505 East Huntland Drive
Suite 250
Austin, TX 78752

512.329.6080 PHONE
512.329.8750 FAX

www.TRCsolutions.com

February 29, 2012

Mr. Bill Renfro, P.G.
Senior Technical Coordinator
Railroad Commission of Texas
1701 North Congress
Austin, Texas 78711-2967

STATE OF TEXAS
JARSIN M. SAHBA
GEOLOGY
No. 4041
LICENSED
PROFESSIONAL GEOSCIENTIST
02/29/12

STATE OF TEXAS
JAMES M. HARTE
GEOLOGY
No. 4018
LICENSED
PROFESSIONAL GEOSCIENTIST
02/29/12

Re: December 2011 Wendkirk Oil Field BMP Sampling Event Results, Upper Colorado River Segment 1426 Downstream of E.V. Spence Reservoir, Wendkirk Oil Field, Coke County, Texas

Dear Mr. Renfro:

The purpose of this report is to present the results of the monitoring event activities conducted during December 2011 at the Wendkirk Oil Field in Coke County, Texas (Site). The Railroad Commission of Texas (RRC) requested that TRC perform additional sampling to monitor the possible effects of the implemented Best Management Practice (BMP) at the Site, and obtain additional data for temporal evaluation.

INTRODUCTION

The RRC, Oil and Gas Division, received a Section 319 Non-Point Source (NPS) grant from the United States Environmental Protection Agency (USEPA) through the Texas Commission on Environmental Quality to determine if oil and gas operations in the Wendkirk Oil Field are contributing salinity to the Upper Colorado River. The objective of the grant was to assess and determine the source(s) leading to the elevated salinity in the Machae Creek Area of the Colorado River, develop BMPs to reduce salinity, and implement the BMPs. The Wendkirk Oil Field is located at the downstream extent of the Machae Creek Area as illustrated in Figure 1.

Previous Site investigations conducted under the NPS grant indicated that the Mays-01 water well may be a potential vertical conduit for saline impacts from the Coleman Junction formation, which is approximately 2,500 feet below ground surface and contains predominantly high sodium/chloride water. Although data collected from the Mays-01 water well were inconclusive in verifying the water well as a conduit, the well was plugged by the RRC on July 9, 2008, as a recommended BMP in order to prevent any potential salinity impacts from deeper formations via the Mays-01 well. During the plugging of the Mays-01 water well, it was determined that the

total depth of the well (190 feet) was not sufficient to provide a conduit to the Coleman Junction formation. A monitoring event was subsequently performed in January 2009 to evaluate the efficacy of the Mays-01 BMP. The results of the BMP evaluation indicated that water well Mays-01 does not appear to be a pathway for saline water to migrate from deeper formations.

The objective of the December 2011 monitoring event was to collect updated analytical data on the distribution of salinity in groundwater, the seeps, and the Colorado River to determine areas for further investigation of potential salinity sources, and to consider possible groundwater gradient control and seepage abatement. This report presents the data collected from the December 2011 monitoring event.

GROUNDWATER AND SURFACE WATER MONITORING

TRC conducted groundwater and surface water monitoring activities at the Wendkirk Oil Field from December 15 through 17, 2011. Field activities were completed in accordance with the existing site investigation Work Plan. Completed field activities included synoptic well gauging, groundwater sampling, seep water sampling, Quality Assurance/ Quality Control (QA/QC) sampling, and investigation-derived waste (IDW) management. Sampling was completed in accordance with the Work Plan with the following variances:

- A surface water sample was not collected from upstream seep location 4314102-02 because it was dry during the December 2011 monitoring event. Dry conditions have been observed at this location since April 2007.

- Surface water samples were not collected from seven river segment locations (RS-11 through RS-17) due to the lack of surface water present in the Colorado River. TRC dug shallow excavations approximately 1.5 feet into the alluvial material of the river bed at river segment locations RS-11 through RS-17 in an attempt to encounter groundwater base flow, which was encountered during the December 2009 monitoring event, at these locations. The water that flowed into the shallow excavations was considered to be from recent precipitation events and not representative of groundwater base flow. Based on this determination, no samples were collected from these river segment locations.

- No river gauging data was collected from river gauging station RG-02 due to the lack of water in the Colorado River during the December 2011 event. The synoptic fluid level gauging event did not include the river gauging station RG-01 or RG-03 as the posts at these gauging stations were found to be damaged during the December 2009 sampling event.

A summary of the sample locations, sample identifications, sample dates, and laboratory analyses are provided in Table 1. The groundwater and seep/spring water sample locations are depicted in Figure 2.

A synoptic fluid level gauging event was conducted prior to groundwater sampling. The wells were purged and sampled using disposable polyvinyl chloride (PVC) bailers. Field parameters including temperature, conductivity, pH, total dissolved solids (TDS), and oxidation-reduction potential were collected during well purging and from each seep/spring/subsurface water sample location. The field parameter results are provided in Attachment 1.

Water samples collected from groundwater and seep locations were submitted for the following laboratory analyses:

- Anions (chloride, sulfate, bromide) by USEPA Method E300
- TDS by USEPA Method M2540C

Copies of the DHL Laboratory analytical reports and chain-of-custody forms are provided in Attachment 2.

MONITORING RESULTS

Fluid Level Measurements

Twenty monitoring wells (MW-1 through MW-20), one observation well (OW-1), and three water wells (Mays-02, Milford-01, Milford-02) were synoptically gauged on December 15, 2011. Table 2 presents the monitoring well gauging data including ground elevation, top of well casing elevation, water level measurement (date of measurement, depth to water, and total depth), and calculated water elevation. The groundwater potentiometric map for December 2011 is presented as Figure 3.

North of the Colorado River, groundwater flow is to the southeast toward the river. South of the Colorado River, groundwater flow is generally to the north and northeast, and to the northwest closer to the river. Groundwater flow in areas farther away from the Colorado River (i.e., areas around MW-6 and MW-15) is to the north and northeast. Groundwater mounds were observed in areas near monitoring wells MW-10, MW-16, and MW-20, which indicate the presence of a localized groundwater recharge source in these areas. The groundwater potentiometric maps for August 2008, January 2009, December 2009, and December 2011 are generally similar in that groundwater flow is toward the Colorado River. The groundwater elevations are generally consistent with previous gauging events completed between August 2006 and December 2011.

Surface Water Analytical Results

Prior to the December 2011 monitoring event, surface water samples were collected from the Colorado River in July 2006, August 2006, April 2007, and January 2009. Surface water samples could not be collected from river segment sampling locations RS-11 through RS-17 during the December 2011 monitoring event due to the lack of water in the Colorado River. The lack of

surface water in the Colorado River during the December 2011 monitoring event was consistent with the lack of surface water present during the December 2009 monitoring event.

Analytical Results of Groundwater Beneath the River Bed

During the December 2009 monitoring event, no surface water samples were collected from the Colorado River due to the lack of surface water. At the request of the RRC, TRC dug shallow excavations approximately 1.5 feet into the alluvial material of the Colorado River bed at river segment locations RS-11 through RS-17 to determine if groundwater was present beneath the Colorado River bed, and if so, collect a water sample to evaluate the salinity of the groundwater. When the excavations were dug during the December 2009 event, water quickly flowed into the excavation indicating the presence of baseflow.

Field observations during the December 2011 monitoring event indicated no surface water was present in the Colorado River. Consistent with the approach employed during the December 2009 event, TRC commenced to dig excavations at locations RS-11 through RS-17 to collect groundwater baseflow samples. The condition of these excavations was different than the December 2009 conditions as very little water flowed into the excavations during the December 2011 event. It was determined that this water was likely the result of recent precipitation in the area as similar volumes of moisture/water in soils was observed in excavations dug in areas away from the river. Based on this, no samples were collected from these locations.

The monthly rainfall gauge levels for the City of San Angelo were obtained from the National Weather Service/National Oceanic and Atmospheric Administration online database and are provided in Attachment 3. Prior to the December 2011 monitoring event, the total precipitation for November 2011 was 0.32 inches. The dry conditions of the Colorado River encountered during the December 2011 monitoring event may be related to the low amount of precipitation preceding the December 2011 monitoring event and/or retention of surface water in the Colorado River by the Spence Reservoir Dam located upstream.

Groundwater Analytical Results

During the December 2011 monitoring event, groundwater samples were collected from twenty monitoring wells (MW-01 through MW-20), one observation well (OW-01), and three water wells (Mays-02, Milford-01, and Milford-02). The groundwater analytical results are summarized in Table 3. The chloride concentrations from December 2011 and previous monitoring events are presented in Figure 4.

The December 2011 analytical results for groundwater were relatively similar to analytical results from previous sampling events completed in July 2008, August 2008, January 2009, and December 2009. Groundwater chloride concentrations ranged from 255 milligrams per Liter (mg/L) (MW-7) to 7,530 mg/L (MW-8) in monitoring wells north of the Colorado River.

Concentrations were generally higher in groundwater located on the south side of the Colorado River in the Wendkirk Oil Field and ranged from 192 mg/L (MW-2) to 30,400 mg/L (OW-1).

Chloride concentrations have ranged from 945 mg/L to 1,720 mg/L at monitoring well MW-20, which indicates that groundwater has not been impacted from oil field activities upgradient of MW-20. However, analytical results from the Mays-02 water well, located approximately 600 feet northwest (downgradient) of monitoring well MW-20, indicated the presence of elevated salinity concentrations ranging from 17,700 mg/L to 20,800 mg/L. Concentrations of chloride similar to those historically observed in the Mays-02 water well are observed in downgradient monitoring wells MW-12 and MW-18. Chloride concentrations in monitoring wells MW-12 and MW-18 indicate consistently increasing trends since 2007. The presence of elevated chloride concentrations in monitoring wells MW-12 and MW-18 and water well Mays-02 suggests elevated chloride concentrations may be coming from a source upgradient of MW-18 and Mays-02 in the south and southwest direction.

Chloride concentrations in OW-1 have remained consistently elevated since monitoring began in July 2008. Chloride concentrations in MW-17 and MW-06, located approximately 400 and 4,500 feet upgradient of OW-1, respectively, have remained relatively stable and significantly lower than chloride concentrations in OW-1. The continued elevated chloride concentrations in OW-1 may be due to residual chloride concentrations in the area of OW-1 and the Mays-01 water well. Continued groundwater monitoring in this area will be necessary to monitor chloride concentrations.

A trend analysis of the chloride data collected through December 2011 was performed on the monitoring wells near the potential source area (Mays-01 water well) where the BMP was implemented. The results of the trend analysis are presented in Graphs 1 through 8. The graphs present concentrations for chloride, TDS, sodium, and groundwater elevation. A brief discussion of the trends observed in the graphs is provided below.

