate well with chloride data, and both O'Ryan Seep and Pharaoh Seep contribute to chloride and total dissolved solids impacts downstream in the Colorado River.

The objective of this sitewide groundwater and surface water monitoring event was to collect additional data that will be used to help develop the best management practices for the mitigation of chloride impacts from O'Ryan Seep, Pharaoh Seep or other sources along Dugout Creek. The overall BMP objective is to reduce the salinity load to the Colorado River. The working hypothesis proposed for the transport of chloride and other dissolved constituents appears to be supported in light of the newly collected data. Ongoing reinjection of produced water to facilitate oil production activities in Howard and Mitchell Counties is likely contributing to the exceedingly high chloride and TDS concentrations in the study areas. Alluvial deposits located along the channels in Dugout Creek and O'Ryan and Pharaoh Seeps serve to retain and concentrate chloride loads via evaporation, precipitation and subsequent dissolution and continued movement downstream.

From the previous site reconnaissance work, Crespo has provided INTERA with a BMP evaluation of the Dugout Creek project site. Crespo has provided a list of possible BMPs that can now be used as discussion points for INTERA and RRC moving forward with implementation of a remedy. Moving forward, Crespo, INTERA and RRC should work to determine scope of work and budgetary restraints on the project. The team will work to refine the site conceptual model and to define the process needed for designing BMP(s).

6.0 REFERENCES

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INTERA 2006a. Third Supplemental Investigation Report for the O'Ryan Seep Investigation, Coahoma, Texas. August 2006.

INTERA 2006b. Second Supplemental Investigation Report for the Pharaoh Seep Investigation, Coahoma, Texas. August 2006.

INTERA 2006c. Environmental Assessment of Dugout Creek, Howard and Mitchell Counties, Texas. August 2006.

INTERA 2007. Investigation and Best Management Practice (BMP) Evaluation and Development Memorandum for O'Ryan Seep, Pharaoh Seep and Dugout Creek, Howard and Mitchell Counties, Texas.

Railroad Commission of Texas (RRC) 2007. Investigations and Abatement of Produced Water Impacts and Seeps to Surface Water in the Upper Colorado River Basin Upstream of Spence Reservoir (Segment 1411) Quality Assurance Project Plan, February 2007.

Tables

Table 1. Monitor Well Summary and Groundwater Elevations

Locus	Monitor Well	Date Installed	UTM Northing (NAD83 meters)	UTM Easting (NAD83 meters)	Total Depth (ft below TOC)	TOC Elevations (ft msl)	Depth to Water* (ft below TOC)	Water Level Elevation (ft msl)
Dugout	MW-D-01	10-Mar-06	3575371	290077	19.7	NS	11.19	NA
Creek**	MW-D-02	10-Mar-06	3574157	291164	22.7	NS	9.97	NA
	MW-D-03	9-Mar-06	3574791	290802	18.9	NS	9.98	NA
	MW-D-04	10-Mar-06	3573143	292323	17.7	NS	11.72	NA
	MW-D-05	13-Mar-06	3572265	292857	24.8	NS	20.65	NA
	MW-D-06	11-Mar-06	3570065	294106	17.6	NS	9.93	NA
	MW-D-07	12-Mar-06	3567828	295057	27.7	NS	24.46	NA
	MW-D-08	12-Mar-06	3567819	296071	37.5	NS	29.1	NA
	MW-D-09	12-Mar-06	3567339	296796	19.9	NS	DRY	NA
	MW-D-10	9-Mar-06	3575642	289778	19.6	NS	9.46	NA
	MW-07-02	16-Aug-07	3575230	289926	20.0	NS	9.1	NA
	MW-07-03	15-Aug-07	3574102	291181	20.0	NS	10.4	NA
O'Ryan	MW-O-01	9-Feb-01	3573901	287806	29.7	2422.98	19.64	2403
	MW-O-02	10-Feb-01	3574158	287981	17.7	2412.50	DRY	NA
	MW-O-03	11-Feb-01	3573734	287420	55.7	2449.26	43.42	2406
	MW-O-04	9-Feb-01	3574321	287970	57.8	2391.44	DRY	NA
	MW-O-05	9-Feb-01	3573624	287756	61.7	2448.14	40.25	2408
	MW-O-06	10-Feb-01	3573976	288039	23.3	2415.80	14.96	2401
	MW-O-07	10-Feb-01	3574269	288657	16.8	2330.18	Well destroyed	NA
	MW-O-08	11-Feb-01	3573950	287403	60.1	2453.59	48.91	2405
	MW-O-09	11-Feb-01	3573880	287390	58.3	2455.60	50.79	2405
	MW-O-11	11-Feb-01	3574253	287510	35.7	2442.99	25.98	2417
	MW-O-12	13-Jun-02	3573834	288087	22.7	2418.15	15.34	2403
	MW-O-13	13-Jun-02	3573760	287968	34.7	2428.42	23.98	2404
	MW-O-15	8-Jul-03	3574143	288403	17.0	2346.90	4.41	2342
	MW-O-21	8-Mar-06	3574436	287480	37.8	2444.06	26.93	2417
	MW-O-22	8-Mar-06	3574367	287443	36.5	2443.51	26.72	2417
	MW-O-23	9-Mar-06	3574227	287348	37.9	2446.66	30.26	2416
	MW-07-01	17-Aug-07	3574499	287482	34.4	NS	24.55	NA
Pharaoh	MW-P-01	7-Feb-01	3573048	288378	29.7	2395.10	9.78	2385
	MW-P-02	8-Feb-01	3573154	288064	28.5	2418.33	14.32	2404
	MW-P-03	12-Feb-01	3573260	288074	24.6	2419.30	14.55	2405
	MW-P-07	8-Feb-01	3572970	288251	52.5	2402.70	DRY	NA
	MW-P-08	11-Feb-01	3573325	288249	27.7	2421.41	18.33	2403
	MW-P-09	10-Feb-01	3573170	288169	20.1	2413.93	10.78	2403
	MW-P-10	14-Jun-02	3573226	288094	26.5	2417.52	13.29	2404
	FINA-01	Unknown	3573093	288299	19.5	2402.31	7.18	2395

*All depth to water measurements were taken January 8, 2008.
**Elevations for Dugout Creek not surveyed, xy locations determined using handheld GPS
UTM: Universal Transverse Mercator
NAD: North American Datum
TOC: top of casing
ft msl: feet above mean sea level
NS: Not Surveyed
NA: Not Available

Table 2. Groundwater Analytical Results- Dugout Creek

Analyte	CAS	Maximum Contaminant Level (MCL) mg/L	MW-D-01	MW-D-02	MW-D-04	MW-D-05	MW-D-06	MW-D-07	MW-D-08
			1/10/2008	1/10/2008	1/10/2008	1/10/2008	1/10/2008	1/9/2008	1/9/2008
			801064	801064	801064	801064	801064	801064	801064
			DHL	DHL	DHL	DHL	DHL	DHL	DHL
			Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous	Aqueous
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Anions									
Bromide	24959-67-9	-	**23.4**	**7.17**	**93.3**	**22.8**	**2.47**	**20.7**	**4.35**
Chloride	16887-00-6	300*	**11600**	**3480**	**5710**	**11400**	**1550**	**10400**	**482**
Sulfate	14808-79-8	300*	**1470**	**4620**	**2310**	**2280**	**1370**	**2130**	**126**
Total Dissolved Solids									
TDS	NL	500**	**20100**	**13300**	**12700**	**19700**	**4660**	**18400**	**1250**

Analyte	CAS	Maximum Contaminant Level (MCL) mg/L	MW-D-09	MW-D-10	MW-07-02	MW-07-03	MW-D-03***
			DRY	1/10/2008	1/10/2008	1/10/2008	2/7/2008
			-	801064	801064	801064	
			-	DHL	DHL	DHL	RRC
			-	Aqueous	Aqueous	Aqueous	Aqueous
			-	mg/L	mg/L	mg/L	mg/L
Anions							
Bromide	24959-67-9	-	NA	< 1.0 U	**14.2**	**116**	NS
Chloride	16887-00-6	300*	NA	**68.9**	**7480**	**33500**	**8949**
Sulfate	14808-79-8	300*	NA	**35.2**	**4800**	**3740**	NS
Total Dissolved Solids							
TDS	NL	500**	NA	**544**	**16900**	**61500**	NS

NL- Not listed

NS- Not sampled

NA- Not available for sampling because the well was dry.

Data Qualifiers:

U- The analyte was analyzed for, but not detected. The associated numerical value is is at or below the method detection limit (MDL).

Value exceeds MCL

Note: Detected values are in bold font.

* TCEQ drinking water standard based on secondary MCL criteria.

** EPA drinking water standard based on secondary MCL critieria.

***Data from field titration using Hach test kit

Table 3. Groundwater Analytical Results- O'Ryan Seep

Analyte	CAS	Maximum Contaminant Level (MCL) mg/L	MW-O-01 1/9/2008 801064 DHL Aqueous mg/L	MW-O-02 DRY - - -	MW-O-03 1/9/2008 801064 DHL Aqueous mg/L	MW-O-04 DRY - - -	MW-O-05 1/9/2008 801064 DHL Aqueous mg/L	MW-O-06 1/9/2008 801064 DHL Aqueous mg/L	MW-O-07 1/9/2008 801064 DHL Aqueous mg/L	MW-O-08 1/9/2008 801064 DHL Aqueous mg/L	MW-O-09 1/9/2008 801064 DHL Aqueous mg/L	MW-O-11 1/9/2008 801064 DHL Aqueous mg/L
Anions												
Bromide	24959-67-9	-	< 1.0 U	NA	< 1.0 U	NA	< 1.0 U	< 1.0 U	**17.6**	**2.21**	**3.96**	**5.28**
Chloride	16887-00-6	300*	**1040**	NA	**1450**	NA	**2800**	**2320**	**13100**	**2510**	**330**	**3130**
Sulfate	14808-79-8	300*	**184**	NA	**291**	NA	**686**	**636**	**1870**	**440**	**794**	**455**
Total Dissolved Solids												
TDS	NL	500**	**2530**	NA	**3200**	NA	**6180**	**4920**	**25100**	**5520**	**2110**	**6560**
Volatiles												
Methyl tert-butyl ether	1634-04-4	-	NS	NS	NS	NS	NS	NS	< 0.004 U	NS	NS	NS
Benzene	71-43-2	0.005	NS	NS	NS	NS	NS	NS	< 0.002 U	NS	NS	NS
Toluene	108-88-3	1	NS	NS	NS	NS	NS	NS	< 0.004 U	NS	NS	NS
Ethylbenzene	100-41-4	0.7	NS	NS	NS	NS	NS	NS	< 0.004 U	NS	NS	NS
Xylenes, Total	1330-20-7	10	NS	NS	NS	NS	NS	NS	< 0.004 U	NS	NS	NS

Analyte	CAS	Maximum Contaminant Level (MCL) mg/L	MW-O-12 1/9/2008 801064 DHL Aqueous mg/L	MW-O-13 1/9/2008 801064 DHL Aqueous mg/L	MW-O-15 1/9/2008 801064 DHL Aqueous mg/L	MW-O-21 1/9/2008 801064 DHL Aqueous mg/L	MW-0-31 Dup MW-O-21 1/9/2008 801064 DHL Aqueous mg/L	MW-O-22 1/9/2008 801064 DHL Aqueous mg/L	MW-O-23 1/9/2008 801064 DHL Aqueous mg/L	MW-1-23 Dup MW-O-23 1/9/2008 801064 DHL Aqueous mg/L	MW-O7-01 1/8/2008 801050 DHL Aqueous mg/L
Anions											
Bromide	24959-67-9	-	< 1.0 U	< 1.0 U	**6.76**	< 10.0 U	< 10.0 U	**3.15**	< 1.0 U	< 1.0 U	**67.7**
Chloride	16887-00-6	300*	**229**	**245**	**4600**	**17200**	**17000**	**336**	**43.6**	**42.7**	**7980**
Sulfate	14808-79-8	300*	**116**	**130**	**1340**	**2210**	**1610**	**313**	**124**	**117**	**727**
Total Dissolved Solids											
TDS	NL	500**	**931**	**1000**	**11200**	**32100**	**30600**	**1490**	**699**	**706**	**15400**
Volatiles											
Methyl tert-butyl ether	1634-04-4	-	NS	NS	NS	< 0.004 U	< 0.004 U	NS	NS	NS	< 0.004 U
Benzene	71-43-2	0.005	NS	NS	NS	< 0.002 U	< 0.002 U	NS	NS	NS	< 0.002 U
Toluene	108-88-3	1	NS	NS	NS	< 0.004 U	< 0.004 U	NS	NS	NS	< 0.004 U
Ethylbenzene	100-41-4	0.7	NS	NS	NS	< 0.004 U	< 0.004 U	NS	NS	NS	< 0.004 U
Xylenes, Total	1330-20-7	10	NS	NS	NS	< 0.004 U	< 0.004 U	NS	NS	NS	< 0.004 U

NL- Not listed

NA- Not available for sampling because the well was dry.

NS- Not sampled for BTEX.

Data Qualifiers:

U- The analyte was analyzed for, but not detected. The associated numerical value is is at or below the method detection limit (MDL).

Value exceeds MCL

Note: Detected values are in bold font.

* TCEQ drinking water standard based on secondary MCL criteria.

** EPA drinking water standard based on secondary MCL critieria.

Table 4. Groundwater Analytical Results- Pharaoh Seep

Analyte	CAS	Maximum Contaminant Level (MCL) mg/L	MW-P-01 1/9/2008 801064 DHL Aqueous mg/L	MW-P-02 1/8/2008 801050 DHL Aqueous mg/L	MW-P-03 1/8/2008 801050 DHL Aqueous mg/L	MW-P-07 DRY - DHL - Aqueous -	MW-P-08 1/8/2008 801050 DHL Aqueous mg/L	MW-P-09 1/9/2008 801064 DHL Aqueous mg/L	MW-P-10 1/8/2008 801050 DHL Aqueous mg/L	FINA-01 1/9/2008 801064 DHL Aqueous mg/L
Anions										
Bromide	24959-67-9	-	**33.5**	**0.346 J**	**0.505 J**	NA	< 1.0 U	**1.29**	**3.19**	**73.9**
Chloride	16887-00-6	300*	**16900**	**93.7**	**142**	NA	**420**	**542**	**497**	**33300**
Sulfate	14808-79-8	300*	**2540**	**113**	**125**	NA	**225**	**152**	**179**	**1640**
Total Dissolved Solids										
TDS	NL	500**	**31500**	**723**	**836**	NA	**1380**	**1550**	**1410**	**58500**
Volatiles										
Methyl tert-butyl ether	1634-04-4	-	< 0.004 U	NS	NS	NS	NS	< 0.004 U	NS	< 0.004 U
Benzene	71-43-2	0.005	**0.0136**	NS	NS	NS	NS	< 0.002 U	NS	**0.0128**
Toluene	108-88-3	1.0	< 0.004 U	NS	NS	NS	NS	< 0.004 U	NS	< 0.004 U
Ethylbenzene	100-41-4	0.7	< 0.004 U	NS	NS	NS	NS	< 0.004 U	NS	< 0.004 U
Xylenes, Total	1330-20-7	10.0	< 0.004 U	NS	NS	NS	NS	< 0.004 U	NS	< 0.004 U

NL- Not listed

NA- Not available for sampling because the well was dry.

NS- Not sampled for BTEX.

Data Qualifiers:

J- The reported result is an estimated value.

U- The analyte was analyzed for, but not detected. The associated numerical value is is at or below the method detection limit (MDL).

Value exceeds MCL

Note: Detected values are in bold font.

* TCEQ drinking water standard based on secondary MCL criteria.

** EPA drinking water standard based on secondary MCL critieria.

Table 5. Surface Water Analytical Results- O'Ryan and Pharaoh Seeps

Analyte	CAS	Maximum Contaminant Level (MCL) mg/L	SW-O-Seep 1/10/2008 801064 DHL Aqueous mg/L	SW-P-Seep 1/10/2008 801064 DHL Aqueous mg/L	SW-O-Seep Rep*** 1/10/2008 RRC Aqueous mg/L	SW-P-Seep Rep*** 1/10/2008 RRC Aqueous mg/L
Anions						
Bromide	24959-67-9	-	< 10.0 U	**26.8**	NS	NS
Chloride	16887-00-6	300*	**1090**	**13000**	**1740**	**12040**
Sulfate	14808-79-8	300*	**442**	**1250**	NS	NS
Total Dissolved Solids						
TDS	NL	500**	**2460**	**24200**	NS	NS

Data Qualifiers:

U- The analyte was analyzed for, but not detected. The associated numerical value is is at or below the method detection limit (MDL).

Value exceeds MCL

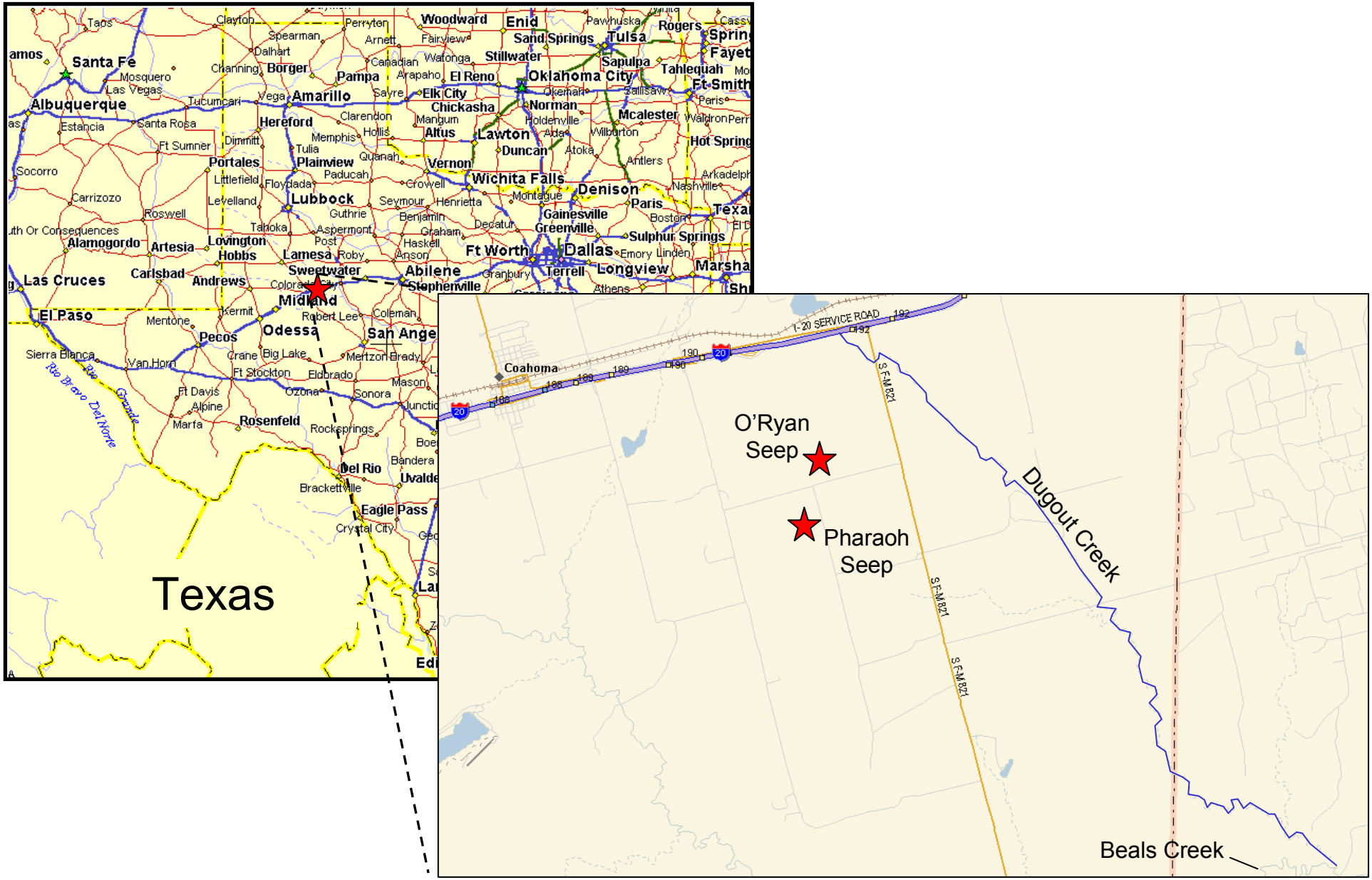
Note: Detected values are in bold font.