- Upgradient monitoring wells MW-06, MW-17, and MW-19, and MW-20: Concentrations of chloride and TDS have remained relatively stable in monitoring wells MW-06, MW-17, and MW-20 since 2007. Concentrations of chloride and TDS in MW-19 show an overall increase since the BMP implementation in June 2008.

- Source area observation well OW-1: The chloride and TDS concentrations have remained relatively stable and elevated between August 2008 and December 2011.

- Downgradient monitoring wells MW-05, MW-10 and MW-11: TDS concentrations in MW-05 and MW-10 have been relatively stable since August 2006, and April 2007, respectively. Since the BMP implementation, chloride concentrations in both MW-05 and MW-10 have increased. Chloride and TDS concentrations in MW-11 have been increasing since the BMP implementation whereas sodium concentrations have stabilized since the date of the BMP.

Delineation of elevated salinity concentrations has not been achieved in the southwest portion of the site near well MW-18 and Mays-02 water well. Limited analytical data is available for these wells because sampling was initiated in 2007 and 2008. Salinity concentrations at these locations indicate consistently increasing trends in concentrations as compared to the majority of the other wells located in the Wendkirk Oil Field. The results indicate that a potential salinity source(s) may be located upgradient from these well locations.

Seep Water Analytical Results

Seep water samples were collected from the Mays Ranch Seep 4314102-01 (downstream). At Spring 4314102-01, December 2011 sulfate and TDS concentrations were consistent with December 2009 concentrations although TDS and sulfate concentrations remain elevated at this monitoring location. Chloride concentrations at Spring 4314102-01 have increased since December 2009. Consistent with previous monitoring events, the upstream location of Spring 4314102 was dry during the December 2011 monitoring event; therefore, no sample was collected from that location. The sample collected from Seep W-SP-01 indicated that chloride and TDS levels have remained relatively constant. The seep water analytical results are summarized in Table 3.

Quality Assurance Project Plan

The analytical results were reviewed for compliance with the QA/QC criteria established in the QAPP for this site, which was developed under the non-point source grant from the USEPA. The QA/QC analytical data review is presented in Attachment 4. QA/QC data associated with laboratory measurements indicate that measurement data are defensible and that measurement data reliability is generally within expected limits of sampling and analytical error given the data interpretation issues identified in the evaluation.

INVESTIGATION-DERIVED WASTE MANAGEMENT

The December 2011 sampling event generated approximately 165 gallons of IDW purge and decontamination water. The IDW water was temporarily stored in 55-gallon drums that were staged near monitoring well MW-04. The IDW water was removed from the Wendkirk Site on December 20, 2011, and disposed at a facility permitted to accept RRC exempt waste under the supervision of Mr. Ike Ramirez (RRC).

CONCLUSIONS

The following conclusions were developed based on the previous site investigation results and the December 2011 monitoring results:

- The December 2011 groundwater elevations are generally consistent with previous gauging events and indicate groundwater flow to the north of the Colorado River is to the southeast toward the river. South of the Colorado River, groundwater flow is to the north and northwest toward the river. The December 2011 potentiometric map is similar to those from previous investigations. The groundwater mounds observed at monitoring wells MW-10, MW-16, and MW-20 in August 2008, January 2009, December 2009, and December 2011 indicate the presence of a localized groundwater recharge zone in these areas.

- Chloride concentrations in December 2011 groundwater samples collected at the site were generally consistent with past monitoring events with the exception of chloride concentrations in wells MW-5, MW-11 and MW-19. Since the BMP implementation, chloride concentrations in these wells have increased.

- Chloride concentrations in wells north of the Colorado River have remained low relative to chloride concentrations in wells south of the river.

- Chloride concentrations in the December 2011 spring sample W-SG-4314102-01 indicate chloride concentrations have increased since the December 2009 event.

- A review of the recent and historical analytical results does not indicate that plugging of Mays-01 water well has decreased salinity concentrations in the wells surrounding Mays-01 including OW-1, which is 15 feet from Mays-01. The Mays-01 well was completed as a water well and does not penetrate the Coleman Junction formation. The results of the BMP evaluation indicate that water well Mays-01 does not appear to be a pathway for saline water to migrate from deeper formations.

- Elevated salinity concentrations have consistently been observed along the southwest portion of the Wendkirk Oil Field, where delineation has not been achieved to the south and southwest. Additional monitoring wells may be needed to investigate the source(s) of the elevated salinity, particularly upgradient of well MW-18 and Mays-02 water well.

RECOMMENDATIONS

Based on the data collected in December 2011 and previous investigations, the following actions are recommended:

- Continue groundwater and surface water monitoring to better define chloride distribution and evaluate temporal trends in the areas exhibiting the most elevated salinity concentrations. The coverage of the monitoring program should be reduced by eliminating data points in areas with lower and stable chloride concentrations (e.g., north of the Colorado River and the eastern area south of the Colorado River).

- Install piezometers along the southern bank of the Colorado River at river segments RS-11 through RS-17 to collect groundwater data near the point of discharge into the Colorado River.

- Install and sample two monitoring wells upgradient of monitoring well MW-18 and water well Mays-02 in order to delineate the elevated salinity concentrations detected in groundwater at these locations.

- Conduct a feasibility study to evaluate BMPs to abate high salinity groundwater from impacting the Colorado River.

Please do not hesitate to contact us at 512-329-6080 regarding questions or comments.

Sincerely,

James Harte, P.G.
Project Manager/Senior Geologist

Daniel Stine, EIT
Project Manager/Staff Engineer

cc: Ike Ramirez, RRC District 7C, San Angelo, Texas

FIGURES

Figure 1 Site Location Map
Figure 2 Site Map
Figure 3 Groundwater Potentiometric Surface Map, December 2011
Figure 4 Chronological Chloride Concentration Map

TABLES

Table 1 Summary of Seasonal Sample Locations
Table 2 Fluid Level Gauging Data
Table 3 Surface Water, Groundwater, Seep, and Produced Water Analytical Results

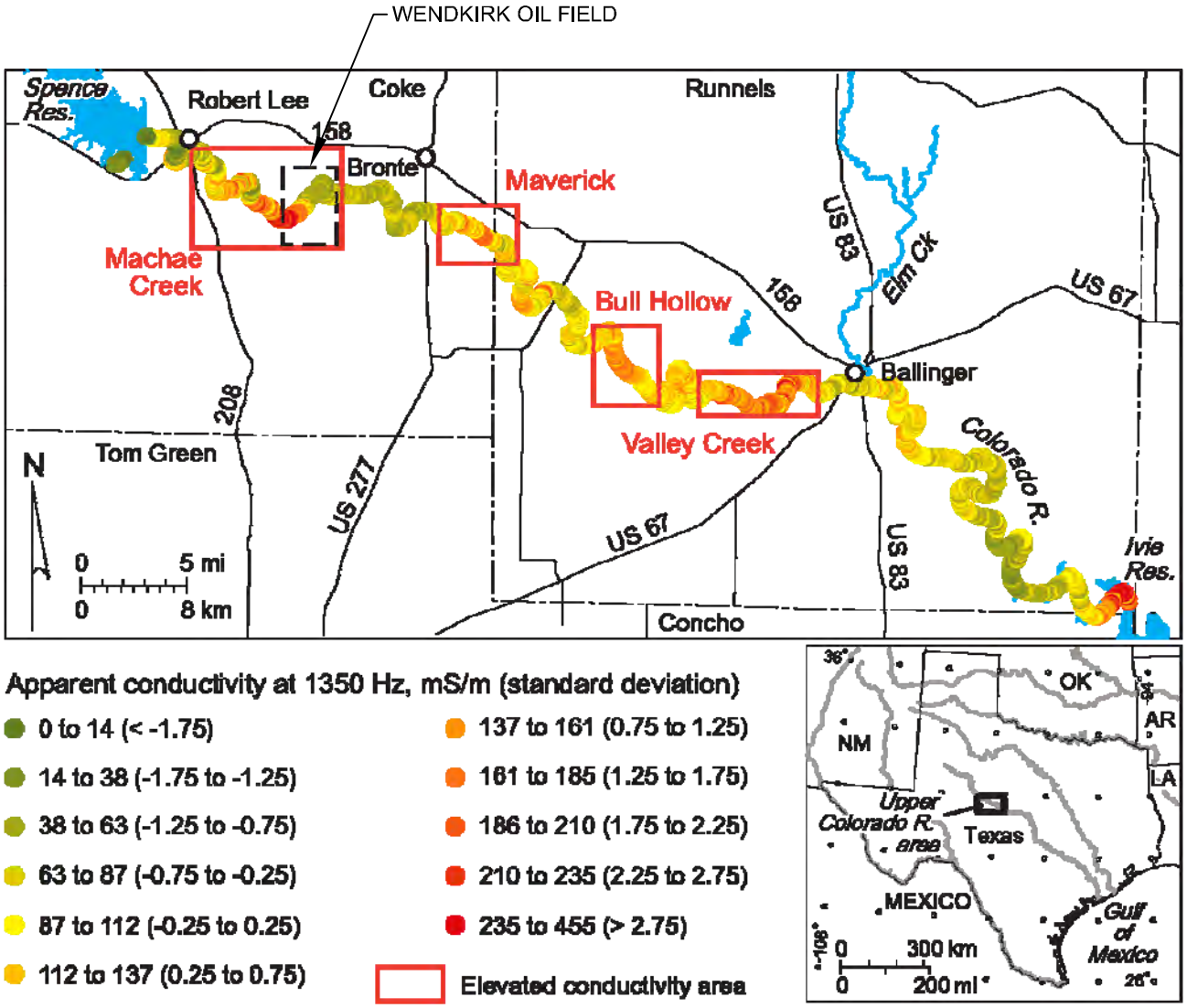
GRAPHS

Graph 1 MW-06 Concentrations and Groundwater Elevations
Graph 2 MW-17 Concentrations and Groundwater Elevations
Graph 3 MW-19 Concentrations and Groundwater Elevations
Graph 4 MW-20 Concentrations and Groundwater Elevations
Graph 5 OW-1 Concentrations and Groundwater Elevations
Graph 6 MW-05 Concentrations and Groundwater Elevations
Graph 7 MW-10 Concentrations and Groundwater Elevations
Graph 8 MW-11 Concentrations and Groundwater Elevations

ATTACHMENTS

Attachment 1 Field Forms
Attachment 2 Laboratory Analytical Data Reports
Attachment 3 Historical Monthly and Annual Rainfall Data - San Angelo, Texas
Attachment 4 Analytical Data Review/Data Validation Checklist

FIGURES



NOTE:
APPARENT CONDUCTIVITY MEASURED AT 1350 Hz ALONG THE AXIS OF THE COLORADO RIVER DURING THE BEG AIRBORNE GEOPHYSICAL SURVEY IN FEBRUARY 2005. ELEVATED CONDUCTIVITY SEGMENTS INDICATING LOCATIONS OF POSSIBLE SALINE-WATER INFLOW ARE BOUNDED BY RED RECTANGLES. THE DASHED BOX NEAR BRONTE ENCLOSES THE WENDKIRK OIL FIELD.

SOURCE:
SURFACE AND BOREHOLE GEOPHYSICAL INVESTIGATIONS IN THE WENDKIRK OIL FIELD AREA, COKE COUNTY, TEXAS (BEG, 2006).

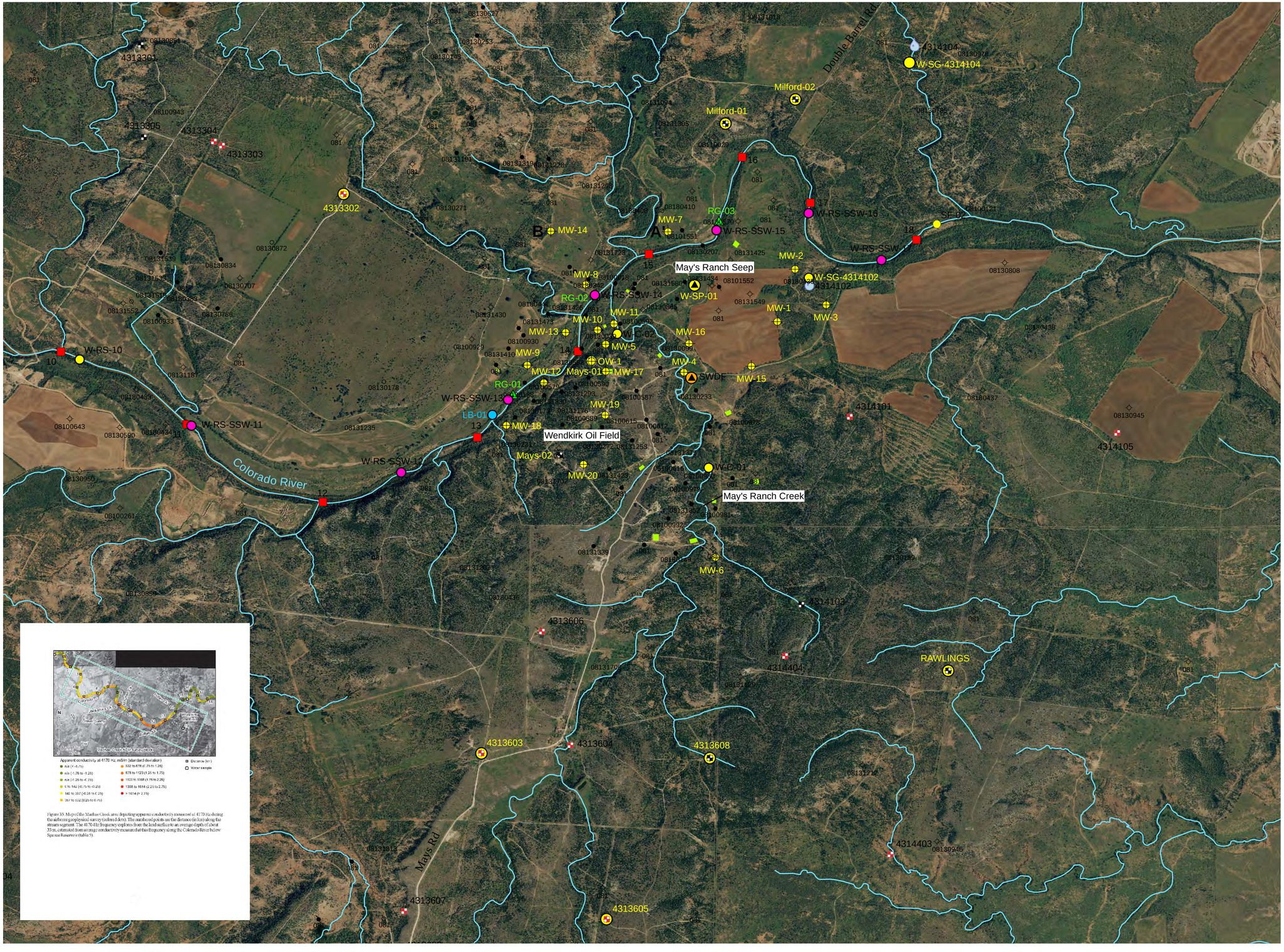
SITE LOCATION MAP

RAILROAD COMMISION OF TEXAS
WENDKIRK OIL FIELD

PROJECT NO.	188156	DWG FILE	188156-1
DRAWN BY.	CL	DATE	1/19/12

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

FIGURE
1



LEGEND

- Monitoring Well Locations
- Soil Boring
- Gauging Station
- Seasonal Water Sample and Stream Flow Measurement Locations (River Sample [RS] and Stream Flow [SF]). No Sample or Stream Flow Measurements Collected During December 2011 Event.
- Produced Water Sample Location
- Location of Sample Collected in December 2009 from Groundwater Beneath the River Bed. All River Bed Sample Locations were Dry During the December 2011 Event.
- Well (Source TDLR)
- Well (Source TWDB)
- Well (Source Field Located)
- Surface Drainage (River and Creeks)
- Pit Locations
- Springs
- BEG River Segments for Machae Creek Area (Kilometer Markers)
- Site Features
- Permitted Location
- Dry Hole
- Oil
- Gas
- Oil / Gas
- Plugged Oil
- Plugged Gas
- Canceled / Abandoned Location
- Plugged Oil / Gas
- Injection / Disposal
- Core Hole

SOURCE:

1. BEG Airborne Geophysical Survey Report (ground conductivity, hydrochemical analysis, and surface water measurements)
2. Texas Water Develoment Board (water and gas well locations)
3. Texas Department of Licensing Regulation (water wells)
4. TNRIS StratMap 2008-2009 Texas Orthoimagery Program for Bronte SW, Cement Mountain NE, Cement Mountain NW, Shawville NW, and Shawville NE (2008), Texas DOQQs.
5. San Angelo contact from TWDB Report 166, Ground-Water Resources of Coke County, Texas.
6. National Hydrography Dataset (surface drainage).
7. Approximate location of pits determined from historical aerial photographs (1939, 1957, 1964, and 1971)

NOTE:

1. SWDF = Salt Water Disposal Facility (Salmon #1 SWD 06788)

N

1,000 0 1,000 2,000

Feet

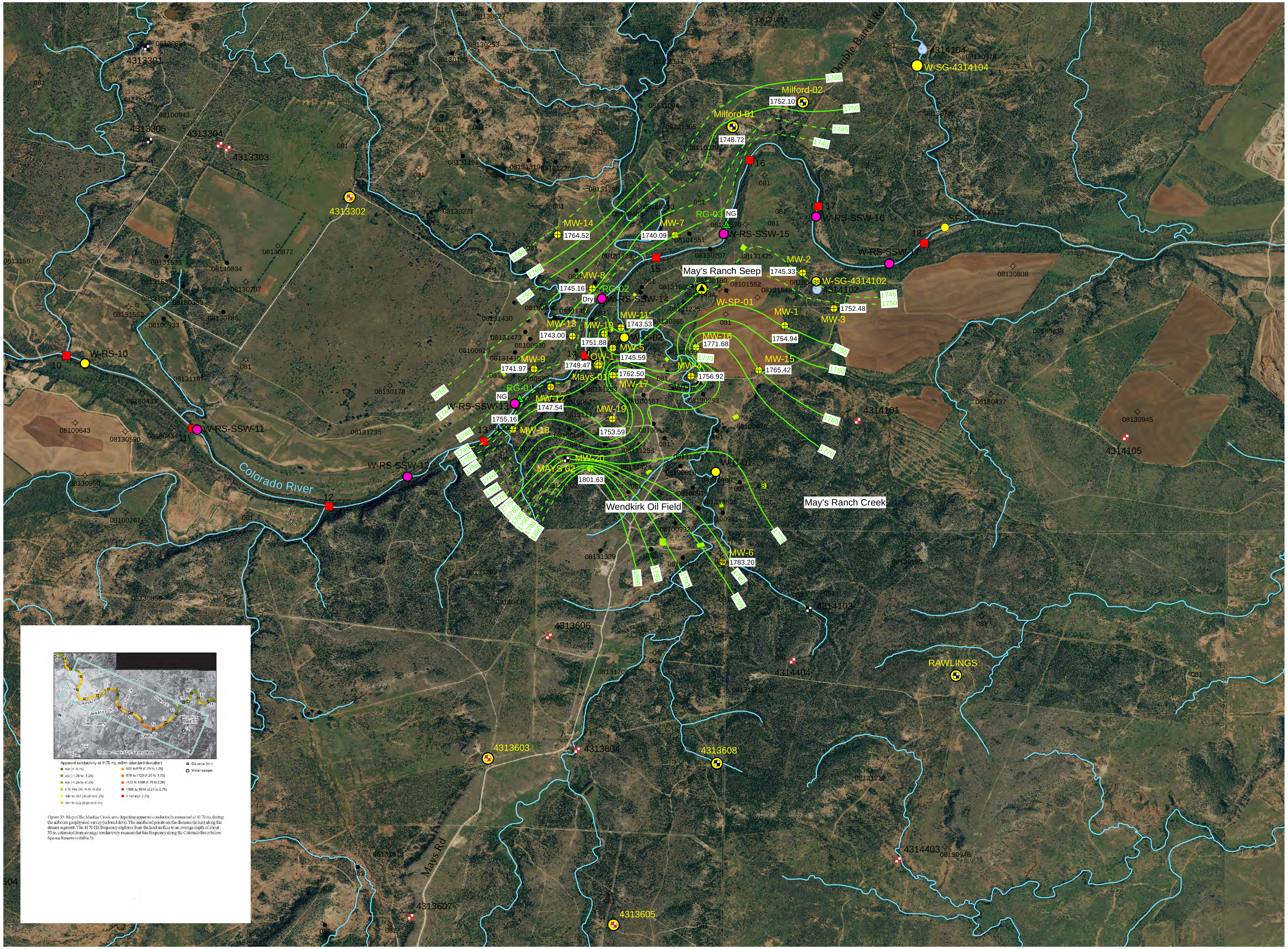
SITE MAP

RAILROAD COMMISSION OF TEXAS
WENDKIRK OIL FIELD

PROJECT NO.: 188156 | DATE: 1/19/2012

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

FIGURE 2



LEGEND

- Monitoring Well Locations
- Gauging Station
- Seasonal Water Sample and Stream Flow Measurement Locations [River Sample (RS) and Stream Flow [SF]). No Sample or Stream Flow Measurements Collected During December 2011 Event.
- Location of Sample Collected in December 2009 from Groundwater Beneath the River Bed. All River Bed Sample Locations were Dry During the December 2011 Event.
- Well (Source TDLR)
- Well (Source TWDB)
- Well (Source Field Located)
- Surface Drainage (River and Creeks)
- Pit Locations
- Springs
- BEG River Segments for Machae Creek Area (Kilometer Markers)
- Site Features
- Permitted Location
- Dry Hole
- Oil
- Gas
- Oil / Gas
- Plugged Oil
- Plugged Gas
- Canceled / Abandoned Location
- Plugged Oil / Gas
- Injection / Disposal
- Core Hole
- 1783.20 Groundwater Elevation (Feet above mean sea level)
- Groundwater Elevation Contour Line (Dashed where Inferred)