* TCEQ drinking water standard based on secondary MCL criteria.

** EPA drinking water standard based on secondary MCL critieria.

***Data from field titration using Hach test kit

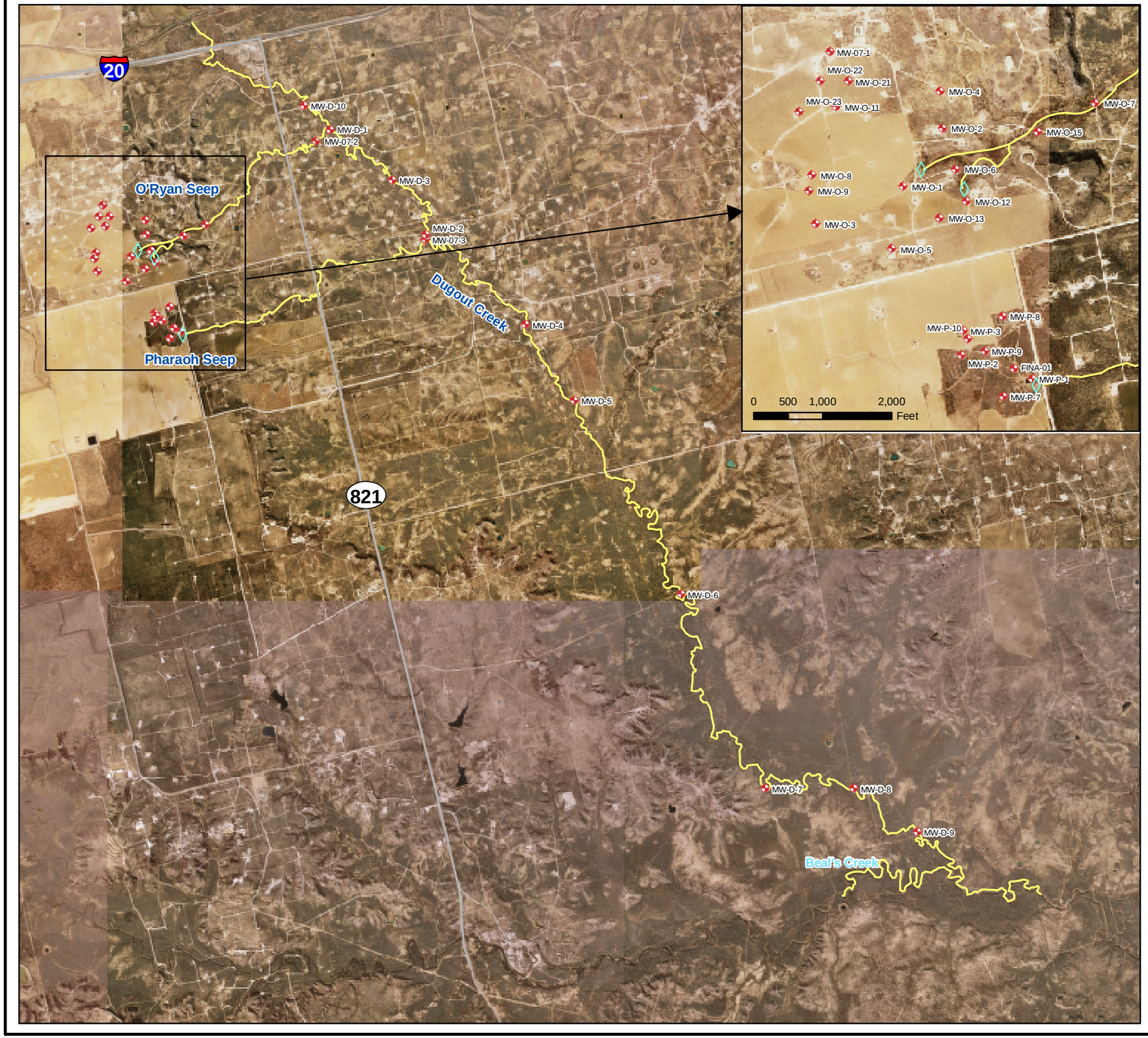
Figures



DATE: 02/08/08	
REF: 01098.01.0001.03.00001	
FILE: Fig1A_Location_Map.ppt	
1812 Centre Creek Dr Ste. 300 Austin, TX 78754	Dugout Creek, Coahoma, Texas

Site Location Map

Figure 1A



Legend

- Monitor Well
- Seep
- Creek Bed
- Interstate Highway
- State Highway

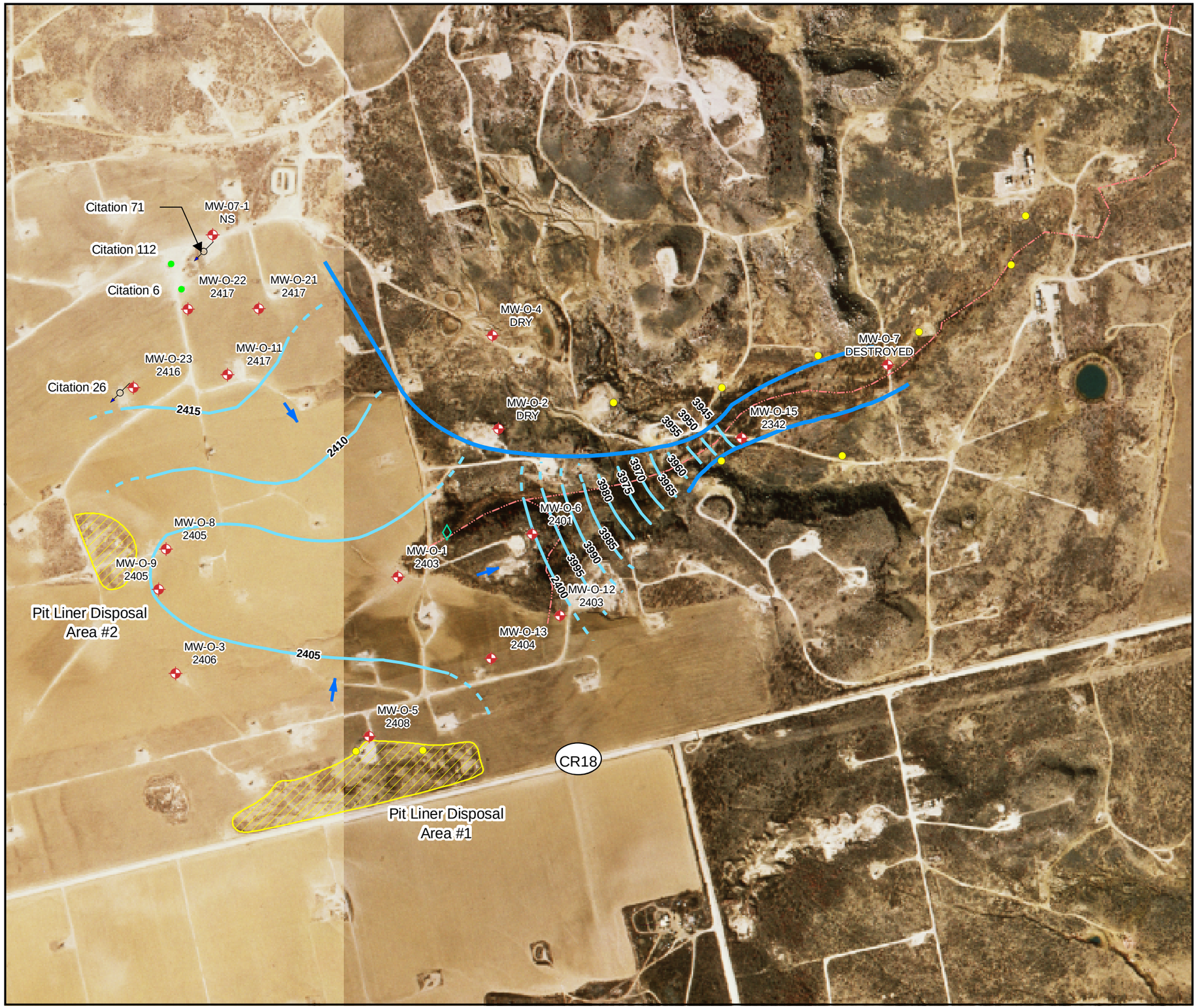
N

W E

S

0 2,500 5,000 7,500 10,000
Feet

Date: 2/8/2008	Well Location Map	
File: Fig1B_Well_Location_Map.mxd		
Projection: NAD83, UTM Zone 14N		
INTERA	Dugout Creek Near Coahoma, TX	FIGURE 1B



N

0 750 1,500

Feet

Legend

- MW-O-3 2406 — Monitor Well, Water Level Elevation (ft msl)
- Injection Well
- Oil Production Well
- Soil Boring From Previous Investigations
- O'Ryan Seep
- Stream Bed
- Pit Liner
- 2405 — Groundwater Elevation Contour (ft msl), Contour Interval = 5 ft
- Dry Line
- Flow Direction
- CR18 — County Road

Potentiometric Surface Map - O'Ryan Seep

Date: 2/8/08

File: Fig2A_ORyan_Potentio.mxd

Proj: UTM, NAD83 Zone 14

INTERA

O'Ryan Seep
Coahoma, Texas

Figure 2A

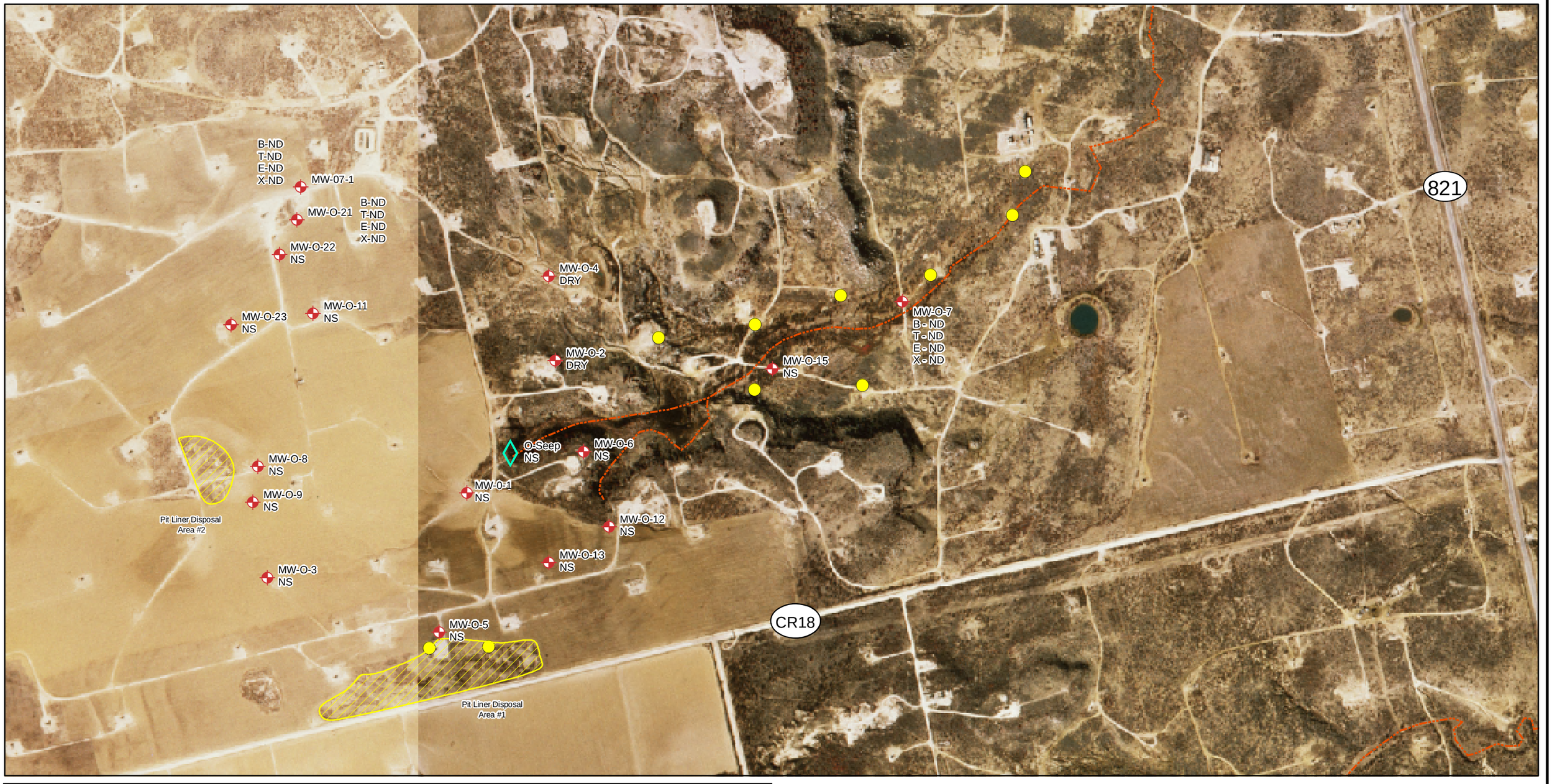
N
W E
S

0 150 300 450
Feet

Legend

- MW-P-2 / 2404 — Monitor Well / Water Level Elevation (ft msl)
- Abandoned Collection Line Manifold
- Pharaoh Seep
- Producing Oil Well
- Groundwater Elevation Contours (ft msl) Contour Interval = 5 ft
- Dry Line
- Flow Direction
- Former Pit Location
- Creek Bed

Date: 2/8/08	Potentiometric Surface Map - Pharaoh Seep	
File: Fig2B_Phar_Potentio.mxd		
Project: RRC-PHR 01-03		
INTERA	Pharaoh Seep Caohoma, Texas	Figure 2B



Legend

- MW-O-21 — Monitor Well
- NS — Not Sampled for BTEX
- ND — No BTEX Constituent Detected
- B — Benzene (mg/L)
- T — Toluene (mg/L)
- E — Ethyl benzene (mg/L)
- X — Xylene (mg/L)
- Seep
- Creek Bed
- 821 — State Highway
- CR18 — County Road
- Soil Borings from Previous Investigations
- Pit Liner

N W E S

0 250 500 1,000 1,500 Feet

Date: 2/8/2008	BTEX Constituents in Groundwater - O' Ryan Seep
File: Fig3A_OR_BTEX.mxd	
Projection: NAD83, UTM Zone 14N	
INTERA	Dugout Creek Near Coahoma, TX — FIGURE 3A

Legend

MW-P-3	Monitor Well	Seep	
NS	Not Sampled for BTEX	Creek	
ND	No BTEX Constituent Detected		
B	Benzene (mg/L), Regulatory Limit = 0.005 mg/L		
T	Toluene (mg/L)		
E	Ethyl benzene (mg/L)		
X	Xylene (mg/L)		

N W E S

0 100 200 400 600 Feet

Date: 2/8/2008	BTEX Constituents in Groundwater - Pharaoh Seep	
File: Fig3B_Phar_BTEX.mxd		
Projection: NAD83, UTM Zone 14N		
INTERA	Dugout Creek Near Caohoma, TX	FIGURE 3B

Legend

MW-D-01
11,600
Monitor Well
Chloride Concentration (mg/L)
Regulatory Limit = 300 mg/L

Dugout Creek

0 2,000 4,000 6,000 Feet

N W E S

Date: 2/8/2008	Chloride Levels in Groundwater - Dugout Creek	
File: Fig4A_Dug_Chlor.mxd		
Projection: NAD83, UTM Zone 14N		
INTERA	Dugout Creek Near Caohoma, TX	FIGURE 4A

Legend

- MW-O-21 Monitor Well
  17,200 Chloride Concentration (mg/L)
  Regulatory Limit = 300 mg/L
- Soil Borings from Previous Investigations
- Seep
- Dry Line
- Chloride Concentration Contour (mg/L)
  - Concentration Interval = 1,000 ft
  - Concentration Interval = 5,000 ft
- Creek Bed
- Former Pit Location
- CR18 County Road

Date: 2/8/08	Chloride Levels in Groundwater- O'Ryan Seep	
File: Fig4B_OR_Chlor.mxd		
Projection: NAD83, UTM Zone 14N		
INTERA	Dugout Creek Near Coahoma, TX	FIGURE 4B

N

W E

S

0 150 300 450

Feet

Legend

- MW-P-3 Monitor Well
  142 Chloride Concentration (mg/L)
  Regulatory Limit = 300 mg/L
- Abandoned Collection Line Manifold
- Seep
- Producing Oil Well
- Former Pit Location
- Chloride Concentration Contour (mg/L)
  Contour Interval = 2000 ft
- Dry Line
- Creek Bed

Date: 2/8/08	Chloride Levels in Groundwater - Pharaoh Seep	
File: Fig4C_Phar_Chlor.mxd		
Project: RRC-PHR 01-03		
INTERA	Pharaoh Seep Caohoma, Texas	Figure 4C

APPENDIX A

DHL Laboratory Analytical Packages

with Data Review Checklists

Data Review Checklist

Client/Project: RRC/Dugout Creek	**Reviewer:** B Ringey	**Review Date:** 2/6/08
Laboratory: DHL	**Analytical Method:** Anions - E300	**Matrix:** Water
Work Order No.: 0801050		

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
Sample Preservation and Integrity				
1	Did samples arrive at the laboratory appropriately preserved (e.g., 4°C, correct acid added to sample)?	✓		
2	Were holding times met?	✓		
Data Completeness				
3	Are results reported for all target analytes, with no additional analytes?	✓		
4	Was the requested analytical method followed?	✓		
5	Do reported detection limits (or reporting limits/MDL) agree with the project specifications (QAPP)?		✓	SDL's elevated due to dilution for MW-07-01 for Br, Cl. Both analytes detected. No effect on data quality
6	Are results reported for all samples submitted for analysis?	✓		
Calibration and QC Sample Frequency				
7	Were initial and continuing instrument calibration analyses performed? And reported? [a]	✓		
8	For each analytical batch, are results provided for a method blank?	✓		
9	For each analytical batch, are results provided for an LCS/LCSD pair?	✓		
10	For each analytical batch, are results provided for an MS/MSD pair? Alternately, are results for MS/MSD pairs provided for every 20 field samples analyzed?	✓		
11	Are field duplicate results provided at the project-specified (QAPP) frequency?	✓		

Data Review Checklist (continued)

Client/Project: RRC / Dragon Trail	Reviewer: B Rigney	Review Date: 2/4/08
Laboratory: DHL	Analytical Method: Anions E300	Matrix: Water
Work Order No.: 0801050		