SOURCE:

1. BEG Airborne Geophysical Survey Report (ground conductivity, hydrochemical analysis, and surface water measurements)
2. Texas Water Develoment Board (water and gas well locations)
3. Texas Department of Licensing Regulation (water wells)
4. TNRIS StratMap 2008-2009 Texas Orthoimagery Program for Bronte SW, Cement Mountain NE, Cement Mountain NW, Shawville NW, and Shawville NE (2008), Texas DOQQs.
5. San Angelo contact from TWDB Report 166, Ground-Water Resources of Coke County, Texas.
6. National Hydrography Dataset (surface drainage).
7. Approximate location of pits determined from historical aerial photographs (1939, 1957, 1964, and 1971)

NOTE:

1. SWDF = Salt Water Disposal Facility (Salmon #1 SWD 06788)
2. NG = Not Gauged. River gauging stations RG-01 and RG-03 was observed to be damaged during the December 2009 event.
3. No water was observed flowing in the Colorado River during the December 2011 event.

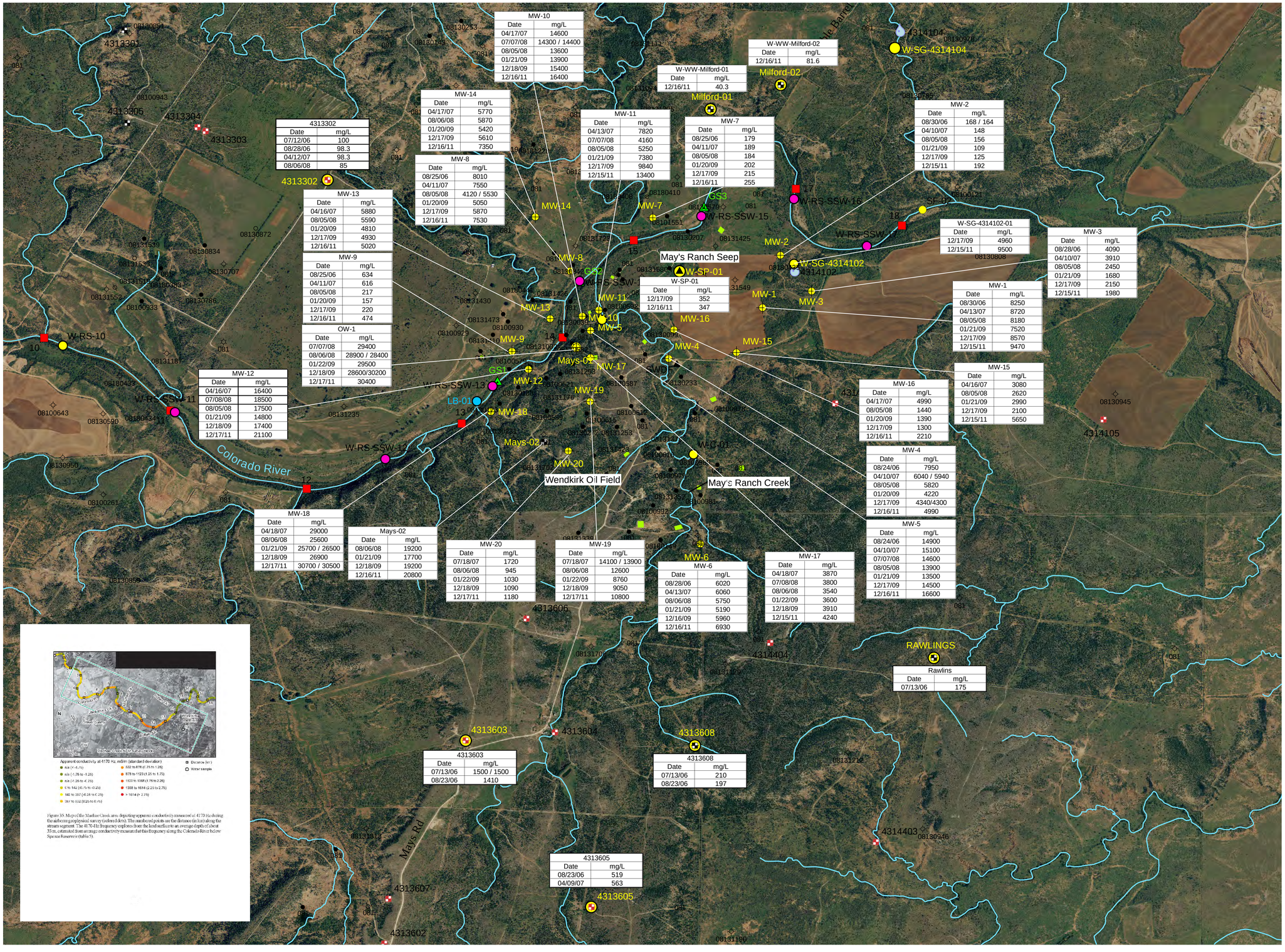
GROUNDWATER POTENTIOMETRIC SURFACE MAP - DECEMBER 2011

RAILROAD COMMISSION OF TEXAS
WENDKIRK OIL FIELD

PROJECT NO.: 188156 | DATE: 1/05/2012

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

FIGURE
3



MW-10	
Date	mg/L
04/17/07	14600
07/07/08	14300 / 14400
08/05/08	13600
01/21/09	13900
12/18/09	15400
12/16/11	16400

W-WW-Milford-02	
Date	mg/L
12/16/11	81.6

W-WW-Milford-01	
Date	mg/L
12/16/11	40.3

MW-14	
Date	mg/L
04/17/07	5770
08/06/08	5870
01/20/09	5420
12/17/09	5610
12/16/11	7350

4313302	
Date	mg/L
07/12/06	100
08/28/06	98.3
04/12/07	98.3
08/06/08	85

MW-11	
Date	mg/L
04/13/07	7820
07/07/08	4160
08/05/08	5250
01/21/09	7380
12/17/09	9840
12/15/11	13400

MW-7	
Date	mg/L
08/25/06	179
04/11/07	189
08/05/08	184
01/20/09	202
12/17/09	215
12/16/11	255

MW-2	
Date	mg/L
08/30/06	168 / 164
04/10/07	148
08/05/08	156
01/21/09	109
12/17/09	125
12/15/11	192

MW-8	
Date	mg/L
08/25/06	8010
04/11/07	7550
08/05/08	4120 / 5530
01/20/09	5050
12/17/09	5870
12/16/11	7530

MW-13	
Date	mg/L
04/16/07	5880
08/05/08	5590
01/20/09	4810
12/17/09	4930
12/16/11	5020

W-SG-4314102-01	
Date	mg/L
12/17/09	4960
12/15/11	9500

MW-3	
Date	mg/L
08/28/06	4090
04/10/07	3910
08/05/08	2450
01/21/09	1680
12/17/09	2150
12/15/11	1980

MW-9	
Date	mg/L
08/25/06	634
04/11/07	616
08/05/08	217
01/20/09	157
12/17/09	220
12/16/11	474

W-SP-01	
Date	mg/L
12/17/09	352
12/16/11	347

MW-1	
Date	mg/L
08/30/06	8250
04/13/07	8720
08/05/08	8180
01/21/09	7520
12/17/09	8570
12/15/11	9470

OW-1	
Date	mg/L
07/07/08	29400
08/06/08	28900 / 28400
01/22/09	29500
12/18/09	28600/30200
12/17/11	30400

MW-12	
Date	mg/L
04/16/07	16400
07/08/08	18500
08/05/08	17500
01/21/09	14800
12/18/09	17400
12/17/11	21100

MW-15	
Date	mg/L
04/16/07	3080
08/05/08	2620
01/21/09	2990
12/17/09	2100
12/15/11	5650

MW-16	
Date	mg/L
04/17/07	4990
08/05/08	1440
01/20/09	1390
12/17/09	1300
12/16/11	2210

MW-4	
Date	mg/L
08/24/06	7950
04/10/07	6040 / 5940
08/05/08	5820
01/20/09	4220
12/17/09	4340/4300
12/16/11	4990

MW-5	
Date	mg/L
08/24/06	14900
04/10/07	15100
07/07/08	14600
08/05/08	13900
01/21/09	13500
12/17/09	14500
12/16/11	16600

MW-18	
Date	mg/L
04/18/07	29000
08/06/08	25600
01/21/09	25700 / 26500
12/18/09	26900
12/17/11	30700 / 30500

Mays-02	
Date	mg/L
08/06/08	19200
01/21/09	17700
12/18/09	19200
12/16/11	20800

MW-20	
Date	mg/L
07/18/07	1720
08/06/08	945
01/22/09	1030
12/18/09	1090
12/17/11	1180

MW-19	
Date	mg/L
07/18/07	14100 / 13900
08/06/08	12600
01/22/09	8760
12/18/09	9050
12/17/11	10800

MW-6	
Date	mg/L
08/28/06	6020
04/13/07	6060
08/06/08	5750
01/21/09	5190
12/16/09	5960
12/16/11	6930

MW-17	
Date	mg/L
04/18/07	3870
07/08/08	3800
08/06/08	3540
01/22/09	3600
12/18/09	3910
12/15/11	4240

Rawlins	
Date	mg/L
07/13/06	175

4313603	
Date	mg/L
07/13/06	1500 / 1500
08/23/06	1410

4313608	
Date	mg/L
07/13/06	210
08/23/06	197

4313605	
Date	mg/L
08/23/06	519
04/09/07	563

Figure 35. Map of the Machae Creek area depicting apparent conductivity measured at 4170 Hz during the airborne geophysical survey (colored dots). The numbered points are the distance (in km) along the stream segment. The 4170-Hz frequency explores from the land surface to an average depth of about 55 m, estimated from average conductivity measured at this frequency along the Colorado River below Spence Reservoir (table 5).