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
12	Organic Analyses Only: For each sample (field and QC), are surrogate spike results provided?			NA
QC Results				
13	Do method blank results show **no** detectable concentrations of target analytes (i.e., results = ND)?	✓		
14	Are LCS/LCSD recoveries and RPDs within limits?	✓		
15	Are MS/MSD recoveries and RPDs within limits?	✓		
16	Are surrogate recoveries within limits (organic analyses only)?			NA
Other Data Quality-Related Issues				
17	The laboratory did not issue any CARs. If this is not true (a CAR was issued), describe impact on sample results.	✓		
18	The analyst did not describe any analytical anomalies. If this is not true, describe potential impact to sample results.	✓		
19	No other potential data quality issues were identified. If this is not true, describe issues.	✓		

[a] The laboratory will not be required to report all calibration results. Data validation efforts for this project will assume that the laboratory performed the method-specified calibration analyses.
CAR = Corrective Action Report
LCS/LCSD = Laboratory Control Sample/Duplicate Laboratory Control Sample
MS/MSD = Matrix Spike/Matrix Spike Duplicate
QAPP = Quality Assurance Project Plan
RPD = Relative Percent Difference

Further Comments:

Data Review Checklist

Client/Project: RRC/Dragonfly Creek	Reviewer: B Kinney	Review Date: 2/6/08
Laboratory: DHL	Analytical Method: VOCs - 8021	Matrix: Water
Work Order No.: 0801050		

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
Sample Preservation and Integrity				
1	Did samples arrive at the laboratory appropriately preserved (e.g., 4°C, correct acid added to sample)?	✓		
2	Were holding times met?	✓		
Data Completeness				
3	Are results reported for all target analytes, with no additional analytes?	✓		
4	Was the requested analytical method followed?	✓		
5	Do reported detection limits (or reporting limits/MDL) agree with the project specifications (QAPP)?	✓		
6	Are results reported for all samples submitted for analysis?	✓		
Calibration and QC Sample Frequency				
7	Were initial and continuing instrument calibration analyses performed? And reported? [a]	✓		
8	For each analytical batch, are results provided for a method blank?	✓		
9	For each analytical batch, are results provided for an LCS/LCSD pair?		✓	Only LCS reported. It is in control as in ICV/CCVs + MS/MSDs. No effect on data quality and data was not qualified.
10	For each analytical batch, are results provided for an MS/MSD pair? Alternately, are results for MS/MSD pairs provided for every 20 field samples analyzed?	✓		
11	Are field duplicate results provided at the project-specified (QAPP) frequency?	✓		

Data Review Checklist (continued)

Client/Project: RRC / Dugout Creek	Reviewer: BRigney	Review Date: 2/6/08
Laboratory: DHC	Analytical Method: VOCs 8021	Matrix: Water
Work Order No.: 0801050		

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
12	Organic Analyses Only: For each sample (field and QC), are surrogate spike results provided?	✓		
QC Results				
13	Do method blank results show **no** detectable concentrations of target analytes (i.e., results = ND)?	✓		
14	Are LCS/LCSD recoveries and RPDs within limits?		✓	LCS is within limits, no LCSD provided. No effect on data quality
15	Are MS/MSD recoveries and RPDs within limits?	✓		
16	Are surrogate recoveries within limits (organic analyses only)?	✓		
Other Data Quality-Related Issues				
17	The laboratory did not issue any CARs. If this is not true (a CAR was issued), describe impact on sample results.	✓		
18	The analyst did not describe any analytical anomalies. If this is not true, describe potential impact to sample results.	✓		
19	No other potential data quality issues were identified. If this is not true, describe issues.	✓		

[a] The laboratory will not be required to report all calibration results. Data validation efforts for this project will assume that the laboratory performed the method-specified calibration analyses.
CAR = Corrective Action Report
LCS/LCSD = Laboratory Control Sample/Duplicate Laboratory Control Sample
MS/MSD = Matrix Spike/Matrix Spike Duplicate
QAPP = Quality Assurance Project Plan
RPD = Relative Percent Difference

Further Comments:

Trip blank was included in sample cooler; however, it was not on COC. Lab added trip blank to COC and analyzed. There was no effect to data quality.

Data Review Checklist

Client/Project: RKI Dry-out Creek	Reviewer: BKipping	Review Date: 2/6/08
Laboratory: DHL Work Order No.: 0801050	Analytical Method: TOS 2540C	Matrix: Water

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
Sample Preservation and Integrity				
1	Did samples arrive at the laboratory appropriately preserved (e.g., 4°C, correct acid added to sample)?	✓		
2	Were holding times met?	✓		
Data Completeness				
3	Are results reported for all target analytes, with no additional analytes?	✓		
4	Was the requested analytical method followed?	✓		
5	Do reported detection limits (or reporting limits/MDL) agree with the project specifications (QAPP)?	✓		
6	Are results reported for all samples submitted for analysis?	✓		
Calibration and QC Sample Frequency				
7	Were initial and continuing instrument calibration analyses performed? And reported? [a]		✓	Report of calibration not required. Lab Checklist reports ICV/LCVs were in control. No effect on data quality and data were not qualified.
8	For each analytical batch, are results provided for a method blank?	✓		
9	For each analytical batch, are results provided for an LCS/LCSD pair?		✓	only LCS provided. Lab dup provided and in control. No effect on data
10	For each analytical batch, are results provided for an MS/MSD pair? Alternately, are results for MS/MSD pairs provided for every 20 field samples analyzed?		✓	MS/MSD is not run for TOS analysis. LCS + Lab dup ok, No effect on data quality
11	Are field duplicate results provided at the project-specified (QAPP) frequency?	✓		

Data Review Checklist (continued)

Client/Project: ERC / Dugout Creek	Reviewer: BLigney	Review Date: 2/14/08
Laboratory: DHL	Analytical Method: TDS 2540C	Matrix: water
Work Order No.: 0801050		

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
12	Organic Analyses Only: For each sample (field and QC), are surrogate spike results provided?			NA
QC Results				
13	Do method blank results show **no** detectable concentrations of target analytes (i.e., results = ND)?	✓		
14	Are LCS/LCSD recoveries and RPDs within limits?		✓	No LCSD provided.
15	Are MS/MSD recoveries and RPDs within limits?		✓	No MS/MSD provided
16	Are surrogate recoveries within limits (organic analyses only)?			Lab dup RPD ok. no effect on data quality NA
Other Data Quality-Related Issues				
17	The laboratory did not issue any CARs. If this is not true (a CAR was issued), describe impact on sample results.	✓		
18	The analyst did not describe any analytical anomalies. If this is not true, describe potential impact to sample results.	✓		
19	No other potential data quality issues were identified. If this is not true, describe issues.	✓		

[a] The laboratory will not be required to report all calibration results. Data validation efforts for this project will assume that the laboratory performed the method-specified calibration analyses.
CAR = Corrective Action Report
LCS/LCSD = Laboratory Control Sample/Duplicate Laboratory Control Sample
MS/MSD = Matrix Spike/Matrix Spike Duplicate
QAPP = Quality Assurance Project Plan
RPD = Relative Percent Difference

Further Comments:

DHL ANALYTICAL

January 22, 2008

Daniel Krause
INTERA Inc.
1812 Centre Creek Dr. #300
Austin, Texas 78754

TEL: (512) 425-2000
FAX (512) 425-2099

Order No.: 0801050

RE: Pharoah

Dear Daniel Krause:

DHL Analytical received 6 sample(s) on 1/10/2008 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-06-TX

2300 Double Creek Drive • Round Rock, TX 78664 • Phone (512) 388-8222 • FAX (512) 388-8229
www.dhlanalytical.com

DHL ANALYTICAL

TABLE OF CONTENTS

This report for INTERA Inc. : Pharoah (DHL Work Order 0801050) contains the following information:

January 21, 2008

Approved: _____
John DuPont

2300 Double Creek Drive • Round Rock, TX 78664 • Phone (512) 388-8222 • FAX (512) 388-8229
www.dhlanalytical.com

DHL ANALYTICAL
2300 Double Creek Drive • Round Rock, TX 78664
Phone (512) 388-8222 • FAX (512) 388-8229

№ 34702

CHAIN-OF-CUSTODY

CLIENT: INTERA, INC.
ADDRESS: 1812 Centre Creek Dr, Ste. 300
PHONE: 512-425-2000 FAX 512-425-2099
DATA REPORTED TO: DANIEL KRAUSE, BARBARA RIGNEY
ADDITIONAL REPORT COPIES TO: LYNDA PRICE, MICHELLE TIEMEIER

DATE: 1-8-08 PAGE 1 OF 1
PO #: RRC DUG-03-02 DHL WORK ORDER #: 0801050
PROJECT LOCATION OR NAME: PHARAOH
CLIENT PROJECT #: _____ COLLECTOR: _____

Authorize 5% surcharge for TRRP report? ☐ Yes ☐ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☒ MTBE ☒ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☒ ANIONS ☒ ALKALINITY ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	BTEX/MTBE	TRPH	GASOLINE	DIESEL	VOC	SVOC	PESTICIDES	PCBS	TCLP METALS	TCLP PEST	TOTAL METALS	LEAD	RCI	TDS	pH	EXPLOSIVES	CHLORIDE	FIELD NOTES
MW-P-08	01	1/8/08	1545	W	P	1				X														X			X	BROMIDE, SULFATE
MW-P-10	02	1/8/08	1635	W	P	1				X														X			X	BROMIDE, SULFATE
MW-P-03	03	1/8/08	1700	W	P	1				X														X			X	BROMIDE, SULFATE
MW-P-02	04	1/8/08	1746	W	P	1				X														X			X	BROMIDE, SULFATE
MW-07-01	05	1/8/08	1707	W	P, G	4	X			X		X												X			X	BROMIDE, SULFATE
Trip Blank	06	1/8/08	—	TB								X																	Add TB to COC & analyze for BTEX/MTBE per Daniel K. 1-10-08
TOTAL																													

RELINQUISHED BY: (Signature) DANIEL KRAUSE Daniel Krause DATE/TIME 1/9/08 0730 RECEIVED BY: (Signature) FEDEX TRK 8613 8427 9438
RELINQUISHED BY: (Signature) Fed Ex DATE/TIME 1.10.08 9:00 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 4.8°C THERM #: 57
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☒ CARRIER BILL # FX
☐ APC DELIVERY
☐ HAND DELIVERED

49

200

FedEx Express *US Airbill*

FedEx Tracking Number 8613 8427 9438

Form ID No. 0215 — **Recipient's Copy**

1 From This portion can be removed for Recipient's records.

Date 1-9-08 FedEx Tracking Number 861384279438

Sender's Name DANIEL KRAUSE Phone 512 740-0314

Company INTERA INC

Address 1812 CENTRE CREEK DR STE 300 Dept./Floor/Suite/Room

City AUSTIN State TX ZIP 78754

2 Your Internal Billing Reference BRC-DUG-03-02

3 To

Recipient's Name SAMPLE RECEIVING Phone

Company DHL ANALYTICAL

Recipient's Address 2300 DOUBLE CREEK DRIVE Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City ROUND ROCK State TX ZIP 78664

0360460465

8613 8427 9438

4a Express Package Service *Packages up to 150 lbs.*

- [ ] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [x] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One-pound rate. * To most locations.

4b Express Freight Service *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight* — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation: ** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other — 1 COOLER

* Declared value limit $500.

6 Special Handling Include FedEx address in Section 3.

- [ ] SATURDAY Delivery — Not available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight.
- [ ] HOLD Saturday at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below. Obtain Recip. Acct. No.

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

[redacted]

Total Packages 1 Total Weight 25 lbs. [redacted] Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. *Fee applies.*

519

Rev. Date 10/06•Part #158279•©1994–2006 FedEx•PRINTED IN U.S.A.•SRF

fedex.com 1.800.GoFedEx 1.800.463.3339

CUSTODY SEAL

DATE 1/9/08

SIGNATURE [signature]

QEC

Quality Environmental Containers

800-255-3950 • 304-255-3900

[signature] DANIEL KRAUSE

Emp# 472363 09JAN08 MAFA

78664

TX-US

AO BSMA

4.8

DHL Analytical

Sample Receipt Checklist

Client Name INTERA Inc. Date Received: 1/10/2008

Work Order Number 0801050 Received by DU

Checklist completed by: [signature] 1.10.08 (Signature / Date) Reviewed by JD 01/10/08 (Initials / Date)

Carrier name: FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Adjusted? _____ Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Laboratory Data Package Signature Page

This data package consists of:

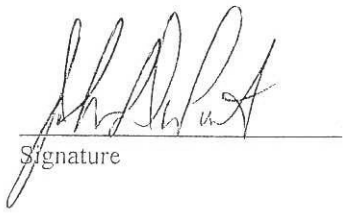
This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC 5.13
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release Statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By me signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Scott Schroeder – Project Manager
John DuPont – General / QA Manager



Signature

01/22/08
Date

DHL Analytical, Inc.

Laboratory Review Checklist: Reportable Data

Project Name: Pharaoh	Date: 1/22/08
Reviewer Name: Carlos Castro	Laboratory Work Order: 0801050
Prep Batch Number(s): See Prep Dates Report	Run Batch: See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (C-O-C)**					
		1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	✓				21-01
		2) Were all departures from standard conditions described in an exception report?			✓		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	✓				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	✓				
		3) Were calculations checked by a peer or supervisor?	✓				
		4) Were all analyte identifications checked by a peer or supervisor?	✓				
		5) Were sample quantitation limits reported for all analytes not detected?	✓				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			✓		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			✓		
		8) If required for the project, TICs reported?			✓		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	✓				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?	✓				
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	✓				
		2) Were blanks analyzed at the appropriate frequency?	✓				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
		4) Were blank concentrations < MQL?	✓				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	✓				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
		3) Were LCSs analyzed at the required frequency?	✓				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
		6) Was the LCSD RPD within QC limits (if applicable)?	✓				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	✓				
		2) Were MS/MSD analyzed at the appropriate frequency?	✓				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	✓				
		4) Were MS/MSD RPDs within laboratory QC limits?	✓				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?	✓				
		2) Were analytical duplicates analyzed at the appropriate frequency?	✓				
		3) Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	✓				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
		3) Are unadjusted MQLs included in the laboratory data package?	✓				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?			✓		
		2) Were all necessary corrective actions performed for the reported data?	✓				
		3) Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).

3 NA = Not applicable.

4 NR = Not Reviewed.

5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.

Laboratory Review Checklist (continued): Supporting Data

Project Name: Pharaoh	Date: 1/22/08
Reviewer Name: Carlos Castro	Laboratory Work Order: 0801050

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	✓				
		2) Were percent RSDs or correlation coefficient criteria met?	✓				
		3) Was the number of standards recommended in the method used for all analytes?	✓				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
		5) Are ICAL data available for all instruments used?	✓				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	✓				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	✓				
		2) Were percent differences for each analyte within the method-required QC limits?	✓				
		3) Was the ICAL curve verified for each analyte?	✓				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	✓				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?			✓		
		2) Were ion abundance data within the method-required QC limits?			✓		
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?			✓		
S5	OI	**Raw Data (NELAC section 1 appendix A glossary, and section 5.12)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
		2) Were data associated with manual integrations flagged on the raw data?	✓				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?	✓				
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?			✓		
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	✓				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	✓				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5C?	✓				
		2) Is documentation of the analyst's competency up-to-date and on file?	✓				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chap 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	✓				

Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).

3 NA = Not applicable.

4 NR = Not Reviewed.

5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

CLIENT:	INTERA Inc.
Project:	Pharoah
Lab Order:	0801050

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW8021B - Volatile Organics by GC Analysis
Method E300 - Anions Analysis
Method M2540C - Total Dissolved Solids

Exception Report R1-01

Samples were received and log-in performed on 1/10/07. A total of 6 samples were received. The Trip Blank was included in the cooler but not listed on the Chain-of-Custody (COC). Added the Trip Blank to the COC as per the client. The samples arrived in good condition and were properly packaged.

CLIENT: INTERA Inc.
Project: Pharoah
Lab Order: 0801050

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
0801050-01	MW-P-08		01/08/08 03:45 PM	1/10/2008
0801050-02	MW-P-10		01/08/08 04:35 PM	1/10/2008
0801050-03	MW-P-03		01/08/08 05:00 PM	1/10/2008
0801050-04	MW-P-02		01/08/08 05:46 PM	1/10/2008
0801050-05	MW-07-01		01/08/08 05:07 PM	1/10/2008
0801050-06	Trip Blank		01/08/08	1/10/2008

Lab Order: 0801050
Client: INTERA Inc.
Project: Pharoah

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
0801050-01A	MW-P-08	01/08/08 03:45 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-08	01/08/08 03:45 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-08	01/08/08 03:45 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-08	01/08/08 03:45 PM	Aqueous	M2540C	Total Dissolved Solids	01/11/08 10:00 AM	TDS_W-01/11/08
0801050-02A	MW-P-10	01/08/08 04:35 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-10	01/08/08 04:35 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-10	01/08/08 04:35 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-10	01/08/08 04:35 PM	Aqueous	M2540C	Total Dissolved Solids	01/11/08 10:00 AM	TDS_W-01/11/08
0801050-03A	MW-P-03	01/08/08 05:00 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-03	01/08/08 05:00 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-03	01/08/08 05:00 PM	Aqueous	M2540C	Total Dissolved Solids	01/11/08 10:00 AM	TDS_W-01/11/08
0801050-04A	MW-P-02	01/08/08 05:46 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-02	01/08/08 05:46 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-P-02	01/08/08 05:46 PM	Aqueous	M2540C	Total Dissolved Solids	01/11/08 10:00 AM	TDS_W-01/11/08
0801050-05A	MW-07-01	01/08/08 05:07 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-07-01	01/08/08 05:07 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-07-01	01/08/08 05:07 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-07-01	01/08/08 05:07 PM	Aqueous	E300	Anions by IC method - Water	01/10/08	R35574
	MW-07-01	01/08/08 05:07 PM	Aqueous	E300	Anions by IC method - Water	01/11/08	R35602
	MW-07-01	01/08/08 05:07 PM	Aqueous	E300	Anions by IC method - Water	01/18/08	R35721
	MW-07-01	01/08/08 05:07 PM	Aqueous	M2540C	Total Dissolved Solids	01/11/08 10:00 AM	TDS_W-01/11/08
0801050-05B	MW-07-01	01/08/08 05:07 PM	Aqueous	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697
0801050-06A	Trip Blank	01/08/08	Trip Blank	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697

Lab Order: 0801050
Client: INTERA Inc.
Project: Pharoah

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
0801050-01A	MW-P-08	Aqueous	E300	Anions by IC method - Water	R35574	10	01/10/08 05:31 PM	IC2_080110A
	MW-P-08	Aqueous	E300	Anions by IC method - Water	R35574	10	01/10/08 08:41 PM	IC2_080110A
	MW-P-08	Aqueous	E300	Anions by IC method - Water	R35574	1	01/10/08 04:17 PM	IC2_080110A
	MW-P-08	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/11/08	1	01/14/08 08:30 AM	WC_080111C
0801050-02A	MW-P-10	Aqueous	E300	Anions by IC method - Water	R35574	1	01/10/08 04:32 PM	IC2_080110A
	MW-P-10	Aqueous	E300	Anions by IC method - Water	R35574	10	01/10/08 05:45 PM	IC2_080110A
	MW-P-10	Aqueous	E300	Anions by IC method - Water	R35574	20	01/10/08 06:00 PM	IC2_080110A
	MW-P-10	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/11/08	1	01/14/08 08:30 AM	WC_080111C
0801050-03A	MW-P-03	Aqueous	E300	Anions by IC method - Water	R35574	1	01/10/08 04:47 PM	IC2_080110A
	MW-P-03	Aqueous	E300	Anions by IC method - Water	R35574	5	01/10/08 06:15 PM	IC2_080110A
	MW-P-03	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/11/08	1	01/14/08 08:30 AM	WC_080111C
0801050-04A	MW-P-02	Aqueous	E300	Anions by IC method - Water	R35574	5	01/10/08 06:29 PM	IC2_080110A
	MW-P-02	Aqueous	E300	Anions by IC method - Water	R35574	1	01/10/08 05:01 PM	IC2_080110A
	MW-P-02	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/11/08	1	01/14/08 08:30 AM	WC_080111C
0801050-05A	MW-07-01	Aqueous	E300	Anions by IC method - Water	R35574	1	01/10/08 05:16 PM	IC2_080110A
	MW-07-01	Aqueous	E300	Anions by IC method - Water	R35574	50	01/10/08 07:28 PM	IC2_080110A
	MW-07-01	Aqueous	E300	Anions by IC method - Water	R35574	100	01/10/08 07:43 PM	IC2_080110A
	MW-07-01	Aqueous	E300	Anions by IC method - Water	R35574	1000	01/10/08 07:57 PM	IC2_080110A
	MW-07-01	Aqueous	E300	Anions by IC method - Water	R35602	5	01/11/08 11:19 AM	IC2_080111A
	MW-07-01	Aqueous	E300	Anions by IC method - Water	R35721	1000	01/18/08 12:11 PM	IC2_080118A
	MW-07-01	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/11/08	1	01/14/08 08:30 AM	WC_080111C
0801050-05B	MW-07-01	Aqueous	SW8021B	Volatile Organics by GC	28697	1	01/14/08 12:41 PM	GC9_080114A
0801050-06A	Trip Blank	Trip Blank	SW8021B	Volatile Organics by GC	28697	1	01/14/08 03:38 PM	GC9_080114A

DHL Analytical

Date: *22-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-P-08
oject:	Pharoah	**Lab ID:**	0801050-01
rroject No:	RRC-DUG-03-02	**Collection Date:**	01/08/08 03:45 PM
Lab Order:	0801050	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/10/08 04:17 PM
Chloride	420	3.00	10.0		mg/L	10	01/10/08 08:41 PM
Sulfate	225	10.0	30.0		mg/L	10	01/10/08 05:31 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	1380	10.0	10.0		mg/L	1	01/14/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	Client Sample ID:	MW-P-10
Project:	Pharoah	Lab ID:	0801050-02
Project No:	RRC-DUG-03-02	Collection Date:	01/08/08 04:35 PM
Lab Order:	0801050	Matrix:	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	3.19	0.300	1.00		mg/L	1	01/10/08 04:32 PM
Chloride	497	3.00	10.0		mg/L	10	01/10/08 05:45 PM
Sulfate	179	10.0	30.0		mg/L	10	01/10/08 05:45 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	1410	10.0	10.0		mg/L	1	01/14/08 08:30 AM

Qualifiers
- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *22-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-P-03
oject:	Pharoah	**Lab ID:**	0801050-03
r oject No:	RRC-DUG-03-02	**Collection Date:**	01/08/08 05:00 PM
Lab Order:	0801050	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	0.505	0.300	1.00	J	mg/L	1	01/10/08 04:47 PM
Chloride	142	1.50	5.00		mg/L	5	01/10/08 06:15 PM
Sulfate	125	5.00	15.0		mg/L	5	01/10/08 06:15 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	836	10.0	10.0		mg/L	1	01/14/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	Client Sample ID:	MW-P-02
Project:	Pharoah	Lab ID:	0801050-04
Project No:	RRC-DUG-03-02	Collection Date:	01/08/08 05:46 PM
Lab Order:	0801050	Matrix:	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: JBC
Bromide	0.346	0.300	1.00	J	mg/L	1	01/10/08 05:01 PM
Chloride	93.7	1.50	5.00		mg/L	5	01/10/08 06:29 PM
Sulfate	113	5.00	15.0		mg/L	5	01/10/08 06:29 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: JBC
Total Dissolved Solids (Residue, Filterable)	723	10.0	10.0		mg/L	1	01/14/08 08:30 AM

Qualifiers
- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *22-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-07-01
Project:	Pharoah	**Lab ID:**	0801050-05
Project No:	RRC-DUG-03-02	**Collection Date:**	01/08/08 05:07 PM
Lab Order:	0801050	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	ND	0.00100	0.00200		mg/L	1	01/14/08 12:41 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 12:41 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 12:41 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 12:41 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 12:41 PM
Surr: a,a,a-Trifluorotoluene	98.4	0	87-113		%REC	1	01/14/08 12:41 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	67.7	1.50	5.00		mg/L	5	01/11/08 11:19 AM
Chloride	7980	300	1000		mg/L	1000	01/18/08 12:11 PM
Sulfate	727	50.0	150		mg/L	50	01/10/08 07:28 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	15400	10.0	10.0		mg/L	1	01/14/08 08:30 AM

Qualifiers

- ND - Not Detected at the SDL
- J - Analyte detected between SDL and RL
- B - Analyte detected in the associated Method Blank
- DF- Dilution Factor
- N - Parameter not NELAC certified
- See Final Page of Report for MQLs and MDLs
- S - Spike Recovery outside control limits
- C - Sample Result or QC discussed in Case Narrative
- RL - Reporting Limit (MQL adjusted for moisture and sample size)
- SDL - Sample Detection Limit
- E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *22-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	Trip Blank
Project:	Pharoah	**Lab ID:**	0801050-06
Project No:	RRC-DUG-03-02	**Collection Date:**	01/08/08
Lab Order:	0801050	**Matrix:**	TRIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	ND	0.00100	0.00200		mg/L	1	01/14/08 03:38 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 03:38 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 03:38 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 03:38 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 03:38 PM
Surr: a,a,a-Trifluorotoluene	97.6	0	87-113		%REC	1	01/14/08 03:38 PM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: GC9_080114A

Sample ID **LCS-28697**	Batch ID: **28697**	TestNo: **SW8021B**	Units: **mg/L**
SampType: **LCS**	Run ID: **GC9_080114A**	Analysis Date: **1/14/2008 10:52:31 A**	Prep Date: **1/14/2008**

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0432	0.00600	0.0500	0	86.5	78	122			
Benzene	0.0485	0.00200	0.0500	0	97.1	81	125			
Toluene	0.0505	0.00600	0.0500	0	101	84	123			
Ethylbenzene	0.0496	0.00600	0.0500	0	99.3	83	119			
Xylenes, Total	0.149	0.00900	0.150	0	99.5	81	117			
Surr: a,a,a-Trifluorotoluene	199		200.0		99.4	87	113			

Sample ID **MB-28697**	Batch ID: **28697**	TestNo: **SW8021B**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GC9_080114A**	Analysis Date: **1/14/2008 11:09:21 A**	Prep Date: **1/14/2008**

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	ND	0.00600								
Benzene	ND	0.00200								
Toluene	ND	0.00600								
Ethylbenzene	ND	0.00600								
Xylenes, Total	ND	0.00900								
Surr: a,a,a-Trifluorotoluene	200		200.0		100	87	113			

Sample ID **0801064-14AMS**	Batch ID: **28697**	TestNo: **SW8021B**	Units: **mg/L**
SampType: **MS**	Run ID: **GC9_080114A**	Analysis Date: **1/14/2008 1:14:57 PM**	Prep Date: **1/14/2008**

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0543	0.00600	0.0500	0	109	78	122			
Benzene	0.0508	0.00200	0.0500	0	102	81	125			
Toluene	0.0526	0.00600	0.0500	0	105	84	123			
Ethylbenzene	0.0513	0.00600	0.0500	0	103	83	119			
Xylenes, Total	0.154	0.00900	0.150	0	103	81	117			
Surr: a,a,a-Trifluorotoluene	201		200.0		101	87	113			

Sample ID **0801064-14AMSD**	Batch ID: **28697**	TestNo: **SW8021B**	Units: **mg/L**
SampType: **MSD**	Run ID: **GC9_080114A**	Analysis Date: **1/14/2008 1:31:48 PM**	Prep Date: **1/14/2008**

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0535	0.00600	0.0500	0	107	78	122	1.48	20	
Benzene	0.0508	0.00200	0.0500	0	102	81	125	0.0571	20	
Toluene	0.0525	0.00600	0.0500	0	105	84	123	0.147	20	
Ethylbenzene	0.0509	0.00600	0.0500	0	102	83	119	0.716	20	
Xylenes, Total	0.153	0.00900	0.150	0	102	81	117	0.823	20	
Surr: a,a,a-Trifluorotoluene	203		200.0		102	87	113	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: GC9_080114A

Sample ID ICV-080114	Batch ID: R35636	TestNo: SW8021B	Units: mg/L
SampType: ICV	Run ID: GC9_080114A	Analysis Date: 1/14/2008 10:35:40 A	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0890	0.00600	0.100	0	89.0	80	120			
Benzene	0.0972	0.00200	0.100	0	97.2	85	115			
Toluene	0.102	0.00600	0.100	0	102	85	115			
Ethylbenzene	0.101	0.00600	0.100	0	101	85	115			
Xylenes, Total	0.301	0.00900	0.300	0	100	85	115			
Surr: a,a,a-Trifluorotoluene	204		200.0		102	87	113			

Sample ID CCV1-080114	Batch ID: R35636	TestNo: SW8021B	Units: mg/L
SampType: CCV	Run ID: GC9_080114A	Analysis Date: 1/14/2008 2:22:21 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0471	0.00600	0.0500	0	94.1	80	120			
Benzene	0.0512	0.00200	0.0500	0	102	85	115			
Toluene	0.0529	0.00600	0.0500	0	106	85	115			
Ethylbenzene	0.0512	0.00600	0.0500	0	102	85	115			
Xylenes, Total	0.153	0.00900	0.150	0	102	85	115			
Surr: a,a,a-Trifluorotoluene	201		200.0		100	87	113			

Sample ID CCV2-080114	Batch ID: R35636	TestNo: SW8021B	Units: mg/L
SampType: CCV	Run ID: GC9_080114A	Analysis Date: 1/14/2008 8:25:48 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0543	0.00600	0.0500	0	109	80	120			
Benzene	0.0501	0.00200	0.0500	0	100	85	115			
Toluene	0.0515	0.00600	0.0500	0	103	85	115			
Ethylbenzene	0.0508	0.00600	0.0500	0	102	85	115			
Xylenes, Total	0.155	0.00900	0.150	0	103	85	115			
Surr: a,a,a-Trifluorotoluene	194		200.0		96.9	87	113			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080110A

Sample ID	ICV-080110	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	ICV	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 9:29:09 AM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	51.8	1.00	50.00	0	104	90	110			
Chloride	25.6	1.00	25.00	0	102	90	110			
Sulfate	78.4	3.00	75.00	0	104	90	110			

Sample ID	MB-080110	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 9:50:51 AM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	ND	1.00								
Chloride	ND	1.00								
Sulfate	ND	3.00								

Sample ID	LCS-080110	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 10:05:31 A	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	19.9	1.00	20.00	0	99.6	90	110			
Chloride	9.84	1.00	10.00	0	98.4	90	110			
ate	30.1	3.00	30.00	0	100	90	110			

Sample ID	LCSD-080110	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 10:20:12 A	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.0	1.00	20.00	0	99.8	90	110	0.256	20	
Chloride	9.86	1.00	10.00	0	98.6	90	110	0.167	20	
Sulfate	30.3	3.00	30.00	0	101	90	110	0.656	20	

Sample ID	CCV1-080110	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 1:21:35 PM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	19.9	1.00	20.00	0	99.6	90	110			
Chloride	9.94	1.00	10.00	0	99.4	90	110			
Sulfate	30.5	3.00	30.00	0	102	90	110			

Sample ID	0801046-01D MS	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 2:05:36 PM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080110A

Sample ID	0801046-01D MS	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 2:05:36 PM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	186	10.0	100.0	91.61	94.5	90	110			

Sample ID	0801046-01D MSD	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 2:20:16 PM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	186	10.0	100.0	91.61	94.3	90	110	0.112	20	

Sample ID	CCV2-080110	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 4:02:59 PM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.1	1.00	20.00	0	100	90	110			
Chloride	9.98	1.00	10.00	0	99.8	90	110			
Sulfate	30.6	3.00	30.00	0	102	90	110			

Sample ID	CCV3-080110	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 6:44:23 PM	Prep Date:	1/10/2008

ılyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.2	1.00	20.00	0	101	90	110			
Chloride	10.1	1.00	10.00	0	101	90	110			
Sulfate	30.5	3.00	30.00	0	102	90	110			

Sample ID	0801050-04A MS	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 6:59:04 PM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	19.8	1.00	20.00	0.2000	98.1	90	110			
Sulfate	100	3.00	30.00	69.18	104	90	110			

Sample ID	0801050-04A MSD	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 7:13:44 PM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.0	1.00	20.00	0.2000	99.2	90	110	1.14	20	
Sulfate	100	3.00	30.00	69.18	104	90	110	0.0115	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080110A

Sample ID	CCV4-080110	Batch ID:	R35574	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080110A	Analysis Date:	1/10/2008 9:11:09 PM	Prep Date:	1/10/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	High Limit	%RPD	RPD Limit	Qual
Bromide	20.2	1.00	20.00	0	101	90	110			
Chloride	9.98	1.00	10.00	0	99.8	90	110			
Sulfate	30.5	3.00	30.00	0	102	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080111A

Sample ID	ICV-080111	Batch ID:	R35602	TestNo:	E300	Units:	mg/L
SampType:	ICV	Run ID:	IC2_080111A	Analysis Date:	1/11/2008 10:07:13 A	Prep Date:	1/11/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	50.4	1.00	50.00	0	101	90	110			

Sample ID	MB-080111	Batch ID:	R35602	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC2_080111A	Analysis Date:	1/11/2008 10:21:53 A	Prep Date:	1/11/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	ND	1.00								

Sample ID	LCS-080111	Batch ID:	R35602	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC2_080111A	Analysis Date:	1/11/2008 10:36:34 A	Prep Date:	1/11/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	19.6	1.00	20.00	0	98.0	90	110			

Sample ID	LCSD-080111	Batch ID:	R35602	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC2_080111A	Analysis Date:	1/11/2008 10:51:14 A	Prep Date:	1/11/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
ide	19.7	1.00	20.00	0	98.6	90	110	0.592	20	

Sample ID	CCV1-080111	Batch ID:	R35602	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080111A	Analysis Date:	1/11/2008 11:45:06 A	Prep Date:	1/11/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.0	1.00	20.00	0	99.8	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080118A

Sample ID	ICV-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	ICV	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 9:50:57 AM	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.5	1.00	25.00	0	102	90	110			

Sample ID	MB-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 10:15:42 A	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.00								

Sample ID	LCS-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 10:30:22 A	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.89	1.00	10.00	0	98.9	90	110			

Sample ID	LCSD-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 10:45:02 A	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
ride	9.90	1.00	10.00	0	99.0	90	110	0.140	20	

Sample ID	CCV1-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 12:41:15 P	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.87	1.00	10.00	0	98.7	90	110			

Sample ID	CCV2-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 3:48:13 PM	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	1.00	10.00	0	100	90	110			

Sample ID	0801092-01B MS	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 4:04:57 PM	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	1750	50.0	500.0	1258	98.0	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080118A

Sample ID	0801092-01B MSD	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 4:19:37 PM	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	1740	50.0	500.0	1258	96.8	90	110	0.333	20	

Sample ID	CCV3-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 5:02:59 PM	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	1.00	10.00	0	100	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: WC_080111C

Sample ID MB-080111	Batch ID: TDS_W-01/11/08	TestNo: M2540C	Units: mg/L
SampType: MBLK	Run ID: WC_080111C	Analysis Date: 1/14/2008 8:30:00 AM	Prep Date: 1/11/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10.0								

Sample ID LCS-080111	Batch ID: TDS_W-01/11/08	TestNo: M2540C	Units: mg/L
SampType: LCS	Run ID: WC_080111C	Analysis Date: 1/14/2008 8:30:00 AM	Prep Date: 1/11/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	717	10.0	745.6	0	96.2	70	126			

Sample ID 0801046-01D DUP	Batch ID: TDS_W-01/11/08	TestNo: M2540C	Units: mg/L
SampType: DUP	Run ID: WC_080111C	Analysis Date: 1/14/2008 8:30:00 AM	Prep Date: 1/11/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	2260	10.0	0	2224				1.56	5	

Sample ID 0801050-05A DUP	Batch ID: TDS_W-01/11/08	TestNo: M2540C	Units: mg/L
SampType: DUP	Run ID: WC_080111C	Analysis Date: 1/14/2008 8:30:00 AM	Prep Date: 1/11/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Dissolved Solids (Residue, Filtera	14900	10.0	0	15420				3.16	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801050
Project: Pharoah

MQL SUMMARY REPORT

TestNo: E300	MDL	MQL
Analyte	**mg/L**	**mg/L**
Bromide	0.300	1.00
Chloride	0.300	1.00
Sulfate	1.00	3.00

TestNo: SW8021B	MDL	MQL
Analyte	**mg/L**	**mg/L**
Methyl tert-butyl ether	0.00200	0.00600
Benzene	0.000800	0.00200
Toluene	0.00200	0.00600
Ethylbenzene	0.00200	0.00600
Xylenes, Total	0.00300	0.00900

TestNo: M2540C	MDL	MQL
Analyte	**mg/L**	**mg/L**
Total Dissolved Solids (Residue, Filt	10.0	10.0

Qualifiers MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

Data Review Checklist

Client/Project: RRC/Dargont Creek	Reviewer: BRicmond	Review Date: 2/6/08
Laboratory: DHL Work Order No.: 0801064	Analytical Method: Anions - 300	Matrix: Water

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
Sample Preservation and Integrity				
1	Did samples arrive at the laboratory appropriately preserved (e.g., 4°C, correct acid added to sample)?	✓		
2	Were holding times met?	✓		
Data Completeness				
3	Are results reported for all target analytes, with no additional analytes?	✓		
4	Was the requested analytical method followed?	✓		
5	Do reported detection limits (or reporting limits/MDL) agree with the project specifications (QAPP)?		✓	SDL was elevated due to sample dilution for MW-0-31, MW-FINA-01, MW-P-01, MW-0-07, MW-07-3, MW-D-01, SW-P-Sep for Cl. Analyte was detected in all field samples. There was no effect on data quality.
6	Are results reported for all samples submitted for analysis?	✓		
Calibration and QC Sample Frequency				
7	Were initial and continuing instrument calibration analyses performed? And reported? [a]	✓		
8	For each analytical batch, are results provided for a method blank?	✓		
9	For each analytical batch, are results provided for an LCS/LCSD pair?	✓		
10	For each analytical batch, are results provided for an MS/MSD pair? Alternately, are results for MS/MSD pairs provided for every 20 field samples analyzed?	✓		
11	Are field duplicate results provided at the project-specified (QAPP) frequency?	✓		Duplicate pairs are: MW-0-23 / MW-1-23, MW-0-21 / MW-0-31. RPD for MW-0-21 / MW-0-31 is above control limits for sulfate.