LEGEND

- Monitoring Well Locations
- Soil Boring
- Gauging Station
- Seasonal Water Sample and Stream Flow Measurement Locations (River Sample [RS] and Stream Flow [SF]). No Sample or Stream Flow Measurements Collected During December 2011 Event.
- Location of Sample Collected in December 2009 from Groundwater Beneath the River Bed. All River Bed Sample Locations were Dry During the December 2011 Event.
- Well (Source TDLR)
- Well (Source TWDB)
- Well (Source Field Located)
- Surface Drainage (River and Creeks)
- Pit Locations
- Springs
- BEG River Segments for Machae Creek Area (Kilometer Markers)
- Site Features
- Permitted Location
- Dry Hole
- Oil
- Gas
- Oil / Gas
- Plugged Oil
- Plugged Gas
- Canceled / Abandoned Location
- Plugged Oil / Gas
- Injection / Disposal
- Core Hole
- mg/L Milligrams per Liter

SOURCE:

1. BEG Airborne Geophysical Survey Report (ground conductivity, hydrochemical analysis, and surface water measurements)
2. Texas Water Develoment Board (water and gas well locations)
3. Texas Department of Licensing Regulation (water wells)
4. TNRIS StratMap 2008-2009 Texas Orthoimagery Program for Bronte SW, Cement Mountain NE, Cement Mountain NW, Shawville NW, and Shawville NE (2008), Texas DOQQs.
5. San Angelo contact from TWDB Report 166, Ground-Water Resources of Coke County, Texas.
6. National Hydrography Dataset (surface drainage).
7. Approximate location of pits determined from historical aerial photographs (1939, 1957, 1964, and 1971)

NOTE:

1. SWDF = Salt Water Disposal Facility (Salmon #1 SWD 06788)
2. No water was observed flowing in the Colorado River during the December 2011 event.

STATE OF TEXAS
JAMES M. HARTE
GEOLOGY
No. 4018
LICENSED
PROFESSIONAL GEOSCIENTIST
07/24/12

N

1,000 0 1,000 2,000
Feet

CHRONOLOGICAL CHLORIDE CONCENTRATION MAP

RAILROAD COMMISSION OF TEXAS
WENDKIRK OIL FIELD

PROJECT NO.: 188156 | DATE: 1/13/2012

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

FIGURE 4

TABLES

Table 1. Summary of Seasonal Sample Locations

Seasonal Sample Areas	Sample Locations	Sample ID	Sample Date(s)	Laboratory Analysis
Colorado River	Segments 3, 7, 9 through 15, 17	W-RS-03 W-RS-07 W-RS-09 W-RS-10 W-RS-11 W-RS-12 W-RS-13 W-RS-14 W-RS-15 W-RS-16 W-RS-17	July 2006, August 2006, April 2007	Calcium, Chloride, Sodium, Sulfate, Total Dissolved Solids (TDS), BTEX, TPH
	Segment 8	W-RS-08	July 2006	
	Segments 11 through 17	W-RS-11 W-RS-12 W-RS-13 W-RS-14 W-RS-15 W-RS-16 W-RS-17	January 2009, December 2009*	Calcium, Sodium, Magnesium, Potassium, Chloride, Sulfide, Bromide, TDS, Alkalinity, Specific Conductance
Surface Water (Located in Wendkirk Oil Field)	May's Ranch Creek (upstream)	W-C-01	July 2006, August 2006, April 2007	Calcium, Chloride, Sodium, Sulfate, TDS
	May's Ranch Creek (downstream)	W-C-02	April 2007	
Surface Water (Not associated with Wendkirk Oil Field)	SANCO Quarry	W-Q-01	July 2006, August 2006, April 2007	
	North of River Segments 7 and 8	W-O-01	July 2006	Not Applicable – Field Chloride Test Kit
Spring Water	Spring 4314102 (west)	W-SG-4314102-01	July 2006, August 2006, April 2007	Calcium, Chloride, Sodium, Sulfate, TDS, BTEX, TPH
			January 2009, December 2009	Calcium, Sodium, Magnesium, Potassium, Chloride, Sulfide, Bromide, TDS, Alkalinity, Specific Conductance
			December 2011	Chloride, Sulfate, Bromide, TDS
	Spring 4314102 (east)	W-SG-4314102-02	April 2007	Calcium, Chloride, Sodium, Sulfate, TDS
	Spring 4314104	W-SG-4314104	July 2006, August 2006, April 2007	Calcium, Chloride, Sodium, Sulfate, TDS, BTEX, TPH
	May's Ranch Seep	W-SP-01	July 2006, August 2006, April 2007	Calcium, Chloride, Sodium, Sulfate, TDS, BTEX, TPH
			January 2009, December 2009	Calcium, Sodium, Magnesium, Potassium, Chloride, Sulfide, Bromide, TDS, Alkalinity, Specific Conductance
			December 2011	Chloride, Sulfate, Bromide, TDS

Table 1. Summary of Seasonal Sample Locations

Seasonal Sample Areas	Sample Locations	Sample ID		Sample Date(s)	Laboratory Analysis
Groundwater	May's Ranch Water Well	W-WW-Mays-01 Water well Mays-01 (73.5') Water well Mays-01 (98.5')		August 2006, April 2007, June 2007	Calcium, Chloride, Sodium, Sulfate, TDS, BTEX, TPH
		W-WW-081 W-WW-Mays-02		August 2008, January 2009, December 2009	Calcium, Sodium, Magnesium, Potassium, Chloride, Sulfide, Bromide, TDS, Alkalinity, Specific Conductance
	Milford Water Well	W-WW-Milford-01		July 2006, August 2006, April 2007	Calcium, Chloride, Sodium, Sulfate, TDS, BTEX, TPH
		W-WW-Milford-02			
	Rawlin's Water Well	W-WW-Rawlins		July 2006	Calcium, Sodium, Magnesium, Potassium, Chloride, Sulfide, Bromide, TDS, Alkalinity, Electrical Conductivity
	Water Well 4313302	W-WW-4313302		July 2006, August 2006, April 2007	Calcium, Chloride, Sodium, Sulfate, TDS, BTEX, TPH
	Water Well 4313605	W-WW-4313605		August 2006, April 2007	
	Water Well 4313603	W-WW-4313603		July 2006, August 2006	
	Water Well 4313608	W-WW-4313608			
	Wendkirk Oil Field Monitoring Wells	W-MW-05 W-MW-11 W-MW-17	W-MW-10 W-MW-12 W-0B-01	July 2008	Calcium, Sodium, Magnesium, Potassium, Chloride, Sulfide, Bromide, TDS, Alkalinity, Electrical Conductivity
		W-MW-01 W-MW-03 W-MW-05 W-MW-07 W-MW-09 W-MW-11 W-MW-13 W-MW-15 W-MW-17 W-MW-19 W-OW-01	W-MW-02 W-MW-04 W-MW-06 W-MW-08 W-MW-10 W-MW-12 W-MW-14 W-MW-16 W-MW-18 W-MW-20	August 2008, January 2009, December 2009	Calcium, Sodium, Magnesium, Potassium, Chloride, Sulfide, Bromide, TDS, Alkalinity, Specific Conductance
				December 2011	Chloride, Sulfate, Bromide, TDS

Notes:
* - Colorado River was dry during the December 2009 monitoring event. Water samples were collected form each of these river segment locations by digging shallow excavations approximately 1.5 feet into the alluvial material.
Colorado River was dry during the December 2011 monitoring event. Water samples were not collected from these river segment stations.

Table 2. Fluid Level Gauging Data

Location ID	Date Water Level Measured	Total Depth of Well (feet btoc)	Ground Elevation (feet)	Top-of-Casing Elevation (feet)	Depth to Water (feet btoc)	Water Elevation (ft AMSL)
MW-01	8/30/2006	43.25	1779.45	1782.62	24.16	1758.46
	10/26/2006	NM			23.97	1758.65
	4/20/2007	NM			25.92	1756.70
	8/4/2008	43.10			25.16	1757.46
	1/19/2009	NM			25.17	1757.45
	12/16/2009	NM			26.78	1755.84
	12/15/2011	44.12			27.68	1754.94
MW-02	8/30/2006	39.05	1771.43	1775.03	27.02	1748.01
	10/26/2006	NM			27.37	1747.66
	4/20/2007	NM			27.98	1747.05
	8/4/2008	38.44			27.68	1747.35
	1/19/2009	NM			27.68	1747.35
	12/16/2009	NM			28.66	1746.37
	12/15/2011	39.30			29.70	1745.33
MW-03	8/30/2006	40.20	1773.61	1776.09	21.69	1754.40
	10/26/2006	NM			21.45	1754.64
	4/20/2007	NM			21.73	1754.36
	6/20/2007	NM			18.35	1757.74
	8/4/2008	39.59			21.30	1754.79
	1/19/2009	NM			20.90	1755.19
	12/16/2009	NM			22.69	1753.40
	12/15/2011	40.50			23.61	1752.48
MW-04	8/30/2006	36.51	1772.28	1774.54	16.75	1757.79
	10/26/2006	NM			16.91	1757.63
	4/20/2007	NM			17.47	1757.07
	8/4/2008	37.71			16.76	1757.78
	1/19/2009	NM			16.41	1758.13
	12/16/2009	NM			17.16	1757.38
	12/16/2011	38.91			17.62	1756.92
MW-05	8/30/2006	35.15	1760.71	1763.19	17.23	1745.96
	10/26/2006	NM			16.43	1746.76
	4/20/2007	NM			16.65	1746.54
	6/20/2007	NM			15.80	1747.39
	7/17/2007	NM			15.80	1747.39
	7/7/2008	35.02			16.21	1746.98
	8/4/2008	NM			16.32	1746.87
	1/19/2009	NM			15.91	1747.28
	12/16/2009	NM			17.00	1746.19
	12/16/2011	35.57			19.60	1743.59
MW-06	8/30/2006	99.40	1831.77	1834.47	52.34	1782.13
	10/26/2006	NM			51.53	1782.94
	4/20/2007	NM			58.92	1775.55
	8/4/2008	96.07			52.97	1781.50
	1/19/2009	NM			51.57	1782.90
	12/16/2009	NM			51.27	1783.20
	12/16/2011	91.54			51.86	1782.61
MW-07	8/30/2006	40.00	1767.97	1771.10	31.84	1739.26
	10/26/2006	NM			31.07	1740.03
	4/20/2007	NM			32.32	1738.78
	8/4/2008	39.72			29.45	1741.65
	1/19/2009	NM			29.56	1741.54
	12/16/2009	NM			30.40	1740.70
	12/16/2011	40.65			31.01	1740.09

Table 2. Fluid Level Gauging Data

Location ID	Date Water Level Measured	Total Depth of Well (feet btoc)	Ground Elevation (feet)	Top-of-Casing Elevation (feet)	Depth to Water (feet btoc)	Water Elevation (ft AMSL)
MW-08	8/30/2006	62.12	1777.30	1780.69	33.13	1747.56
	10/26/2006	NM			32.86	1747.83
	4/20/2007	NM			33.32	1747.37
	8/4/2008	62.71			32.73	1747.96
	1/19/2009	NM			32.14	1748.55
	12/16/2009	NM			33.02	1747.67
	12/16/2011	63.30			35.53	1745.16
MW-09	8/30/2006	32.19	1757.12	1759.82	16.49	1743.33
	10/26/2006	NM			16.20	1743.62
	4/20/2007	NM			15.67	1744.15
	6/21/2007	NM			14.95	1744.87
	8/4/2008	30.82			16.45	1743.37
	1/19/2009	NM			15.79	1744.03
	12/16/2009	NM			16.74	1743.08
	12/16/2011	31.24			17.85	1741.97
MW-10	4/20/2007	72.30	1764.68	1767.02	14.90	1752.12
	6/20/2007	72.30			14.20	1752.82
	7/7/2008	72.40			14.19	1752.83
	8/4/2008	72.66			14.34	1752.68
	1/19/2009	NM			14.04	1752.98
	12/16/2009	NM			14.85	1752.17
	12/16/2011	73.87			15.14	1751.88
MW-11	4/20/2007	32.36	1764.60	1766.78	21.64	1745.14
	6/19/2007	NM			20.90	1745.88
	7/17/2007	NM			21.10	1745.68
	7/7/2008	32.33			21.59	1745.19
	8/4/2008	32.14			21.86	1744.92
	1/19/2009	NM			21.43	1745.35
	12/16/2009	NM			22.30	1744.48
	12/15/2011	32.80			23.25	1743.53
MW-12	4/20/2007	42.39	1763.54	1766.10	31.18	1734.92
	7/7/2008	42.47			18.70	1747.40
	8/4/2008	NM			18.66	1747.44
	1/19/2009	NM			18.60	1747.50
	12/16/2009	NM			18.54	1747.56
	12/17/2011	43.33			18.56	1747.54
MW-13	4/20/2007	27.95	1759.45	1762.49	17.54	1744.95
	7/18/2007	NM			17.35	1745.14
	8/4/2008	27.85			18.16	1744.33
	1/19/2009	NM			17.33	1745.16
	12/16/2009	NM			18.41	1744.08
	12/16/2011	28.44			19.49	1743.00
MW-14	4/20/2007	83.30	1787.19	1789.86	69.59	1720.27
	6/21/2007	NM			27.21	1762.65
	8/4/2008	83.02			24.68	1765.18
	1/19/2009	NM			24.98	1764.88
	12/16/2009	NM			24.98	1764.88
	12/16/2011	81.91			25.34	1764.52
MW-15	4/20/2007	43.50	1790.04	1792.87	25.85	1767.02
	8/4/2008	42.72			25.09	1767.78
	1/19/2009	NM			25.36	1767.51
	12/16/2009	NM			25.85	1767.02
	12/15/2011	43.43			27.45	1765.42

Table 2. Fluid Level Gauging Data

Location ID	Date Water Level Measured	Total Depth of Well (feet btoc)	Ground Elevation (feet)	Top-of-Casing Elevation (feet)	Depth to Water (feet btoc)	Water Elevation (ft AMSL)
MW-16	4/20/2007	38.07	1785.23	1788.19	32.33	1755.86
	8/4/2008	37.75			15.85	1772.34
	1/19/2009	NM			15.80	1772.39
	12/16/2009	NM			16.26	1771.93
	12/16/2011	38.58			16.51	1771.68
MW-17	4/20/2007	73.00	1824.99	1827.63	65.83	1761.80
	7/8/2008	72.95			65.81	1761.82
	8/4/2008	NM			66.12	1761.51
	1/19/2009	NM			66.06	1761.57
	12/16/2009	NM			66.00	1761.63
	12/15/2011	75.10			65.13	1762.50
MW-18	4/20/2007	72.29	1773.10	1775.18	19.88	1755.30
	6/19/2007	NM			22.33	1752.85
	8/4/2008	NM			20.25	1754.93
	1/19/2009	NM			20.12	1755.06
	12/16/2009	NM			20.15	1755.03
	12/17/2011	69.50			20.02	1755.16
MW-19	7/18/2007	105.50	1827.10	1830.14	75.70	1754.44
	8/4/2008	NM			75.50	1754.64
	1/19/2009	NM			75.22	1754.92
	12/16/2009	NM			75.83	1754.31
	12/17/2011	110.50			76.55	1753.59
MW-20	7/18/2007	115.50	1888.48	1890.90	98.55	1792.35
	8/4/2008	NM			91.08	1799.82
	1/19/2009	NM			89.19	1801.71
	12/16/2009	NM			89.40	1801.50
	12/16/2011	118.07			89.27	1801.63
Mays-01	8/30/2006	190.00	1817.14	1820.66	68.30	1752.36
	10/26/2006	NM			68.04	1752.62
	4/20/2007	NM			68.26	1752.40
	6/20/2007	NM			67.27	1753.39
Mays-02	8/6/2008	NM	NM	NM	92.24	NA
	1/19/2009	137.17			91.97	NA
	12/16/2009	NM			92.42	NA
	12/16/2011	NM			93.24	NA
OW-01	7/17/2007	97.81	1816.44	1818.56	66.54	1752.02
	7/7/2008	96.95			47.56 (1)	1771.00
	8/4/2008	NM			67.01	1751.55
	1/19/2009	97.81			66.74	1751.82
	12/16/2009	NM			68.09	1750.47
	12/20/2011	97.80			69.09	1749.47
Milford-01	7/14/2006	180.50	1829.94	1832.20	83.15	1749.05
	8/30/2006	NM			83.05	1749.15
	4/20/2007	NM			82.94	1749.26
	8/4/2008	NM			NM	NA
	1/19/2009	NM			82.70	1749.50
	12/16/2009	NM			82.94	1749.26
	12/16/2011	NM			83.48	1748.72

Table 2. Fluid Level Gauging Data

Location ID	Date Water Level Measured	Total Depth of Well (feet btoc)	Ground Elevation (feet)	Top-of-Casing Elevation (feet)	Depth to Water (feet btoc)	Water Elevation (ft AMSL)
Milford-02	7/14/2006	118.80	1814.59	1816.53	63.01	1753.52
	8/30/2006	NM			63.30	1753.23
	4/20/2007	NM			63.10	1753.43
	8/5/2008	NM			63.28	1753.25
	1/19/2009	NM			63.43	1753.10
	12/16/2009	NM			63.82	1752.71
	12/16/2011	NM			64.43	1752.10
RG-01	4/20/2007	NA	NA	1747.70	2.72	1744.98
	8/5/2008	NA			NM- DAMAGED	NA
	1/19/2009	NA			NM- DAMAGED	NA
	12/16/2009	NA			NM -DAMAGED	NA
	12/16/2011	NM			NM -DAMAGED	NA
RG-02	4/20/2007	NA	NA	1748.34	3.70	1744.64
	8/5/2008	NA			3.49	1744.85
	1/19/2009	NA			2.72	1745.62
	12/16/2009	NA			DRY	
	12/16/2011	NM			DRY	
RG-03	4/20/2007	NA	NA	1746.26	3.67	1742.59
	8/5/2008	NA			3.73	1742.53
	1/19/2009	NA			NM - DAMAGED	NA
	12/16/2009	NA			NM - DAMAGED	NA
	12/16/2011	NM			NM - DAMAGED	NA

Notes:
(1) OW-1 is located adjacent to Mays-01. Mays-01 was plugged and abandoned during measurement on 7/7/2008 which appears to have influenced the water level elevation in OW-1.
btoc = below top of casing
AMSL = above mean sea level
NA = not applicable
NM = not measured
DRY - Location was dry therefore no measurement could be taken