Data Review Checklist (continued)

Client/Project: RRC/Dugout Creek	Reviewer: B Rigney	Review Date: 2/26/08
Laboratory: DHL Work Order No.: 0801064	Analytical Method: Anions-300	Matrix: Water

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
12	Organic Analyses Only: For each sample (field and QC), are surrogate spike results provided?			NA
QC Results				
13	Do method blank results show **no** detectable concentrations of target analytes (i.e., results = ND)?	✓		
14	Are LCS/LCSD recoveries and RPDs within limits?	✓		
15	Are MS/MSD recoveries and RPDs within limits?		✓	MS/MSD on MW-0-21 for Cl & MW-0-11 for Br had %R below control limits. ICV/CCV + LCS/LCSD in control. Samples were not qualified on the basis of MS/MSD alone. There is no effect on the data quality.
16	Are surrogate recoveries within limits (organic analyses only)?			NA
Other Data Quality-Related Issues				
17	The laboratory did not issue any CARs. If this is not true (a CAR was issued), describe impact on sample results.	✓		
18	The analyst did not describe any analytical anomalies. If this is not true, describe potential impact to sample results.	✓		
19	No other potential data quality issues were identified. If this is not true, describe issues.	✓		

[a] The laboratory will not be required to report all calibration results. Data validation efforts for this project will assume that the laboratory performed the method-specified calibration analyses.
CAR = Corrective Action Report
LCS/LCSD = Laboratory Control Sample/Duplicate Laboratory Control Sample
MS/MSD = Matrix Spike/Matrix Spike Duplicate
QAPP = Quality Assurance Project Plan
RPD = Relative Percent Difference

Further Comments:

There was a discrepancy between sample id on sample label and id on COC. Lab noticed discrepancy upon sample log in. Lab called Intera and was informed COC was correct. Lab changed sample label. There was no effect on data quality.

Equipment rinse had concentration of 1.27 mg/L of Cl. All project samples had concentrations more than 5X ER. No effect on data.

Data Review Checklist

Client/Project: RRC / Dupont Creek	Reviewer: BKing	Review Date: 2/6/08
Laboratory: DHL Work Order No.: 0801064	Analytical Method: VOCs 8021	Matrix: Water

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
Sample Preservation and Integrity				
1	Did samples arrive at the laboratory appropriately preserved (e.g., 4°C, correct acid added to sample)?	✓		
2	Were holding times met?	✓		
Data Completeness				
3	Are results reported for all target analytes, with no additional analytes?	✓		
4	Was the requested analytical method followed?	✓		
5	Do reported detection limits (or reporting limits/MDL) agree with the project specifications (QAPP)?	✓		
6	Are results reported for all samples submitted for analysis?	✓		
Calibration and QC Sample Frequency				
7	Were initial and continuing instrument calibration analyses performed? And reported? [a]	✓		
8	For each analytical batch, are results provided for a method blank?	✓		
9	For each analytical batch, are results provided for an LCS/LCSD pair?		✓	Only LCS provided. ICV/CCV and MS/MSD are in control. No effect on data quality.
10	For each analytical batch, are results provided for an MS/MSD pair? Alternately, are results for MS/MSD pairs provided for every 20 field samples analyzed?	✓		
11	Are field duplicate results provided at the project-specified (QAPP) frequency?	✓		Duplicate pairs are: MW-0-23 / MW-1-23 MW-0-21 / MW-0-31 RPD's for duplicates are within control limits

Data Review Checklist (continued)

Client/Project: RRC / Dupont Creek	Reviewer: B Rigney	Review Date: 2/06/08
Laboratory: DHL	Analytical Method: VOCs 8021	Matrix: Water
Work Order No.: 0801064		

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
12	Organic Analyses Only: For each sample (field and QC), are surrogate spike results provided?	✓		
QC Results				
13	Do method blank results show **no** detectable concentrations of target analytes (i.e., results = ND)?	✓		
14	Are LCS/LCSD recoveries and RPDs within limits?		✓	No LCSD provided. To Lab no effect on data quality
15	Are MS/MSD recoveries and RPDs within limits?	✓		
16	Are surrogate recoveries within limits (organic analyses only)?	✓		
Other Data Quality-Related Issues				
17	The laboratory did not issue any CARs. If this is not true (a CAR was issued), describe impact on sample results.	✓		
18	The analyst did not describe any analytical anomalies. If this is not true, describe potential impact to sample results.	✓		
19	No other potential data quality issues were identified. If this is not true, describe issues.	✓		

[a] The laboratory will not be required to report all calibration results. Data validation efforts for this project will assume that the laboratory performed the method-specified calibration analyses.
CAR = Corrective Action Report
LCS/LCSD = Laboratory Control Sample/Duplicate Laboratory Control Sample
MS/MSD = Matrix Spike/Matrix Spike Duplicate
QAPP = Quality Assurance Project Plan
RPD = Relative Percent Difference

Further Comments:

Data Review Checklist

Client/Project: KRC / Dupont Creek	Reviewer: B Rigney	Review Date: 2/20/08
Laboratory: DHL Work Order No.: 0801064	Analytical Method: TDS 2540C	Matrix: Water

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
Sample Preservation and Integrity				
1	Did samples arrive at the laboratory appropriately preserved (e.g., 4°C, correct acid added to sample)?	✓		
2	Were holding times met?	✓		
Data Completeness				
3	Are results reported for all target analytes, with no additional analytes?	✓		
4	Was the requested analytical method followed?	✓		
5	Do reported detection limits (or reporting limits/MDL) agree with the project specifications (QAPP)?	✓		
6	Are results reported for all samples submitted for analysis?	✓		
Calibration and QC Sample Frequency				
7	Were initial and continuing instrument calibration analyses performed? And reported? [a]		✓	Reporting ICV/CCVs is not required. Lab checklist indicates ICV/CCVs ok. no effect on data quality.
8	For each analytical batch, are results provided for a method blank?	✓		
9	For each analytical batch, are results provided for an LCS/LCSD pair?		✓	Only LCS provided. Lab dup provided and in control. No effect on data quality.
10	For each analytical batch, are results provided for an MS/MSD pair? Alternately, are results for MS/MSD pairs provided for every 20 field samples analyzed?		✓	MS/MSD is not run for TDS. LCS & Lab dup ok. No effect on data quality.
11	Are field duplicate results provided at the project-specified (QAPP) frequency?	✓		Duplicate pairs are: MW-0-23 / MW-1-23 MW-0-21 / MW-0-31

RPDs for duplicates are within control limits.

Data Review Checklist (continued)

Client/Project: RRC/Dugout Creek	Reviewer: RKinney	Review Date: 2/10/08
Laboratory: PHL	Analytical Method: TDS 2540C	Matrix: Water
Work Order No.: 0801064		

#	Review Item or Question	Yes	No	Comments (List Exceptions, Explanations, etc.)
12	Organic Analyses Only: For each sample (field and QC), are surrogate spike results provided?			NA
QC Results				
13	Do method blank results show **no** detectable concentrations of target analytes (i.e., results = ND)?	✓		
14	Are LCS/LCSD recoveries and RPDs within limits?		✓	No LCSD provided.
15	Are MS/MSD recoveries and RPDs within limits?		✓	No MS/MSD provided.
16	Are surrogate recoveries within limits (organic analyses only)?			Lab dup RPD ok. No effect on data quality. NA
Other Data Quality-Related Issues				
17	The laboratory did not issue any CARs. If this is not true (a CAR was issued), describe impact on sample results.	✓		
18	The analyst did not describe any analytical anomalies. If this is not true, describe potential impact to sample results.	✓		
19	No other potential data quality issues were identified. If this is not true, describe issues.	✓		

[a] The laboratory will not be required to report all calibration results. Data validation efforts for this project will assume that the laboratory performed the method-specified calibration analyses.
CAR = Corrective Action Report
LCS/LCSD = Laboratory Control Sample/Duplicate Laboratory Control Sample
MS/MSD = Matrix Spike/Matrix Spike Duplicate
QAPP = Quality Assurance Project Plan
RPD = Relative Percent Difference

Further Comments:

There was a discrepancy between sample id on sample label and id on COC. Lab noticed discrepancy upon sample log in. Lab called Intera and was informed COC was correct. Lab changed sample label. There was no effect on data quality.

DHL ANALYTICAL

January 24, 2008

Daniel Krause
INTERA Inc.
1812 Centre Creek Dr. #300
Austin, Texas 78754

TEL: (512) 425-2000
FAX (512) 425-2099

Order No.: 0801064

RE: RRC-O'Ryan, Dugout, Pharoah

Dear Daniel Krause:

DHL Analytical received 33 sample(s) on 1/10/2008 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-06-TX

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www.dhlanalytical.com

DHL ANALYTICAL

TABLE OF CONTENTS

This report for INTERA Inc. : RRC-O'Ryan, Dugout, Pharoah (DHL Work Order 0801064) contains the following information:

January 24, 2008

Approved: _____
John DuPont

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Phone (512) 388-8222 • FAX (512) 388-8229

№ 34703

CHAIN-OF-CUSTODY

CLIENT: INTERA, Inc.
ADDRESS: 1812 Centre Creek Dr., Ste. 300
PHONE: 512-425-2000 FAX 512-425-2099
DATA REPORTED TO: BARBARA RIGNEY, DANIEL KRAUSE
ADDITIONAL REPORT COPIES TO: MICHELLE TIEMEIER, LYNDA PRICE

DATE: 1/9/08 PAGE 1 OF 2
PO #: DHL WORK ORDER #: 0801064
PROJECT LOCATION OR NAME: ORYAN, DUGOUT, PHARAOH
CLIENT PROJECT #: COLLECTOR:

Authorize 5% surcharge for TRRP report? ☒ Yes ☐ No

S=SOIL P=PAINT W=WATER SL=SLUDGE A=AIR OT=OTHER

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO3	H2SO4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☒ MTBE ☒	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☒ ALKALINITY ☐	FIELD NOTES
MW-0-15	01	1/9/08	0850	W	P	1				X															X			X			ANIONS = BROMIDE, SULFATE
MW-0-23	02	1/9/08	1055	W	P	1				X															X			X			
MW-1-23	03	1/9/08	1040	W	P	1				X															X			X			
MW-0-11	04	1/9/08	1135	W	P	3				X															X			X			MS/MSD
MW-0-8	05	1/9/08	1223	W	P	1				X															X			X			
MW-0-9	06	1/9/08	1255	W	P	1				X															X			X			
MW-0-3	07	1/9/08	1350	W	P	1				X															X			X			
MW-0-5	08	1/9/08	1501	W	P	1				X															X			X			
MW-0-12	09	1/9/08	1530	W	P	1				X															X			X			
MW-0-13	10	1/9/08	1610	W	P	1				X															X			X			
MW-0-1	11	1/9/08	1637	W	P	1				X															X			X			
MW-0-6	12	1/9/08	1725	W	P	1				X															X			X			
MW-0-22	13	1/9/08	1015	W	P	1				X															X			X			
MW-0-21	14	1/9/08	0940	W	P, G	12	X			X															X			X			MS/MSD
MW-0-31	15	1/9/08	0848	W	P, G	4	X			X															X			X			
TOTAL																															

RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)
1/10/08 17:12

RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature) — DATE/TIME — RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ ____

LABORATORY USE ONLY:
RECEIVING TEMP: 3.1°C THERM #: 57
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL # ____
☐ APC DELIVERY
☒ HAND DELIVERED

DHL ANALYTICAL

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№ 34705

CHAIN-OF-CUSTODY

CLIENT: INTERA, Inc
ADDRESS: 1812 Center Creek Dr, Suite 300
PHONE: 512-425-2000 FAX 512-425-2099
DATA REPORTED TO: D. Krause, L. Prile
ADDITIONAL REPORT COPIES TO: M. Tiemeier, B. Rigney

DATE: 1/9/08 PAGE 2 OF 2
PO #: DHL WORK ORDER #: 0801064
PROJECT LOCATION OR NAME: Dugout, ORYAN, Pharah
CLIENT PROJECT #: COLLECTOR:

Authorize 5% surcharge for TRRP report? ☒ Yes ☐ No

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☒ MTBE ☒	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
MW-P-09	16	1/9/08	1155	W	P,G	4	X			X		X														X		X			ANIONS = Bromide, sulfate
MW-FINA-01	17	1/9/08	1305	W	P,G	4	X			X		X														X		X			
MW-P-01	18	1/9/08	1424	W	P,G	4	X			X		X														X		X			
ER	19	1/9/08	1500	W	P,G	4	X			X		X														X		X			
MW-0-7	20	1/9/08	1545	W	P,G	4	X			X		X														X		X			
MW-D-07	21	1/9/08	1655	W	P	1				X																X		X			
MW-D-08	22	1/9/08	1754	W	P	1				X																X		X			
TRIP BLANK	23	~~1/9/08~~	~~1410~~ MT																												
MW-07-2	24	1/10/08	~~1026~~ 0910	W	P	1				X																X		X			TIME 0910
MW-D-2	25	1/10/08	1026	W	P	1				X																X		X			
MW-07-3	26	1/10/08	1101	W	P	1				X																X		X			
~~MW-D-10~~ DM		~~1/10/08~~	~~1026~~																												
TOTAL																															

RELINQUISHED BY: (Signature) Mary Tiemeier DATE/TIME 1/10/08 17:12 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

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TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ ____

LABORATORY USE ONLY:
RECEIVING TEMP: 3.1 °C THERM #: 57
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL # ____
☐ APC DELIVERY
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CHAIN-OF-CUSTODY

CLIENT: Intera, Inc.
ADDRESS: 1812 Center Creek Dr., Suite 300
PHONE: 512-425-2000 FAX 512-425-2099
DATA REPORTED TO: B. Rigney, D. Krause
ADDITIONAL REPORT COPIES TO: L. Price, M. Tiemeier

DATE: 1/10/08 PAGE 1 OF 1
PO #: DHL WORK ORDER #: 0801064
PROJECT LOCATION OR NAME: Dugout Creek
CLIENT PROJECT #: RRC-DUG-13-02 COLLECTOR:

Authorize 5% surcharge for TRRP report? ☒ Yes ☐ No

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☒ ANIONS ☒ ALKALINITY ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 NaOH	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
MW-D-10	27	1/10/08	0904	W	P	1				X		TDS, Chloride/Anions, Alkalinity	
MW-D-01	28	1/10/08	1002	W	P	1				X		TDS, Chloride/Anions, Alkalinity	
MW-D-06	29	1/10/08	1306	W	P	1				X		TDS, Chloride/Anions, Alkalinity	
MW-D-05	30	1/10/08	1424	W	P	1				X		TDS, Chloride/Anions, Alkalinity	
MW-D-04	31	1/10/08	1502	W	P	1				X		TDS, Chloride/Anions, Alkalinity	
SW-D-Seep	32	1/10/08	1638	W	P	1				X		TDS, Chloride/Anions, Alkalinity	
SW-P-Seep	33	1/10/08	1656	W	P	1				X		TDS, Chloride/Anions, Alkalinity	
TOTAL													

RELINQUISHED BY: (Signature) Lynda Price — DATE/TIME 1/11/08 11:15am — RECEIVED BY: (Signature) COURIER
RELINQUISHED BY: (Signature) APC — DATE/TIME 1-11-08 14:55 — RECEIVED BY: (Signature)
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1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ ____

LABORATORY USE ONLY:
RECEIVING TEMP: 5.5°C THERM #: 57
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Delivery charges paid by: Shipper ☐ Consignee ☐ Other ☐	Service Type: 1 Hr. ☐ 2 Hr. ☐ 4 Hr. ☐ After Hours. ☐ Round trip ☐	
INTERD	DHL	
	Attn: Suite No.:	

No. of Pieces	Description/Special Instruction
1	

Client Ref. No.		Weight			
		Extra time			
Driver 1 > 4		Mileage			
Driver 2		COD Amount			
P/U time 2:30	Del. time 2:55	Total Charges			

Received by: [signature]

[signature]

CUSTODY SE
DATE 11/1/8
SIGNATURE [signature]

AL QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900
[signature]

DHL Analytical

Sample Receipt Checklist

Client Name INTERA Inc. Date Received: 1/10/2008

Work Order Number 0801064 Received by DU

Checklist completed by: [signature] 1.11.08 (Signature / Date) Reviewed by: [initials] 01/11/08 (Initials / Date)

Carrier name: Hand Delivered

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Adjusted? _____ Checked by _____

Any No response must be detailed in the comments section below.

Client contacted Intera Date contacted: 1.11.08 Person contacted Daniel Krause

Contacted by: Debbie H. Regarding: Sample -25 ID

Comments: Coc ID = MW-D-2 label ID = MW-D-10

Corrective Action COC ID is correct for this sample

Laboratory Data Package Signature Page

This data package consists of:

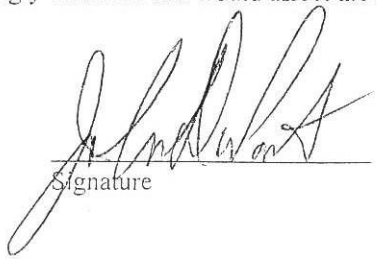
This signature page, the laboratory review checklist, and the following reportable data:

- R1 Field chain-of-custody documentation;
- R2 Sample identification cross-reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC 5.13
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the project, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (%R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated %R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  - d) Calculated %Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) the amount of analyte measured in the duplicate,
  - b) the calculated RPD, and
  - c) the laboratory's QC limits for analytical duplicates.
- R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;
- R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release Statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By me signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Scott Schroeder – Project Manager
John DuPont – General / QA Manager



Signature

01/24/08
Date

DHL Analytical, Inc.

Laboratory Review Checklist: Reportable Data

Project Name: RRC-O'Ryan, Dugout, Pharoah	Date: 1/24/08
Reviewer Name: Carlos Castro	Laboratory Work Order: 0801064
Prep Batch Number(s): See Prep Dates Report	Run Batch: See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (C-O-C)**					
		1) Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?		✓			R1-01
		2) Were all departures from standard conditions described in an exception report?	✓				
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	✓				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	✓				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	✓				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	✓				
		3) Were calculations checked by a peer or supervisor?	✓				
		4) Were all analyte identifications checked by a peer or supervisor?	✓				
		5) Were sample quantitation limits reported for all analytes not detected?	✓				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			✓		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			✓		
		8) If required for the project, TICs reported?			✓		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			✓		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			✓		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	✓				
		2) Were blanks analyzed at the appropriate frequency?	✓				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	✓				
		4) Were blank concentrations < MQL?	✓				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	✓				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	✓				
		3) Were LCSs analyzed at the required frequency?	✓				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	✓				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	✓				
		6) Was the LCSD RPD within QC limits (if applicable)?	✓				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	✓				
		2) Were MS/MSD analyzed at the appropriate frequency?	✓				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		✓			R2-03
		4) Were MS/MSD RPDs within laboratory QC limits?	✓				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?	✓				
		2) Were analytical duplicates analyzed at the appropriate frequency?	✓				
		3) Were RPDs or relative standard deviations within the laboratory QC limits?	✓				
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	✓				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	✓				
		3) Are unadjusted MQLs included in the laboratory data package?	✓				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	✓				
		2) Were all necessary corrective actions performed for the reported data?	✓				
		3) Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	✓				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.

Laboratory Review Checklist (continued): Supporting Data

Project Name: RRC-O'Ryan, Ougout, Pharoah	Date: 1/24/08
Reviewer Name: Carlos Castro	Laboratory Work Order: 0801064

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	✓				
		2) Were percent RSDs or correlation coefficient criteria met?	✓				
		3) Was the number of standards recommended in the method used for all analytes?	✓				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	✓				
		5) Are ICAL data available for all instruments used?	✓				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	✓				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	✓				
		2) Were percent differences for each analyte within the method-required QC limits?	✓				
		3) Was the ICAL curve verified for each analyte?	✓				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	✓				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?			✓		
		2) Were ion abundance data within the method-required QC limits?			✓		
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?			✓		
S5	OI	**Raw Data (NELAC section 1 appendix A glossary, and section 5.12)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	✓				
		2) Were data associated with manual integrations flagged on the raw data?	✓				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?	✓				
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			✓		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?			✓		
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			✓		
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	✓				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	✓				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	✓				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	✓				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	✓				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5C?	✓				
		2) Is documentation of the analyst's competency up-to-date and on file?	✓				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chap 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	✓				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	✓				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.