Table 3. Surface Water, Groundwater, and Produced Water Analytical Results

Sample ID	Sample Location	Sample Date	Chloride (mg/L)	Sulfate (mg/L)	Bromide (mg/L)	Sodium (mg/L)	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	Alkalinity, Carbonate (as CaCO3) (mg/L)	Alkalinity, Hydroxide (as CaCO3) (mg/L)	Alkalinity, Total (as CaCO3) (mg/L)	pH (pH units)	Specific Conductance (umhos/cm)	Total Dissolved Solids (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes, total (mg/L)	TX1005 >C12-C28 (mg/L)	TX1005 >C28-C35 (mg/L)	TX1005 C6-C12 (mg/L)	TX1005 C6-C35 (mg/L)
W-MW-01	Monitoring Well #1	8/30/2006	8250	3750	NA	5700	NA	NA	NA	NA	NA	NA	19000	0.0008 U	0.002 U	0.002 U	0.003 U	0.657 U	0.657 U	0.657 U	0.657 U
W-MW-01	Monitoring Well #1	4/13/2007	8720	5640	NA	6140	NA	NA	NA	NA	NA	NA	21900	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-01	Monitoring Well #1	8/5/2008	8180	5410	NA	4800	384	10.0 U	10.0 U	384	6.94	33800	22000	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-01	Monitoring Well #1	1/21/2009	7520	5040	NA	4940	519	10.0 U	10.0 U	519	NA	31000	21200	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-01	Monitoring Well #1	12/17/2009	8570	5580	NA	5740	489	10.0 U	10.0 U	489	NA	35600	22800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-01	Monitoring Well #1	12/15/2011	9470	5480	9.63 J	NA	NA	NA	NA	NA	NA	NA	20100	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-02	Monitoring Well #2	8/30/2006	168	1850	NA	171	NA	NA	NA	NA	NA	NA	3240	0.0008 U	0.002 U	0.002 U	0.003 U	0.686 U	0.686 U	0.686 U	0.686 U
W-MW-02	Monitoring Well #2	4/10/2007	148	1950	NA	145	NA	NA	NA	NA	NA	NA	3290	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-02-D	Monitoring Well #2 Duplicate	8/30/2006	164	1840	NA	177	NA	NA	NA	NA	NA	NA	3250	0.0008 U	0.002 U	0.002 U	0.003 U	0.673 U	0.673 U	0.673 U	0.673 U
W-MW-02	Monitoring Well #2	8/5/2008	156	1980	NA	106	185	10.0 U	10.0 U	185	7.06	3390	3310	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-02	Monitoring Well #2	1/21/2009	109	1630	NA	131	242	10.0 U	10.0 U	242	NA	3240	3080	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-02	Monitoring Well #2	12/17/2009	125	1720	NA	160	228	10.0 U	10.0 U	228	NA	3290	3260	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-02	Monitoring Well #2	12/15/2011	192	2030	<0.3	NA	NA	NA	NA	NA	NA	NA	3470	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-03	Monitoring Well #3	8/28/2006	4090	3070	NA	1880	NA	NA	NA	NA	NA	NA	11600	0.0008 U	0.002 U	0.002 U	0.003 U	0.656 U	0.656 U	0.656 U	0.656 U
W-MW-03	Monitoring Well #3	4/10/2007	3910	3290	NA	2030	NA	NA	NA	NA	NA	NA	11900	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-03	Monitoring Well #3	8/5/2008	2450	3360	NA	1180	320	10.0 U	10.0 U	320	6.86	11400	9800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-03	Monitoring Well #3	1/21/2009	1680	2770	NA	1040	428	10.0 U	10.0 U	428	NA	9510	7620	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-03	Monitoring Well #3	12/17/2009	2150	3180	NA	1380	416	10.0 U	10.0 U	416	NA	10600	8950	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-03	Monitoring Well #3	12/15/2011	1980	3180	<0.30	NA	NA	NA	NA	NA	NA	NA	6990	NA	NA	NA	NA A	NA	NA	NA A	NA
W-MW-04	Monitoring Well #4	8/24/2006	7950	1640	NA	3920	NA	NA	NA	NA	NA	NA	15200	0.0008 U	0.002 U	0.002 U	0.003 U	0.685 U	0.685 U	0.685 U	0.685 U
W-MW-04	Monitoring Well #4	4/10/2007	6040	2080	NA	3810	NA	NA	NA	NA	NA	NA	12700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-04-D	Monitoring Well #4 Duplicate	4/10/2007	5940	2030	NA	3760	NA	NA	NA	NA	NA	NA	11800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-04	Monitoring Well #4	8/5/2008	5820	1750	NA	3090	317	10.0 U	10.0 U	317	6.88	20300	12800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-04	Monitoring Well #4	1/20/2009	4220	1830	NA	2310	458	10.0 U	10.0 U	458	NA	14500	10100	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-04	Monitoring Well #4	12/16/2009	4340	2000	NA	2530	430	10.0 U	10.0 U	430	NA	16900	10800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-04-D	Monitoring Well #4 Duplicate	12/16/2009	4300	1970	NA	2500	427	10.0 U	10.0 U	427	NA	16700	10900	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-04	Monitoring Well #4	12/16/2011	4990	2130	3.68	NA	NA	NA	NA	NA	NA	NA	10700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-05	Monitoring Well #5	8/24/2006	14900	2730	NA	7070	NA	NA	NA	NA	NA	NA	27400	0.0008 U	0.002 U	0.002 U	0.003 U	0.669 U	0.669 U	0.669 U	0.669 U
W-MW-05	Monitoring Well #5	4/10/2007	15100	2820	NA	8690	NA	NA	NA	NA	NA	NA	27100	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-05	Monitoring Well #5	7/7/2008	14600	2960	NA	7040	NA	NA	NA	NA	NA	NA	28700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-05	Monitoring Well #5	8/5/2008	13900	2740	NA	7150	305	10.0 U	10.0 U	305	6.69	46700	27900	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-05	Monitoring Well #5	1/21/2009	13500	2590	NA	7710	328	10.0 U	10.0 U	328	NA	45400	26200	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-05	Monitoring Well #5	12/17/2009	14500	2760	NA	8200	321	10.0 U	10.0 U	321	NA	47600	28800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-05	Monitoring Well #5	12/16/2011	16600	2900	<3.0	NA	NA	NA	NA	NA	NA	NA	26900	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-06	Monitoring Well #6	8/28/2006	6020	1100	1100	2860	NA	NA	NA	NA	NA	NA	11300	0.0008 U	0.002 U	0.002 U	0.003 U	0.674 U	0.674 U	0.674 U	0.674 U
W-MW-06	Monitoring Well #6	4/13/2007	6060	1170	1170	3620	NA	NA	NA	NA	NA	NA	12400	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-06	Monitoring Well #6	8/6/2008	5750	1040	1040	2800	329	10.0 U	10.0 U	329	6.87	20200	11800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-06	Monitoring Well #6	1/21/2009	5190	1010	1010	3180	354	10.0 U	10.0 U	354	NA	17800	10700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-06	Monitoring Well #6	12/16/2009	5960	1120	1120	3320	339	10.0 U	10.0 U	339	NA	19400	11500	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-06	Monitoring Well #6	12/16/2011	6930	1190	<3.0	NA	NA	NA	NA	NA	NA	NA	11900	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-07	Monitoring Well #7	8/25/2006	179	495	495	286	NA	NA	NA	NA	NA	NA	1300	0.0008 U	0.002 U	0.002 U	0.003 U	0.68 U	0.68 U	0.68 U	0.68 U
W-MW-07	Monitoring Well #7	4/11/2007	189	532	532	260	NA	NA	NA	NA	NA	NA	1320	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-07	Monitoring Well #7	8/5/2008	184	493	493	264	269	10.0 U	10.0 U	269	7.41	1930	1370	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-07	Monitoring Well #7	1/20/2009	202	575	575	346	290	10.0 U	10.0 U	290	NA	2150	1460	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-07	Monitoring Well #7	12/17/2009	215	601	601	371	263	10.0 U	10.0 U	263	NA	2190	1500	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-07	Monitoring Well #7	12/16/2011	255	714	<.3	NA	NA	NA	NA	NA	NA	NA	1560	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-08	Monitoring Well #8	8/25/2006	8010	7520	7520	6950	NA	NA	NA	NA	NA	NA	23200	0.0008 U	0.002 U	0.002 U	0.003 U	0.661 U	0.661 U	0.661 U	0.661 U
W-MW-08	Monitoring Well #8	4/11/2007	7550	7660	7660	6520	NA	NA	NA	NA	NA	NA	23000	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-08	Monitoring Well #8	8/5/2008	4120	5480	5480	4560	384	10.0 U	10.0 U	384	7.06	22300	16100	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-08-D	Monitoring Well #8 - Duplicate	8/5/2008	5530	6700	6700	4720	423	10.0 U	10.0 U	423	7.09	27300	19000	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-08	Monitoring Well #8	1/20/2009	5050	5630	5630	5050	423	10.0 U	10.0 U	423	NA	24900	17800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-08	Monitoring Well #8	12/17/2009	5870	6260	6260	6070	422	10.0 U	10.0 U	422	NA	28800	20000	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-08	Monitoring Well #8	12/16/2011	7530	6990	7.29 J	NA	NA	NA	NA	NA	NA	NA	20300	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-09	Monitoring Well #9	8/25/2006	634	862	862	672	NA	NA	NA	NA	NA	NA	2600	0.0008 U	0.002 U	0.002 U	0.003 U	0.677 U	0.677 U	0.677 U	0.677 U
W-MW-09	Monitoring Well #9	4/11/2007	616	1020	1020	704	NA	NA	NA	NA	NA	NA	2820	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-09	Monitoring Well #9	8/5/2008	217	333	333	347	440	10.0 U	10.0 U	440	7.44	2220	1530	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-09	Monitoring Well #9	1/20/2009	157	278	278	389	623	10.0 U	10.0 U	623	NA	2070	1400	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-09	Monitoring Well #9	12/17/2009	220	297	297	333	525	10.0 U	10.0 U	525	NA	2030	1360	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-09	Monitoring Well #9	12/16/2011	474	592	0.784 J	NA	NA	NA	NA	NA	NA	NA	1920	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-10	Monitoring Well #10	4/17/2007	14600	6700	6700	11600	NA	NA	NA	NA	NA	NA	30800	0.0008 U	0.002 U	0.002 U	0.003 U	0.651 U	0.651 U	0.651 U	0.651 U
W-MW-10	Monitoring Well #10	7/7/2008	14300	6500	6500	8380	NA	NA	NA	NA	NA	NA	32300	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-10-D	Monitoring Well #10 Duplicate	7/7/2008	14400	6510	6510	8520	NA	NA	NA	NA	NA	NA	32300	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-10	Monitoring Well #10	8/5/2008	13600	6150	6150	8850	408	10.0 U	10.0 U	408	6.73	51200	32200	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-10	Monitoring Well #10	1/21/2009	13900	5980	5980	9450	439	10.0 U	10.0 U	439	NA	51200	32300	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-10	Monitoring Well #10	12/18/2009	15400	6650	6650	9390	428	10.0 U	10.0 U	428	NA	52400	34600	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-10	Monitoring Well #10	12/16/2011	16400	6650	15.6	NA	NA	NA	NA	NA	NA	NA	31500	NA	NA	NA	NA	NA	NA	NA	NA