2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).

3 NA = Not applicable.

4 NR = Not Reviewed.

5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical Date: *24-Jan-08*

CLIENT:	INTERA Inc.
Project:	RRC-O'Ryan, Dugout, Pharoah
Lab Order:	0801064

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Method SW8021B - Volatile Organics by GC Analysis
Method E300 - Anions Analysis
Method M2540C - Total Dissolved Solids

Exception Report R1-01

Samples were received and log-in performed on 1/10/07. A total of 33 samples were received. There was one discrepancy between the sample ID on the Chain of Custody (COC) and the sample label for a sample. The COC had the ID as MW-D-2 and the sample label had the ID MW-D-10. As per the client, the COC was correct and the ID on the label was changed.

Exception Report R7-03 and R7-04

For Anion analysis, the matrix spikes and/or matrix spike duplicates (0801064-04A MS/MSD and 0801064-14B MS) were slightly below control limits for Bromide or Chloride. These are flagged accordingly in the QC summary report. The reference samples selected for the matrix spikes and matrix spike duplicates were from this work order. The LCS was within control limits for these analytes. No further corrective actions were taken.

Exception Report R10-01

For Bromide analysis of samples MW-O-21 and SW-O-Seep, the Chloride concentration caused the Chloride peak to coelute with the Bromide peak and the sample required dilution. However, after dilution the bromide was below detection limits.

DHL Analytical

Date: *24-Jan-08*

CLIENT: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah
Lab Order: 0801064

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
0801064-01	MW-O-15		01/09/08 08:50 AM	1/10/2008
0801064-02	MW-O-23		01/09/08 10:55 AM	1/10/2008
0801064-03	MW-I-23		01/09/08 10:40 AM	1/10/2008
0801064-04	MW-O-11		01/09/08 11:35 AM	1/10/2008
0801064-05	MW-O-8		01/09/08 12:23 PM	1/10/2008
0801064-06	MW-O-9		01/09/08 12:55 PM	1/10/2008
0801064-07	MW-O-3		01/09/08 01:50 PM	1/10/2008
0801064-08	MW-O-5		01/09/08 03:01 PM	1/10/2008
0801064-09	MW-O-12		01/09/08 03:30 PM	1/10/2008
0801064-10	MW-O-13		01/09/08 04:10 PM	1/10/2008
0801064-11	MW-O-1		01/09/08 04:37 PM	1/10/2008
0801064-12	MW-O-6		01/09/08 05:25 PM	1/10/2008
0801064-13	MW-O-22		01/09/08 10:15 AM	1/10/2008
0801064-14	MW-O-21		01/09/08 09:40 AM	1/10/2008
0801064-15	MW-O-31		01/09/08 08:48 AM	1/10/2008
0801064-16	MW-P-09		01/09/08 11:55 AM	1/10/2008
01064-17	MW-FINA-01		01/09/08 01:05 PM	1/10/2008
0801064-18	MW-P-01		01/09/08 02:24 PM	1/10/2008
0801064-19	ER		01/09/08 03:00 PM	1/10/2008
0801064-20	MW-O-7		01/09/08 03:45 PM	1/10/2008
0801064-21	MW-D-07		01/09/08 04:55 PM	1/10/2008
0801064-22	MW-D-08		01/09/08 05:54 PM	1/10/2008
0801064-23	Trip Blank		01/09/08	1/10/2008
0801064-24	MW-07-2		01/10/08 09:10 AM	1/10/2008
0801064-25	MW-D-2		01/10/08 10:26 AM	1/10/2008
0801064-26	MW-07-3		01/10/08 11:06 AM	1/10/2008
0801064-27	MW-D-10		01/10/08 09:04 AM	1/11/2008
0801064-28	MW-D-01		01/10/08 10:02 AM	1/11/2008
0801064-29	MW-D-06		01/10/08 01:06 PM	1/11/2008
0801064-30	MW-D-05		01/10/08 02:24 PM	1/11/2008
0801064-31	MW-D-04		01/10/08 03:02 PM	1/11/2008
0801064-32	SW-O-Seep		01/10/08 04:38 PM	1/11/2008
0801064-33	SW-P-Seep		01/10/08 04:56 PM	1/11/2008

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
0801064-01A	MW-O-15	01/09/08 08:50 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-15	01/09/08 08:50 AM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-15	01/09/08 08:50 AM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-02A	MW-O-23	01/09/08 10:55 AM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-23	01/09/08 10:55 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-23	01/09/08 10:55 AM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-03A	MW-I-23	01/09/08 10:40 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-I-23	01/09/08 10:40 AM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-I-23	01/09/08 10:40 AM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-04A	MW-O-11	01/09/08 11:35 AM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-11	01/09/08 11:35 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-11	01/09/08 11:35 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-11	01/09/08 11:35 AM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-11	01/09/08 11:35 AM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-05A	MW-O-8	01/09/08 12:23 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-8	01/09/08 12:23 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-8	01/09/08 12:23 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-06A	MW-O-9	01/09/08 12:55 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-9	01/09/08 12:55 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-9	01/09/08 12:55 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-07A	MW-O-3	01/09/08 01:50 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-3	01/09/08 01:50 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-3	01/09/08 01:50 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-08A	MW-O-5	01/09/08 03:01 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-5	01/09/08 03:01 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-5	01/09/08 03:01 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-09A	MW-O-12	01/09/08 03:30 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-12	01/09/08 03:30 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
0801064-09A	MW-O-12	01/09/08 03:30 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-10A	MW-O-13	01/09/08 04:10 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-13	01/09/08 04:10 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-13	01/09/08 04:10 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-11A	MW-O-1	01/09/08 04:37 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-1	01/09/08 04:37 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-1	01/09/08 04:37 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-1	01/09/08 04:37 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-12A	MW-O-6	01/09/08 05:25 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-6	01/09/08 05:25 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-6	01/09/08 05:25 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-13A	MW-O-22	01/09/08 10:15 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-22	01/09/08 10:15 AM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-22	01/09/08 10:15 AM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-14A	MW-O-21	01/09/08 09:40 AM	Aqueous	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697
0801064-14B	MW-O-21	01/09/08 09:40 AM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-21	01/09/08 09:40 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-21	01/09/08 09:40 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-21	01/09/08 09:40 AM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-15A	MW-O-31	01/09/08 08:48 AM	Aqueous	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697
0801064-15B	MW-O-31	01/09/08 08:48 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-31	01/09/08 08:48 AM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-31	01/09/08 08:48 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-31	01/09/08 08:48 AM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-16A	MW-P-09	01/09/08 11:55 AM	Aqueous	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697
0801064-16B	MW-P-09	01/09/08 11:55 AM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-P-09	01/09/08 11:55 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-P-09	01/09/08 11:55 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
0801064-16B	MW-P-09	01/09/08 11:55 AM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-17A	MW-FINA-01	01/09/08 01:05 PM	Aqueous	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697
0801064-17B	MW-FINA-01	01/09/08 01:05 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-FINA-01	01/09/08 01:05 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-FINA-01	01/09/08 01:05 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-FINA-01	01/09/08 01:05 PM	Aqueous	E300	Anions by IC method - Water	01/18/08	R35721
	MW-FINA-01	01/09/08 01:05 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-18A	MW-P-01	01/09/08 02:24 PM	Aqueous	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697
0801064-18B	MW-P-01	01/09/08 02:24 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-P-01	01/09/08 02:24 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-P-01	01/09/08 02:24 PM	Aqueous	E300	Anions by IC method - Water	01/18/08	R35721
	MW-P-01	01/09/08 02:24 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-P-01	01/09/08 02:24 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-19A	ER	01/09/08 03:00 PM	Equipment Blank	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697
0801064-19B	ER	01/09/08 03:00 PM	Equipment Blank	E300	Anions by IC method - Water	01/15/08	R35658
	ER	01/09/08 03:00 PM	Equipment Blank	E300	Anions by IC method - Water	01/15/08	R35656
	ER	01/09/08 03:00 PM	Equipment Blank	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-20A	MW-O-7	01/09/08 03:45 PM	Aqueous	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697
0801064-20B	MW-O-7	01/09/08 03:45 PM	Aqueous	E300	Anions by IC method - Water	01/14/08	R35633
	MW-O-7	01/09/08 03:45 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-7	01/09/08 03:45 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35658
	MW-O-7	01/09/08 03:45 PM	Aqueous	M2540C	Total Dissolved Solids	01/14/08 01:30 PM	TDS_W-01/14/08
0801064-21A	MW-D-07	01/09/08 04:55 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-07	01/09/08 04:55 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-07	01/09/08 04:55 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-07	01/09/08 04:55 PM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-22A	MW-D-08	01/09/08 05:54 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-08	01/09/08 05:54 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
0801064-22A	MW-D-08	01/09/08 05:54 PM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-23A	Trip Blank	01/09/08	Trip Blank	SW5030B	Purge and Trap Water GC	01/14/08 09:44 AM	28697
0801064-24A	MW-07-2	01/10/08 09:10 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-07-2	01/10/08 09:10 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-07-2	01/10/08 09:10 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-07-2	01/10/08 09:10 AM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-25A	MW-D-2	01/10/08 10:26 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-2	01/10/08 10:26 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-2	01/10/08 10:26 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-2	01/10/08 10:26 AM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-26A	MW-07-3	01/10/08 11:06 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-07-3	01/10/08 11:06 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-07-3	01/10/08 11:06 AM	Aqueous	E300	Anions by IC method - Water	01/18/08	R35721
	MW-07-3	01/10/08 11:06 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-07-3	01/10/08 11:06 AM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-27A	MW-D-10	01/10/08 09:04 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-10	01/10/08 09:04 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-10	01/10/08 09:04 AM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-28A	MW-D-01	01/10/08 10:02 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-01	01/10/08 10:02 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-01	01/10/08 10:02 AM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-01	01/10/08 10:02 AM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-29A	MW-D-06	01/10/08 01:06 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-06	01/10/08 01:06 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-06	01/10/08 01:06 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-06	01/10/08 01:06 PM	Aqueous	E300	Anions by IC method - Water	01/18/08	R35721
	MW-D-06	01/10/08 01:06 PM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-30A	MW-D-05	01/10/08 02:24 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Du gout, Pharoah

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
0801064-30A	MW-D-05	01/10/08 02:24 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-05	01/10/08 02:24 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-05	01/10/08 02:24 PM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-31A	MW-D-04	01/10/08 03:02 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-04	01/10/08 03:02 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-04	01/10/08 03:02 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	MW-D-04	01/10/08 03:02 PM	Aqueous	E300	Anions by IC method - Water	01/16/08	R35679
	MW-D-04	01/10/08 03:02 PM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-32A	SW-O-Seep	01/10/08 04:38 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	SW-O-Seep	01/10/08 04:38 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	SW-O-Seep	01/10/08 04:38 PM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08
0801064-33A	SW-P-Seep	01/10/08 04:56 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	SW-P-Seep	01/10/08 04:56 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	SW-P-Seep	01/10/08 04:56 PM	Aqueous	E300	Anions by IC method - Water	01/15/08	R35656
	SW-P-Seep	01/10/08 04:56 PM	Aqueous	E300	Anions by IC method - Water	01/16/08	R35679
	SW-P-Seep	01/10/08 04:56 PM	Aqueous	E300	Anions by IC method - Water	01/18/08	R35721
	SW-P-Seep	01/10/08 04:56 PM	Aqueous	M2540C	Total Dissolved Solids	01/16/08 01:00 PM	TDS_W-01/16/08

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
0801064-01A	MW-O-15	Aqueous	E300	Anions by IC method - Water	R35633	2	01/14/08 11:13 AM	IC2_080114A
	MW-O-15	Aqueous	E300	Anions by IC method - Water	R35658	100	01/15/08 11:35 AM	IC_080115A
	MW-O-15	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-02A	MW-O-23	Aqueous	E300	Anions by IC method - Water	R35658	10	01/15/08 11:50 AM	IC_080115A
	MW-O-23	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 11:27 AM	IC2_080114A
	MW-O-23	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-03A	MW-I-23	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 11:42 AM	IC2_080114A
	MW-I-23	Aqueous	E300	Anions by IC method - Water	R35658	10	01/15/08 12:06 PM	IC_080115A
	MW-I-23	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-04A	MW-O-11	Aqueous	E300	Anions by IC method - Water	R35658	10	01/15/08 01:40 PM	IC_080115A
	MW-O-11	Aqueous	E300	Anions by IC method - Water	R35633	2	01/14/08 11:57 AM	IC2_080114A
	MW-O-11	Aqueous	E300	Anions by IC method - Water	R35633	2	01/14/08 02:25 PM	IC2_080114A
	MW-O-11	Aqueous	E300	Anions by IC method - Water	R35658	100	01/15/08 12:22 PM	IC_080115A
	MW-O-11	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-05A	MW-O-8	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 12:12 PM	IC2_080114A
	MW-O-8	Aqueous	E300	Anions by IC method - Water	R35658	50	01/15/08 01:09 PM	IC_080115A
	MW-O-8	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-06A	MW-O-9	Aqueous	E300	Anions by IC method - Water	R35658	10	01/15/08 02:24 PM	IC_080115A
	MW-O-9	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 01:13 PM	IC2_080114A
	MW-O-9	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-07A	MW-O-3	Aqueous	E300	Anions by IC method - Water	R35658	50	01/15/08 02:39 PM	IC_080115A
	MW-O-3	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 01:27 PM	IC2_080114A
	MW-O-3	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-08A	MW-O-5	Aqueous	E300	Anions by IC method - Water	R35658	100	01/15/08 02:54 PM	IC_080115A
	MW-O-5	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 01:42 PM	IC2_080114A
	MW-O-5	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-09A	MW-O-12	Aqueous	E300	Anions by IC method - Water	R35658	10	01/15/08 03:08 PM	IC_080115A
	MW-O-12	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 01:57 PM	IC2_080114A

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
0801064-09A	MW-O-12	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-10A	MW-O-13	Aqueous	E300	Anions by IC method - Water	R35658	10	01/15/08 03:23 PM	IC_080115A
	MW-O-13	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 02:10 PM	IC2_080114A
	MW-O-13	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-11A	MW-O-1	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 03:09 PM	IC2_080114A
	MW-O-1	Aqueous	E300	Anions by IC method - Water	R35658	10	01/15/08 03:38 PM	IC_080115A
	MW-O-1	Aqueous	E300	Anions by IC method - Water	R35658	20	01/15/08 03:52 PM	IC_080115A
	MW-O-1	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-12A	MW-O-6	Aqueous	E300	Anions by IC method - Water	R35658	50	01/15/08 04:22 PM	IC_080115A
	MW-O-6	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 03:24 PM	IC2_080114A
	MW-O-6	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-13A	MW-O-22	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 03:57 PM	IC2_080114A
	MW-O-22	Aqueous	E300	Anions by IC method - Water	R35658	20	01/15/08 04:36 PM	IC_080115A
	MW-O-22	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-14A	MW-O-21	Aqueous	SW8021B	Volatile Organics by GC	28697	1	01/14/08 12:57 PM	GC9_080114A
0801064-14B	MW-O-21	Aqueous	E300	Anions by IC method - Water	R35658	100	01/15/08 04:51 PM	IC_080115A
	MW-O-21	Aqueous	E300	Anions by IC method - Water	R35658	500	01/15/08 05:46 PM	IC_080115A
	MW-O-21	Aqueous	E300	Anions by IC method - Water	R35633	10	01/14/08 04:11 PM	IC2_080114A
	MW-O-21	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-15A	MW-O-31	Aqueous	SW8021B	Volatile Organics by GC	28697	1	01/14/08 01:48 PM	GC9_080114A
0801064-15B	MW-O-31	Aqueous	E300	Anions by IC method - Water	R35633	10	01/14/08 04:55 PM	IC2_080114A
	MW-O-31	Aqueous	E300	Anions by IC method - Water	R35658	50	01/15/08 06:33 PM	IC_080115A
	MW-O-31	Aqueous	E300	Anions by IC method - Water	R35658	1000	01/15/08 06:48 PM	IC_080115A
	MW-O-31	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-16A	MW-P-09	Aqueous	SW8021B	Volatile Organics by GC	28697	1	01/14/08 02:05 PM	GC9_080114A
0801064-16B	MW-P-09	Aqueous	E300	Anions by IC method - Water	R35658	10	01/15/08 07:17 PM	IC_080115A
	MW-P-09	Aqueous	E300	Anions by IC method - Water	R35658	100	01/15/08 07:32 PM	IC_080115A
	MW-P-09	Aqueous	E300	Anions by IC method - Water	R35633	1	01/14/08 05:10 PM	IC2_080114A

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
0801064-16B	MW-P-09	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-17A	MW-FINA-01	Aqueous	SW8021B	Volatile Organics by GC	28697	1	01/14/08 04:29 PM	GC9_080114A
0801064-17B	MW-FINA-01	Aqueous	E300	Anions by IC method - Water	R35658	1000	01/15/08 07:47 PM	IC_080115A
	MW-FINA-01	Aqueous	E300	Anions by IC method - Water	R35658	20	01/15/08 08:01 PM	IC_080115A
	MW-FINA-01	Aqueous	E300	Anions by IC method - Water	R35633	20	01/14/08 05:25 PM	IC2_080114A
	MW-FINA-01	Aqueous	E300	Anions by IC method - Water	R35721	1000	01/18/08 10:58 AM	IC2_080118A
	MW-FINA-01	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-18A	MW-P-01	Aqueous	SW8021B	Volatile Organics by GC	28697	1	01/14/08 04:46 PM	GC9_080114A
0801064-18B	MW-P-01	Aqueous	E300	Anions by IC method - Water	R35658	50	01/15/08 08:16 PM	IC_080115A
	MW-P-01	Aqueous	E300	Anions by IC method - Water	R35633	10	01/14/08 05:39 PM	IC2_080114A
	MW-P-01	Aqueous	E300	Anions by IC method - Water	R35721	1000	01/18/08 11:13 AM	IC2_080118A
	MW-P-01	Aqueous	E300	Anions by IC method - Water	R35658	1000	01/15/08 08:31 PM	IC_080115A
	MW-P-01	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-19A	ER	quipment Blan	SW8021B	Volatile Organics by GC	28697	1	01/14/08 04:12 PM	GC9_080114A
0801064-19B	ER	quipment Blan	E300	Anions by IC method - Water	R35656	1	01/15/08 09:27 PM	IC2_080115A
	ER	quipment Blan	E300	Anions by IC method - Water	R35658	1	01/15/08 08:45 PM	IC_080115A
	ER	quipment Blan	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-20A	MW-O-7	Aqueous	SW8021B	Volatile Organics by GC	28697	1	01/14/08 05:03 PM	GC9_080114A
0801064-20B	MW-O-7	Aqueous	E300	Anions by IC method - Water	R35658	50	01/15/08 09:00 PM	IC_080115A
	MW-O-7	Aqueous	E300	Anions by IC method - Water	R35658	1000	01/15/08 09:15 PM	IC_080115A
	MW-O-7	Aqueous	E300	Anions by IC method - Water	R35633	5	01/14/08 06:09 PM	IC2_080114A
	MW-O-7	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/14/08	1	01/15/08 08:30 AM	WC_080114A
0801064-21A	MW-D-07	Aqueous	E300	Anions by IC method - Water	R35656	500	01/15/08 03:21 PM	IC2_080115A
	MW-D-07	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 03:06 PM	IC2_080115A
	MW-D-07	Aqueous	E300	Anions by IC method - Water	R35656	5	01/15/08 11:26 AM	IC2_080115A
	MW-D-07	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-22A	MW-D-08	Aqueous	E300	Anions by IC method - Water	R35656	1	01/15/08 11:41 AM	IC2_080115A
	MW-D-08	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 03:36 PM	IC2_080115A

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
0801064-22A	MW-D-08	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-23A	Trip Blank	Trip Blank	SW8021B	Volatile Organics by GC	28697	1	01/14/08 03:55 PM	GC9_080114A
0801064-24A	MW-07-2	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 04:05 PM	IC2_080115A
	MW-07-2	Aqueous	E300	Anions by IC method - Water	R35656	500	01/15/08 04:20 PM	IC2_080115A
	MW-07-2	Aqueous	E300	Anions by IC method - Water	R35656	5	01/15/08 11:56 AM	IC2_080115A
	MW-07-2	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-25A	MW-D-2	Aqueous	E300	Anions by IC method - Water	R35656	2	01/15/08 12:10 PM	IC2_080115A
	MW-D-2	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 04:34 PM	IC2_080115A
	MW-D-2	Aqueous	E300	Anions by IC method - Water	R35656	100	01/15/08 04:49 PM	IC2_080115A
	MW-D-2	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-26A	MW-07-3	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 05:04 PM	IC2_080115A
	MW-07-3	Aqueous	E300	Anions by IC method - Water	R35656	1000	01/15/08 05:18 PM	IC2_080115A
	MW-07-3	Aqueous	E300	Anions by IC method - Water	R35721	1000	01/18/08 11:27 AM	IC2_080118A
	MW-07-3	Aqueous	E300	Anions by IC method - Water	R35656	10	01/15/08 12:25 PM	IC2_080115A
	MW-07-3	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-27A	MW-D-10	Aqueous	E300	Anions by IC method - Water	R35656	1	01/15/08 12:40 PM	IC2_080115A
	MW-D-10	Aqueous	E300	Anions by IC method - Water	R35656	5	01/15/08 05:33 PM	IC2_080115A
	MW-D-10	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-28A	MW-D-01	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 06:16 PM	IC2_080115A
	MW-D-01	Aqueous	E300	Anions by IC method - Water	R35656	1000	01/15/08 06:46 PM	IC2_080115A
	MW-D-01	Aqueous	E300	Anions by IC method - Water	R35656	5	01/15/08 12:54 PM	IC2_080115A
	MW-D-01	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-29A	MW-D-06	Aqueous	E300	Anions by IC method - Water	R35656	1	01/15/08 01:24 PM	IC2_080115A
	MW-D-06	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 07:00 PM	IC2_080115A
	MW-D-06	Aqueous	E300	Anions by IC method - Water	R35656	500	01/15/08 07:15 PM	IC2_080115A
	MW-D-06	Aqueous	E300	Anions by IC method - Water	R35721	100	01/18/08 02:38 PM	IC2_080118A
	MW-D-06	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-30A	MW-D-05	Aqueous	E300	Anions by IC method - Water	R35656	5	01/15/08 01:38 PM	IC2_080115A

Lab Order: 0801064
Client: INTERA Inc.
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
0801064-30A	MW-D-05	Aqueous	E300	Anions by IC method - Water	R35656	500	01/15/08 07:44 PM	IC2_080115A
	MW-D-05	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 07:30 PM	IC2_080115A
	MW-D-05	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-31A	MW-D-04	Aqueous	E300	Anions by IC method - Water	R35656	5	01/15/08 01:53 PM	IC2_080115A
	MW-D-04	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 07:59 PM	IC2_080115A
	MW-D-04	Aqueous	E300	Anions by IC method - Water	R35656	100	01/15/08 08:14 PM	IC2_080115A
	MW-D-04	Aqueous	E300	Anions by IC method - Water	R35679	200	01/16/08 11:49 AM	IC2_080116A
	MW-D-04	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-32A	SW-O-Seep	Aqueous	E300	Anions by IC method - Water	R35656	10	01/15/08 02:08 PM	IC2_080115A
	SW-O-Seep	Aqueous	E300	Anions by IC method - Water	R35656	50	01/15/08 08:29 PM	IC2_080115A
	SW-O-Seep	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A
0801064-33A	SW-P-Seep	Aqueous	E300	Anions by IC method - Water	R35656	10	01/15/08 02:22 PM	IC2_080115A
	SW-P-Seep	Aqueous	E300	Anions by IC method - Water	R35656	100	01/15/08 08:43 PM	IC2_080115A
	SW-P-Seep	Aqueous	E300	Anions by IC method - Water	R35656	200	01/15/08 08:58 PM	IC2_080115A
	SW-P-Seep	Aqueous	E300	Anions by IC method - Water	R35679	500	01/16/08 01:23 PM	IC2_080116A
	SW-P-Seep	Aqueous	E300	Anions by IC method - Water	R35721	1000	01/18/08 11:57 AM	IC2_080118A
	SW-P-Seep	Aqueous	M2540C	Total Dissolved Solids	TDS_W-01/16/08	1	01/17/08 09:40 AM	WC_080116A

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-15
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-01
Project No:		**Collection Date:**	01/09/08 08:50 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	6.76	0.600	2.00		mg/L	2	01/14/08 11:13 AM
Chloride	4600	30.0	100		mg/L	100	01/15/08 11:35 AM
Sulfate	1340	100	300		mg/L	100	01/15/08 11:35 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	11200	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-23
)ject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-02
Project No:		**Collection Date:**	01/09/08 10:55 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/14/08 11:27 AM
Chloride	43.6	3.00	10.0		mg/L	10	01/15/08 11:50 AM
Sulfate	124	10.0	30.0		mg/L	10	01/15/08 11:50 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	699	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-I-23
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-03
Project No:		**Collection Date:**	01/09/08 10:40 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/14/08 11:42 AM
Chloride	42.7	3.00	10.0		mg/L	10	01/15/08 12:06 PM
Sulfate	117	10.0	30.0		mg/L	10	01/15/08 12:06 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	706	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-11
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-04
Project No:		**Collection Date:**	01/09/08 11:35 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	5.28	0.600	2.00		mg/L	2	01/14/08 11:57 AM
Chloride	3130	30.0	100		mg/L	100	01/15/08 12:22 PM
Sulfate	455	10.0	30.0		mg/L	10	01/15/08 01:40 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	6560	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-8
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-05
Project No:		**Collection Date:**	01/09/08 12:23 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	2.21	0.300	1.00		mg/L	1	01/14/08 12:12 PM
Chloride	2510	15.0	50.0		mg/L	50	01/15/08 01:09 PM
Sulfate	440	50.0	150		mg/L	50	01/15/08 01:09 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	5520	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-9
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-06
Project No:		**Collection Date:**	01/09/08 12:55 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	3.96	0.300	1.00		mg/L	1	01/14/08 01:13 PM
Chloride	330	3.00	10.0		mg/L	10	01/15/08 02:24 PM
Sulfate	794	10.0	30.0		mg/L	10	01/15/08 02:24 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	2110	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-3
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-07
Project No:		**Collection Date:**	01/09/08 01:50 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/14/08 01:27 PM
Chloride	1450	15.0	50.0		mg/L	50	01/15/08 02:39 PM
Sulfate	291	50.0	150		mg/L	50	01/15/08 02:39 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	3200	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-5
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-08
Project No:		**Collection Date:**	01/09/08 03:01 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/14/08 01:42 PM
Chloride	2800	30.0	100		mg/L	100	01/15/08 02:54 PM
Sulfate	686	100	300		mg/L	100	01/15/08 02:54 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	6180	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-12
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-09
Project No:		**Collection Date:**	01/09/08 03:30 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/14/08 01:57 PM
Chloride	229	3.00	10.0		mg/L	10	01/15/08 03:08 PM
Sulfate	116	10.0	30.0		mg/L	10	01/15/08 03:08 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	931	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-13
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-10
Project No:		**Collection Date:**	01/09/08 04:10 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/14/08 02:10 PM
Chloride	245	3.00	10.0		mg/L	10	01/15/08 03:23 PM
Sulfate	130	10.0	30.0		mg/L	10	01/15/08 03:23 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	1000	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-1
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-11
Project No:		**Collection Date:**	01/09/08 04:37 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/14/08 03:09 PM
Chloride	1040	6.00	20.0		mg/L	20	01/15/08 03:52 PM
Sulfate	184	10.0	30.0		mg/L	10	01/15/08 03:38 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	2530	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-6
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-12
Project No:		**Collection Date:**	01/09/08 05:25 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/14/08 03:24 PM
Chloride	2320	15.0	50.0		mg/L	50	01/15/08 04:22 PM
Sulfate	636	50.0	150		mg/L	50	01/15/08 04:22 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	4920	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	Client Sample ID:	MW-O-22
›ject:	RRC-O'Ryan, Dugout, Pharoah	Lab ID:	0801064-13
rroject No:		Collection Date:	01/09/08 10:15 AM
Lab Order:	0801064	Matrix:	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: JBC
Bromide	3.15	0.300	1.00		mg/L	1	01/14/08 03:57 PM
Chloride	336	6.00	20.0		mg/L	20	01/15/08 04:36 PM
Sulfate	313	20.0	60.0		mg/L	20	01/15/08 04:36 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: JBC
Total Dissolved Solids (Residue, Filterable)	1490	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers
ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-21
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-14
rroject No:		**Collection Date:**	01/09/08 09:40 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	ND	0.00100	0.00200		mg/L	1	01/14/08 12:57 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 12:57 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 12:57 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 12:57 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 12:57 PM
Surr: a,a,a-Trifluorotoluene	99.0	0	87-113		%REC	1	01/14/08 12:57 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	3.00	10.0		mg/L	10	01/14/08 04:11 PM
Chloride	17200	150	500		mg/L	500	01/15/08 05:46 PM
Sulfate	2210	100	300		mg/L	100	01/15/08 04:51 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	32100	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-31
·oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-15
Project No:		**Collection Date:**	01/09/08 08:48 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	ND	0.00100	0.00200		mg/L	1	01/14/08 01:48 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 01:48 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 01:48 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 01:48 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 01:48 PM
Surr: a,a,a-Trifluorotoluene	100	0	87-113		%REC	1	01/14/08 01:48 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	3.00	10.0		mg/L	10	01/14/08 04:55 PM
Chloride	17000	300	1000		mg/L	1000	01/15/08 06:48 PM
Sulfate	1610	50.0	150		mg/L	50	01/15/08 06:33 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	30600	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-P-09
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-16
Project No:		**Collection Date:**	01/09/08 11:55 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	ND	0.00100	0.00200		mg/L	1	01/14/08 02:05 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 02:05 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 02:05 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 02:05 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 02:05 PM
Surr: a,a,a-Trifluorotoluene	97.5	0	87-113		%REC	1	01/14/08 02:05 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	1.29	0.300	1.00		mg/L	1	01/14/08 05:10 PM
Chloride	542	30.0	100		mg/L	100	01/15/08 07:32 PM
Sulfate	152	10.0	30.0		mg/L	10	01/15/08 07:17 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	1550	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-FINA-01
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-17
Project No:		**Collection Date:**	01/09/08 01:05 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	0.0128	0.00100	0.00200		mg/L	1	01/14/08 04:29 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 04:29 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 04:29 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 04:29 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 04:29 PM
Surr: a,a,a-Trifluorotoluene	95.2	0	87-113		%REC	1	01/14/08 04:29 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	73.9	6.00	20.0		mg/L	20	01/14/08 05:25 PM
Chloride	33300	300	1000		mg/L	1000	01/18/08 10:58 AM
Sulfate	1640	20.0	60.0		mg/L	20	01/15/08 08:01 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	58500	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-P-01
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-18
Project No:		**Collection Date:**	01/09/08 02:24 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	0.0136	0.00100	0.00200		mg/L	1	01/14/08 04:46 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 04:46 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 04:46 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 04:46 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 04:46 PM
Surr: a,a,a-Trifluorotoluene	97.1	0	87-113		%REC	1	01/14/08 04:46 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	33.5	3.00	10.0		mg/L	10	01/14/08 05:39 PM
Chloride	16900	300	1000		mg/L	1000	01/18/08 11:13 AM
Sulfate	2540	50.0	150		mg/L	50	01/15/08 08:16 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	31500	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	ER
ject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-19
Project No:		**Collection Date:**	01/09/08 03:00 PM
Lab Order:	0801064	**Matrix:**	EQUIPMENT BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	ND	0.00100	0.00200		mg/L	1	01/14/08 04:12 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 04:12 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 04:12 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 04:12 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 04:12 PM
Surr: a,a,a-Trifluorotoluene	97.3	0	87-113		%REC	1	01/14/08 04:12 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/15/08 09:27 PM
Chloride	1.27	0.300	1.00		mg/L	1	01/15/08 09:27 PM
Sulfate	ND	1.00	3.00		mg/L	1	01/15/08 09:27 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	22.0	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-O-7
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-20
Project No:		**Collection Date:**	01/09/08 03:45 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	ND	0.00100	0.00200		mg/L	1	01/14/08 05:03 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 05:03 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 05:03 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 05:03 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 05:03 PM
Surr: a,a,a-Trifluorotoluene	98.5	0	87-113		%REC	1	01/14/08 05:03 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	17.6	1.50	5.00		mg/L	5	01/14/08 06:09 PM
Chloride	13100	300	1000		mg/L	1000	01/15/08 09:15 PM
Sulfate	1870	50.0	150		mg/L	50	01/15/08 09:00 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	25100	10.0	10.0		mg/L	1	01/15/08 08:30 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-D-07
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-21
Project No:		**Collection Date:**	01/09/08 04:55 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	20.7	1.50	5.00		mg/L	5	01/15/08 11:26 AM
Chloride	10400	150	500		mg/L	500	01/15/08 03:21 PM
Sulfate	2130	50.0	150		mg/L	50	01/15/08 03:06 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	18400	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-D-08
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-22
Project No:		**Collection Date:**	01/09/08 05:54 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	4.35	0.300	1.00		mg/L	1	01/15/08 11:41 AM
Chloride	482	15.0	50.0		mg/L	50	01/15/08 03:36 PM
Sulfate	126	1.00	3.00		mg/L	1	01/15/08 11:41 AM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	1250	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	Trip Blank
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-23
Project No:		**Collection Date:**	01/09/08
Lab Order:	0801064	**Matrix:**	TRIP BLANK

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS BY GC		**SW8021B**					Analyst: **JAW**
Benzene	ND	0.00100	0.00200		mg/L	1	01/14/08 03:55 PM
Ethylbenzene	ND	0.00200	0.00400		mg/L	1	01/14/08 03:55 PM
Methyl tert-butyl ether	ND	0.00200	0.00400		mg/L	1	01/14/08 03:55 PM
Toluene	ND	0.00200	0.00400		mg/L	1	01/14/08 03:55 PM
Xylenes, Total	ND	0.00200	0.00400		mg/L	1	01/14/08 03:55 PM
Surr: a,a,a-Trifluorotoluene	97.2	0	87-113		%REC	1	01/14/08 03:55 PM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-07-2
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-24
Project No:		**Collection Date:**	01/10/08 09:10 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	14.2	1.50	5.00		mg/L	5	01/15/08 11:56 AM
Chloride	7480	150	500		mg/L	500	01/15/08 04:20 PM
Sulfate	4800	50.0	150		mg/L	50	01/15/08 04:05 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	16900	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-D-2
ject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-25
Project No:		**Collection Date:**	01/10/08 10:26 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	7.17	0.600	2.00		mg/L	2	01/15/08 12:10 PM
Chloride	3480	30.0	100		mg/L	100	01/15/08 04:49 PM
Sulfate	4620	50.0	150		mg/L	50	01/15/08 04:34 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	13300	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-07-3
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-26
Project No:		**Collection Date:**	01/10/08 11:06 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	116	3.00	10.0		mg/L	10	01/15/08 12:25 PM
Chloride	33500	300	1000		mg/L	1000	01/18/08 11:27 AM
Sulfate	3740	50.0	150		mg/L	50	01/15/08 05:04 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	61500	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-D-10
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-27
Project No:		**Collection Date:**	01/10/08 09:04 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	0.300	1.00		mg/L	1	01/15/08 12:40 PM
Chloride	68.9	1.50	5.00		mg/L	5	01/15/08 05:33 PM
Sulfate	35.2	1.00	3.00		mg/L	1	01/15/08 12:40 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	544	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-D-01
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-28
Project No:		**Collection Date:**	01/10/08 10:02 AM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	23.4	1.50	5.00		mg/L	5	01/15/08 12:54 PM
Chloride	11600	300	1000		mg/L	1000	01/15/08 06:46 PM
Sulfate	1470	50.0	150		mg/L	50	01/15/08 06:16 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	20100	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-D-06
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-29
Project No:		**Collection Date:**	01/10/08 01:06 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	2.47	0.300	1.00		mg/L	1	01/15/08 01:24 PM
Chloride	1550	30.0	100		mg/L	100	01/18/08 02:38 PM
Sulfate	1370	50.0	150		mg/L	50	01/15/08 07:00 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	4660	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-D-05
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-30
Project No:		**Collection Date:**	01/10/08 02:24 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: JBC
Bromide	22.8	1.50	5.00		mg/L	5	01/15/08 01:38 PM
Chloride	11400	150	500		mg/L	500	01/15/08 07:44 PM
Sulfate	2280	50.0	150		mg/L	50	01/15/08 07:30 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: JBC
Total Dissolved Solids (Residue, Filterable)	19700	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	MW-D-04
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-31
Project No:		**Collection Date:**	01/10/08 03:02 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	93.3	1.50	5.00		mg/L	5	01/15/08 01:53 PM
Chloride	5710	60.0	200		mg/L	200	01/16/08 11:49 AM
Sulfate	2310	50.0	150		mg/L	50	01/15/08 07:59 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	12700	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT:	INTERA Inc.	**Client Sample ID:**	SW-O-Seep
Project:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-32
Project No:		**Collection Date:**	01/10/08 04:38 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	ND	3.00	10.0		mg/L	10	01/15/08 02:08 PM
Chloride	1090	15.0	50.0		mg/L	50	01/15/08 08:29 PM
Sulfate	442	50.0	150		mg/L	50	01/15/08 08:29 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	2460	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

DHL Analytical

Date: *24-Jan-08*

CLIENT:	INTERA Inc.	**Client Sample ID:**	SW-P-Seep
oject:	RRC-O'Ryan, Dugout, Pharoah	**Lab ID:**	0801064-33
rroject No:		**Collection Date:**	01/10/08 04:56 PM
Lab Order:	0801064	**Matrix:**	AQUEOUS

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **JBC**
Bromide	26.8	3.00	10.0		mg/L	10	01/15/08 02:22 PM
Chloride	13000	300	1000		mg/L	1000	01/18/08 11:57 AM
Sulfate	1250	100	300		mg/L	100	01/15/08 08:43 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JBC**
Total Dissolved Solids (Residue, Filterable)	24200	10.0	10.0		mg/L	1	01/17/08 09:40 AM

Qualifiers

ND - Not Detected at the SDL
J - Analyte detected between SDL and RL
B - Analyte detected in the associated Method Blank
DF- Dilution Factor
N - Parameter not NELAC certified
See Final Page of Report for MQLs and MDLs
S - Spike Recovery outside control limits
C - Sample Result or QC discussed in Case Narrative
RL - Reporting Limit (MQL adjusted for moisture and sample size)
SDL - Sample Detection Limit
E - TPH pattern not Gas or Diesel Range Pattern

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: GC9_080114A

Sample ID **LCS-28697** Batch ID: **28697** TestNo: **SW8021B** Units: **mg/L**
SampType: **LCS** Run ID: **GC9_080114A** Analysis Date: **1/14/2008 10:52:31 A** Prep Date: **1/14/2008**

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0432	0.00600	0.0500	0	86.5	78	122			
Benzene	0.0485	0.00200	0.0500	0	97.1	81	125			
Toluene	0.0505	0.00600	0.0500	0	101	84	123			
Ethylbenzene	0.0496	0.00600	0.0500	0	99.3	83	119			
Xylenes, Total	0.149	0.00900	0.150	0	99.5	81	117			
Surr: a,a,a-Trifluorotoluene	199		200.0		99.4	87	113			

Sample ID **MB-28697** Batch ID: **28697** TestNo: **SW8021B** Units: **mg/L**
SampType: **MBLK** Run ID: **GC9_080114A** Analysis Date: **1/14/2008 11:09:21 A** Prep Date: **1/14/2008**

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	ND	0.00600								
Benzene	ND	0.00200								
Toluene	ND	0.00600								
Ethylbenzene	ND	0.00600								
Xylenes, Total	ND	0.00900								
Surr: a,a,a-Trifluorotoluene	200		200.0		100	87	113			

Sample ID **0801064-14AMS** Batch ID: **28697** TestNo: **SW8021B** Units: **mg/L**
SampType: **MS** Run ID: **GC9_080114A** Analysis Date: **1/14/2008 1:14:57 PM** Prep Date: **1/14/2008**

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0543	0.00600	0.0500	0	109	78	122			
Benzene	0.0508	0.00200	0.0500	0	102	81	125			
Toluene	0.0526	0.00600	0.0500	0	105	84	123			
Ethylbenzene	0.0513	0.00600	0.0500	0	103	83	119			
Xylenes, Total	0.154	0.00900	0.150	0	103	81	117			
Surr: a,a,a-Trifluorotoluene	201		200.0		101	87	113			

Sample ID **0801064-14AMSD** Batch ID: **28697** TestNo: **SW8021B** Units: **mg/L**
SampType: **MSD** Run ID: **GC9_080114A** Analysis Date: **1/14/2008 1:31:48 PM** Prep Date: **1/14/2008**

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0535	0.00600	0.0500	0	107	78	122	1.48	20	
Benzene	0.0508	0.00200	0.0500	0	102	81	125	0.0571	20	
Toluene	0.0525	0.00600	0.0500	0	105	84	123	0.147	20	
Ethylbenzene	0.0509	0.00600	0.0500	0	102	83	119	0.716	20	
Xylenes, Total	0.153	0.00900	0.150	0	102	81	117	0.823	20	
Surr: a,a,a-Trifluorotoluene	203		200.0		102	87	113	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
oject: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: GC9_080114A

Sample ID ICV-080114	Batch ID: R35636	TestNo: SW8021B	Units: mg/L
SampType: ICV	Run ID: GC9_080114A	Analysis Date: 1/14/2008 10:35:40 A	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0890	0.00600	0.100	0	89.0	80	120			
Benzene	0.0972	0.00200	0.100	0	97.2	85	115			
Toluene	0.102	0.00600	0.100	0	102	85	115			
Ethylbenzene	0.101	0.00600	0.100	0	101	85	115			
Xylenes, Total	0.301	0.00900	0.300	0	100	85	115			
Surr: a,a,a-Trifluorotoluene	204		200.0		102	87	113			

Sample ID CCV1-080114	Batch ID: R35636	TestNo: SW8021B	Units: mg/L
SampType: CCV	Run ID: GC9_080114A	Analysis Date: 1/14/2008 2:22:21 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0471	0.00600	0.0500	0	94.1	80	120			
Benzene	0.0512	0.00200	0.0500	0	102	85	115			
Toluene	0.0529	0.00600	0.0500	0	106	85	115			
Ethylbenzene	0.0512	0.00600	0.0500	0	102	85	115			
Xylenes, Total	0.153	0.00900	0.150	0	102	85	115			
Surr: a,a,a-Trifluorotoluene	201		200.0		100	87	113			

·nple ID CCV2-080114	Batch ID: R35636	TestNo: SW8021B	Units: mg/L
SampType: CCV	Run ID: GC9_080114A	Analysis Date: 1/14/2008 8:25:48 PM	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether	0.0543	0.00600	0.0500	0	109	80	120			
Benzene	0.0501	0.00200	0.0500	0	100	85	115			
Toluene	0.0515	0.00600	0.0500	0	103	85	115			
Ethylbenzene	0.0508	0.00600	0.0500	0	102	85	115			
Xylenes, Total	0.155	0.00900	0.150	0	103	85	115			
Surr: a,a,a-Trifluorotoluene	194		200.0		96.9	87	113			

Qualifiers:
- B Analyte detected in the associated Method Blank
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- DF Dilution Factor
- MDL Method Detection Limit
- R RPD outside accepted control limits
- S Spike Recovery outside control limits

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC_080115A

Sample ID	ICV-080115	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	ICV	Run ID:	IC_080115A	Analysis Date:	1/15/2008 9:24:46 AM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	26.2	1.00	25.00	0	105	90	110			
Sulfate	75.1	3.00	75.00	0	100	90	110			

Sample ID	MB-080115	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC_080115A	Analysis Date:	1/15/2008 10:46:05 A	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.00								
Sulfate	ND	3.00								

Sample ID	LCS-080115	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC_080115A	Analysis Date:	1/15/2008 11:01:47 A	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.52	1.00	10.00	0	95.2	90	110			
Sulfate	28.9	3.00	30.00	0	96.5	90	110			

Sample ID	LCSD-080115	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC_080115A	Analysis Date:	1/15/2008 11:17:29 A	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.55	1.00	10.00	0	95.5	90	110	0.327	20	
Sulfate	29.2	3.00	30.00	0	97.3	90	110	0.847	20	

Sample ID	0801064-04A MS	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC_080115A	Analysis Date:	1/15/2008 12:38:04 P	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2810	100	1000	1879	92.9	90	110			

Sample ID	0801064-04A MSD	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC_080115A	Analysis Date:	1/15/2008 12:53:44 P	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	2920	100	1000	1879	105	90	110	4.07	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
oject: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC_080115A

Sample ID	CCV1-080115	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC_080115A	Analysis Date:	1/15/2008 1:25:07 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.63	1.00	10.00	0	96.3	90	110			
Sulfate	29.0	3.00	30.00	0	96.6	90	110			

Sample ID	0801064-04A MS	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC_080115A	Analysis Date:	1/15/2008 1:55:26 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	564	30.0	300.0	273.1	96.9	90	110			

Sample ID	0801064-04A MSD	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC_080115A	Analysis Date:	1/15/2008 2:10:03 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	568	30.0	300.0	273.1	98.3	90	110	0.733	20	

Sample ID	CCV2-080115	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC_080115A	Analysis Date:	1/15/2008 4:07:29 PM	Prep Date:	1/15/2008

lyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.63	1.00	10.00	0	96.3	90	110			
Sulfate	28.6	3.00	30.00	0	95.2	90	110			

Sample ID	0801064-14B MS	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC_080115A	Analysis Date:	1/15/2008 5:15:09 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	4290	300	3000	1325	98.9	90	110			

Sample ID	0801064-14B MSD	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC_080115A	Analysis Date:	1/15/2008 5:30:51 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	4310	300	3000	1325	99.6	90	110	0.504	20	

Sample ID	0801064-14B MS	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC_080115A	Analysis Date:	1/15/2008 6:02:16 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14800	500	5000	10310	89.1	90	110			S

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC_080115A

Sample ID	0801064-14B MSD	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC_080115A	Analysis Date:	1/15/2008 6:17:58 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14800	500	5000	10310	89.8	90	110	0.249	20	

Sample ID	CCV3-080115	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC_080115A	Analysis Date:	1/15/2008 7:02:58 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.62	1.00	10.00	0	96.2	90	110			
Sulfate	29.3	3.00	30.00	0	97.6	90	110			

Sample ID	CCV4-080115	Batch ID:	R35658	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC_080115A	Analysis Date:	1/15/2008 9:29:44 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.63	1.00	10.00	0	96.3	90	110			
Sulfate	28.8	3.00	30.00	0	96.0	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
·oject: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080114A

Sample ID	ICV-080114	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	ICV	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 10:07:24 A	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	51.3	1.00	50.00	0	103	90	110			

Sample ID	MB-080114	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 10:28:05 A	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	ND	1.00								

Sample ID	LCS-080114	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 10:42:46 A	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	19.8	1.00	20.00	0	99.2	90	110			

Sample ID	LCSD-080114	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 10:57:26 A	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
›mide	20.0	1.00	20.00	0	100	90	110	0.839	20	

Sample ID	0801064-04A MS	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 12:29:00 P	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	37.3	2.00	40.00	3.168	85.3	90	110			S

Sample ID	0801064-04A MSD	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 12:43:40 P	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	37.7	2.00	40.00	3.168	86.4	90	110	1.13	20	S

Sample ID	CCV1-080114	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 12:58:21 P	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.2	1.00	20.00	0	101	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
oject: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080114A

Sample ID	CCV2-080114	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 3:38:42 PM	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.2	1.00	20.00	0	101	90	110			

Sample ID	0801064-14B MS	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 4:26:31 PM	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	178	10.0	200.0	0	88.9	90	110			S

Sample ID	0801064-14B MSD	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 4:41:11 PM	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	177	10.0	200.0	0	88.4	90	110	0.493	20	S

Sample ID	CCV3-080114	Batch ID:	R35633	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080114A	Analysis Date:	1/14/2008 8:50:40 PM	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
nide	20.1	1.00	20.00	0	100	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080115A

Sample ID	ICV-080115	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	ICV	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 9:23:45 AM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	51.2	1.00	50.00	0	102	90	110			
Chloride	26.9	1.00	25.00	0	107	90	110			
Sulfate	78.8	3.00	75.00	0	105	90	110			

Sample ID	MB-0801155	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 10:42:54 A	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	ND	1.00								
Chloride	ND	1.00								
Sulfate	ND	3.00								

Sample ID	LCS-080115	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 10:57:35 A	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	19.9	1.00	20.00	0	99.7	90	110			
Chloride	9.89	1.00	10.00	0	98.9	90	110			
ate	30.5	3.00	30.00	0	102	90	110			

Sample ID	LCSD-080115	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 11:12:15 A	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	19.9	1.00	20.00	0	99.5	90	110	0.245	20	
Chloride	9.92	1.00	10.00	0	99.2	90	110	0.273	20	
Sulfate	30.6	3.00	30.00	0	102	90	110	0.419	20	

Sample ID	CCV1-080115	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 1:09:23 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.1	1.00	20.00	0	100	90	110			
Chloride	10.5	1.00	10.00	0	105	90	110			
Sulfate	30.8	3.00	30.00	0	103	90	110			

Sample ID	0801064-27A MS	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 2:37:25 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- J Analyte detected between MDL and RL
- ND Not Detected at the Method Detection Limit
- RL Reporting Limit
- N Parameter not NELAC certified
- DF Dilution Factor
- MDL Method Detection Limit
- R RPD outside accepted control limits
- S Spike Recovery outside control limits

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080115A

Sample ID	0801064-27A MS	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 2:37:25 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.2	1.00	20.00	0	101	90	110			
Sulfate	51.7	3.00	30.00	21.14	102	90	110			

Sample ID	0801064-27A MSD	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 2:52:05 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.2	1.00	20.00	0	101	90	110	0.0461	20	
Sulfate	51.7	3.00	30.00	21.14	102	90	110	0.0317	20	

Sample ID	CCV2-080115	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 3:50:47 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	19.9	1.00	20.00	0	99.4	90	110			
Chloride	9.95	1.00	10.00	0	99.5	90	110			
Sulfate	30.5	3.00	30.00	0	102	90	110			

Sample ID	0801064-27A MS	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 5:48:10 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	88.7	5.00	50.00	41.33	94.7	90	110			

Sample ID	0801064-27A MSD	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 6:02:14 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	88.8	5.00	50.00	41.33	94.9	90	110	0.125	20	

Sample ID	CCV3-080115	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 6:31:35 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.0	1.00	20.00	0	100	90	110			
Chloride	10.2	1.00	10.00	0	102	90	110			
Sulfate	31.6	3.00	30.00	0	105	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080115A

Sample ID	CCV4-080115	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 9:13:01 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.2	1.00	20.00	0	101	90	110			
Chloride	10.1	1.00	10.00	0	101	90	110			
Sulfate	31.7	3.00	30.00	0	106	90	110			

Sample ID	CCV4-080115	Batch ID:	R35656	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080115A	Analysis Date:	1/15/2008 9:42:22 PM	Prep Date:	1/15/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Bromide	20.2	1.00	20.00	0	101	90	110			
Chloride	10.1	1.00	10.00	0	101	90	110			
Sulfate	30.7	3.00	30.00	0	102	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080116A

Sample ID	ICV-080116	Batch ID:	R35679	TestNo:	E300	Units:	mg/L
SampType:	ICV	Run ID:	IC2_080116A	Analysis Date:	1/16/2008 9:36:39 AM	Prep Date:	1/16/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.4	1.00	25.00	0	101	90	110			

Sample ID	MB-080116	Batch ID:	R35679	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC2_080116A	Analysis Date:	1/16/2008 10:05:55 A	Prep Date:	1/16/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.00								

Sample ID	LCS-080116	Batch ID:	R35679	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC2_080116A	Analysis Date:	1/16/2008 10:20:35 A	Prep Date:	1/16/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.94	1.00	10.00	0	99.4	90	110			

Sample ID	LCSD-080116	Batch ID:	R35679	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC2_080116A	Analysis Date:	1/16/2008 10:35:16 A	Prep Date:	1/16/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
ride	9.99	1.00	10.00	0	99.9	90	110	0.531	20	

Sample ID	CCV1-080116	Batch ID:	R35679	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080116A	Analysis Date:	1/16/2008 1:57:43 PM	Prep Date:	1/16/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	1.00	10.00	0	100	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
oject: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080118A

Sample ID	ICV-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	ICV	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 9:50:57 AM	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	25.5	1.00	25.00	0	102	90	110			

Sample ID	MB-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 10:15:42 A	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.00								

Sample ID	LCS-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 10:30:22 A	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.89	1.00	10.00	0	98.9	90	110			

Sample ID	LCSD-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 10:45:02 A	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
ride	9.90	1.00	10.00	0	99.0	90	110	0.140	20	

Sample ID	CCV1-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 12:41:15 P	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.87	1.00	10.00	0	98.7	90	110			

Sample ID	CCV2-080118	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	CCV	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 3:48:13 PM	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	1.00	10.00	0	100	90	110			

Sample ID	0801092-01B MS	Batch ID:	R35721	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 4:04:57 PM	Prep Date:	1/18/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	1750	50.0	500.0	1258	98.0	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: IC2_080118A

Sample ID	0801092-01B MSD	Batch ID:	R35721	TestNo:	E300		Units:	mg/L	
SampType:	MSD	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 4:19:37 PM		Prep Date:	1/18/2008	

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	1740	50.0	500.0	1258	96.8	90	110	0.333	20	

Sample ID	CCV3-080118	Batch ID:	R35721	TestNo:	E300		Units:	mg/L	
SampType:	CCV	Run ID:	IC2_080118A	Analysis Date:	1/18/2008 5:02:59 PM		Prep Date:	1/18/2008	

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Chloride	10.0	1.00	10.00	0	100	90	110			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
oject: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: WC_080114A

Sample ID	MB-080114	Batch ID:	TDS_W-01/14/08	TestNo:	M2540C	Units:	mg/L
SampType:	MBLK	Run ID:	WC_080114A	Analysis Date:	1/15/2008 8:30:00 AM	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10.0								

Sample ID	LCS-080114	Batch ID:	TDS_W-01/14/08	TestNo:	M2540C	Units:	mg/L
SampType:	LCS	Run ID:	WC_080114A	Analysis Date:	1/15/2008 8:30:00 AM	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	757	10.0	745.6	0	102	70	126			

Sample ID	0801064-04A DUP	Batch ID:	TDS_W-01/14/08	TestNo:	M2540C	Units:	mg/L
SampType:	DUP	Run ID:	WC_080114A	Analysis Date:	1/15/2008 8:30:00 AM	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	6620	10.0	0	6560				0.910	5	

Sample ID	0801064-14B DUP	Batch ID:	TDS_W-01/14/08	TestNo:	M2540C	Units:	mg/L
SampType:	DUP	Run ID:	WC_080114A	Analysis Date:	1/15/2008 8:30:00 AM	Prep Date:	1/14/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
l Dissolved Solids (Residue, Filtera	31500	10.0	0	32120				2.08	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

ANALYTICAL QC SUMMARY REPORT

RunID: WC_080116A

Sample ID	MB-080116	Batch ID:	TDS_W-01/16/08	TestNo:	M2540C	Units:	mg/L
SampType:	MBLK	Run ID:	WC_080116A	Analysis Date:	1/17/2008 9:40:00 AM	Prep Date:	1/16/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10.0								

Sample ID	LCS-080116	Batch ID:	TDS_W-01/16/08	TestNo:	M2540C	Units:	mg/L
SampType:	LCS	Run ID:	WC_080116A	Analysis Date:	1/17/2008 9:40:00 AM	Prep Date:	1/16/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	762	10.0	745.6	0	102	70	126			

Sample ID	0801092-02A DUP	Batch ID:	TDS_W-01/16/08	TestNo:	M2540C	Units:	mg/L
SampType:	DUP	Run ID:	WC_080116A	Analysis Date:	1/17/2008 9:40:00 AM	Prep Date:	1/16/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4250	10.0	0	4253				0.0706	5	

Sample ID	0801064-32A DUP	Batch ID:	TDS_W-01/16/08	TestNo:	M2540C	Units:	mg/L
SampType:	DUP	Run ID:	WC_080116A	Analysis Date:	1/17/2008 9:40:00 AM	Prep Date:	1/16/2008

Analyte	Result	RL	SPK value	Ref Val	%REC	Low Limit	HighLimit	%RPD	RPDLimit	Qual
l Dissolved Solids (Residue, Filtera	2440	10.0	0	2458				0.612	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT: INTERA Inc.
Work Order: 0801064
Project: RRC-O'Ryan, Dugout, Pharoah

MQL SUMMARY REPORT

TestNo: E300	MDL	MQL
Analyte	**mg/L**	**mg/L**
Bromide	0.300	1.00
Chloride	0.300	1.00
Sulfate	1.00	3.00

TestNo: SW8021B	MDL	MQL
Analyte	**mg/L**	**mg/L**
Methyl tert-butyl ether	0.00200	0.00600
Benzene	0.000800	0.00200
Toluene	0.00200	0.00600
Ethylbenzene	0.00200	0.00600
Xylenes, Total	0.00300	0.00900

TestNo: M2540C	MDL	MQL
Analyte	**mg/L**	**mg/L**
Total Dissolved Solids (Residue, Filt	10.0	10.0

Qualifiers MQL - Method Quantitation Limit as defined by TRRP
MDL - Method Detection Limit as defined by TRRP