Table 3. Surface Water, Groundwater, and Produced Water Analytical Results

Sample ID	Sample Location	Sample Date	Chloride (mg/L)	Sulfate (mg/L)	Bromide (mg/L)	Sodium (mg/L)	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	Alkalinity, Carbonate (as CaCO3) (mg/L)	Alkalinity, Hydroxide (as CaCO3) (mg/L)	Alkalinity, Total (as CaCO3) (mg/L)	pH (pH units)	Specific Conductance (umhos/cm)	Total Dissolved Solids (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes, total (mg/L)	TX1005 >C12-C28 (mg/L)	TX1005 >C28-C35 (mg/L)	TX1005 C6-C12 (mg/L)	TX1005 C6-C35 (mg/L)
W-MW-11	Monitoring Well #11	4/13/2007	7820	1140	1140	4210	NA	NA	NA	NA	NA	NA	14900	0.0008 U	0.002 U	0.002 U	0.003 U	0.682 U	0.682 U	0.682 U	0.682 U
W-MW-11	Monitoring Well #11	7/7/2008	4160	812	812	1840	NA	NA	NA	NA	NA	NA	13300	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-11	Monitoring Well #11	8/5/2008	5250	1070	1070	4420	262	10.0 U	10.0 U	262	6.87	21800	13200	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-11	Monitoring Well #11	1/21/2009	7380	1150	1150	3920	332	10.0 U	10.0 U	332	NA	25600	15500	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-11	Monitoring Well #11	12/17/2009	9840	1330	1330	4890	297	10.0 U	10.0 U	297	NA	33200	21100	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-11	Monitoring Well #11	12/15/2011	13400	1660	22.5	NA	NA	NA	NA	NA	NA	NA	22800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-12	Monitoring Well #12	4/16/2007	16400	5080	5080	10900	NA	NA	NA	NA	NA	NA	31800	0.0008 U	0.002 U	0.002 U	0.003 U	0.682 U	0.682 U	0.682 U	0.682 U
W-MW-12	Monitoring Well #12	7/8/2008	18500	5210	5210	9410	NA	NA	NA	NA	NA	NA	37700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-12	Monitoring Well #12	8/5/2008	17500	4610	4610	9190	354	10.0 U	10.0 U	354	6.71	58400	37400	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-12	Monitoring Well #12	1/21/2009	14800	4810	4810	8840	383	10.0 U	10.0 U	383	NA	53400	33700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-12	Monitoring Well #12	12/18/2009	17400	4820	4820	9780	363	10.0 U	10.0 U	363	NA	57500	36600	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-12	Monitoring Well #12	12/17/2011	21100	5460	<3.0	NA	NA	NA	NA	NA	NA	NA	34400	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-13	Monitoring Well #13	4/16/2007	5880	1980	1980	3670	NA	NA	NA	NA	NA	NA	13200	0.0008 U	0.002 U	0.002 U	0.003 U	0.676 U	0.676 U	0.676 U	0.676 U
W-MW-13	Monitoring Well #13	8/5/2008	5590	2160	2160	2520	272	10.0 U	10.0 U	272	6.99	21000	13200	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-13	Monitoring Well #13	1/20/2009	4810	2180 J	2180 J	3260	392	10.0 U	10.0 U	392	NA	18100	12700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-13	Monitoring Well #13	12/17/2009	4930	1890	1890	2800	372	ND	ND	372	NA	18200	11200	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-13	Monitoring Well #13	12/16/2011	5020	2010	12.1	NA	NA	NA	NA	NA	NA	NA	10800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-14	Monitoring Well #14	4/17/2007	5770	6540	6540	5980	NA	NA	NA	NA	NA	NA	18200	0.0008 U	0.002 U	0.002 U	0.003 U	0.666 U	0.666 U	0.666 U	0.666 U
W-MW-14	Monitoring Well #14	8/6/2008	5870	6760	6760	5100	424	10.0 U	10.0 U	424	6.77	30800	20800	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-14	Monitoring Well #14	1/20/2009	5240	6540	6540	5960	465	10.0 U	10.0 U	465	NA	26800	19300	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-14	Monitoring Well #14	12/17/2009	5610	6660	6660	4800	447	10.0 U	10.0 U	447	NA	30000	19600	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-14	Monitoring Well #14	12/16/2011	7350	7440	<3.0	NA	NA	NA	NA	NA	NA	NA	18500	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-15	Monitoring Well #15	4/16/2007	3080	2600	2600	2060	NA	NA	NA	NA	NA	NA	8980	0.0008 U	0.002 U	0.002 U	0.003 U	0.687 U	0.687 U	0.687 U	0.687 U
W-MW-15	Monitoring Well #15	8/5/2008	2620	4670	4670	1850	373	10.0 U	10.0 U	373	7.03	12600	10500	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-15	Monitoring Well #15	1/21/2009	2990	2520	2520	1970	402	10.0 U	10.0 U	402	NA	13400	9660	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-15	Monitoring Well #15	12/17/2009	2110	4160	4160	1850	416	10.0 U	10.0 U	416	NA	11700	9850	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-15	Monitoring Well #15	12/15/2011	5650	6990	4.8	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA
W-MW-16	Monitoring Well #16	4/17/2007	4990	3190	3190	2560	NA	NA	NA	NA	NA	NA	13200	0.0008 U	0.002 U	0.002 U	0.003 U	0.668 U	0.668 U	0.668 U	0.668 U
W-MW-16	Monitoring Well #16	8/5/2008	1440	888	888	571	237	10.0 U	10.0 U	237	7.32	4520	3070	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-16	Monitoring Well #16	1/20/2009	1390	893	893	807	286	10.0 U	10.0 U	286	NA	5300	3610	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-16	Monitoring Well #16	12/17/2009	1300	942	942	626	248	10.0 U	10.0 U	NA	NA	5490	4090	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-16	Monitoring Well #16	12/16/2011	2210	1290	<3.0	NA	NA	NA	NA	NA	NA	NA	4950	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-17	Monitoring Well #17	4/18/2007	3870	2650	2650	2680	NA	NA	NA	NA	NA	NA	10100	0.0008 U	0.002 U	0.002 U	0.003 U	0.682 U	0.682 U	0.682 U	0.682 U
W-MW-17	Monitoring Well #17	7/8/2008	3800	2310	2310	2400	NA	NA	NA	NA	NA	NA	10500	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-17	Monitoring Well #17	8/6/2008	3540	2230	2230	2320	325	10.0 U	10.0 U	325	6.87	16300	10200	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-17	Monitoring Well #17	1/22/2009	3600	2350	2350	2350	341	10.0 U	10.0 U	341	NA	14000	9780	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-17	Monitoring Well #17	12/18/2009	3910	2470	2470	2480	326	11.0 U	11.0 U	326	NA	15200	9480	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-17	Monitoring Well #17	12/15/2011	4240	2710	<3.0	NA	NA	NA	NA	NA	NA	NA	10000	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-18	Monitoring Well #18	4/18/2007	29000	4620	4620	14900	NA	NA	NA	NA	NA	NA	47900	0.0008 U	0.002 U	0.002 U	0.003 U	0.653 U	0.653 U	0.653 U	0.653 U
W-MW-18-D	Monitoring Well #18 Duplicate	4/18/2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0008 U	0.002 U	0.002 U	0.003 U	0.664 U	0.664 U	0.664 U	0.664 U
W-MW-18	Monitoring Well #18	8/6/2008	25600	4180	4180	13700	286	10.0 U	10.0 U	286	6.48	89200	49300	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-18	Monitoring Well #18	1/21/2009	25700	3940	3940	14000	312	10.0 U	10.0 U	312	NA	79900	47500	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-18-D	Monitoring Well #18 Duplicate	1/21/2009	26500	4090	4090	14200	315	10.0 U	10.0 U	315	NA	79100	47700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-18	Monitoring Well #18	12/18/2009	26900	4280	4280	14200	301	10.0 U	10.0 U	301	NA	86700	50400	NA	NA	NA	NA	NA	NA	NA	
W-MW-18	Monitoring Well #18	12/17/2011	30700	4640	20.5	NA	NA	NA	NA	NA	NA	NA	47700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-18D	Monitoring Well #18 Duplicate	12/17/2011	30500	4540	22.4	NA	NA	NA	NA	NA	NA	NA	47700	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-19	Monitoring Well #19	7/18/2007	14100	3910	3910	7410	NA	NA	NA	NA	NA	NA	28600	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-19-D	Monitoring Well #19 Duplicate	7/18/2007	13900	3700	3700	7360	NA	NA	NA	NA	NA	NA	28500	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-19	Monitoring Well #19	8/6/2008	12600	3950	3950	6930	301	10.0 U	10.0 U	301	6.74	35800	22100	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-19	Monitoring Well #19	1/22/2009	8760	3330	3330	5410	349	10.0 U	10.0 U	349	NA	31700	21400	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-19	Monitoring Well #19	12/18/2009	9050	3000	3000	5190	370	10.0 U	10.0 U	370	NA	32700	19600	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-19	Monitoring Well #19	12/17/2011	10800	3370	9.66 J	NA	NA	NA	NA	NA	NA	NA	18900	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-20	Monitoring Well #20	7/18/2007	1720	1500	1500	1300	NA	NA	NA	NA	NA	NA	5080	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-20	Monitoring Well #20	8/6/2008	945	1160	1160	675	322	10.0 U	10.0 U	322	6.95	5470	4120	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-20	Monitoring Well #20	1/22/2009	1030	1240	1240	628	358	10.0 U	10.0 U	358	NA	5680	4120	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-20	Monitoring Well #20	12/18/2009	1090	1220	1220	754	339	10.0 U	10.0 U	339	NA	5520	4040	NA	NA	NA	NA	NA	NA	NA	NA
W-MW-20	Monitoring Well #20	12/17/2011	1180	1290	1.27	NA	NA	NA	NA	NA	NA	NA	3670	NA	NA	NA	NA	NA	NA	NA	NA
W-OW-01	Observation Well #1	7/7/2008	29400	1960	1960	9580	NA	NA	NA	NA	NA	NA	63800	NA	NA	NA	NA	NA	NA	NA	NA
W-OW-01	Observation Well #1	8/6/2008	28900	1420	1420	9430	288	10.0 U	10.0 U	288	6.14	89500	53900	NA	NA	NA	NA	NA	NA	NA	NA
W-OW-01-D	Observation Well #1 Duplicate	8/6/2008	28400	1490	1490	9540	286	10.0 U	10.0 U	286	6.13	85500	54400	NA	NA	NA	NA	NA	NA	NA	NA
W-OW-01	Observation Well #1	1/22/2009	29500	1410	1410	10600	303	10.0 U	10.0 U	303	NA	80100	52000	NA	NA	NA	NA	NA	NA	NA	NA
W-OW-01	Observation Well #1	12/18/2009	28600	1720	1720	10200	289	10.0 U	10.0 U	289	NA	86800	54900	NA	NA	NA	NA	NA	NA	NA	NA
W-OW-01-D	Observation Well #1 Duplicate	12/18/2009	30200	1610	1610	10300	289	10.0 U	10.0 U	289	NA	88000	56100	NA	NA	NA	NA	NA	NA	NA	NA
W-OW-01	Observation Well #1	12/17/2011	30400	2410	78.8	NA	NA	NA	NA	NA	NA	NA	52600	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-4313302	Water Well 4313302	7/12/2006	100	1090	1090	150	NA	NA	NA	NA	NA	NA	1950	0.0008 U	0.002 U	0.002 U	0.003 U	0.711 U	0.711 U	0.711 U	0.711 U
W-WW-4313302	Water Well 4313302	8/28/2006	98.3	1050	1050	149	NA	NA	NA	NA	NA	NA	2040	0.0008 U	0.002 U	0.002 U	0.003 U	0.67 U	0.67 U	0.67 U	0.67 U
W-WW-4313302	Water Well 4313302	4/12/2007	98.3	1090	1090	139	NA	NA	NA	NA	NA	NA	1990	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-4313302	Water Well 4313302	8/6/2008	85	900	900	111	51.6	10.0 U	10.0 U	51.6	6.98	1590	1210	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-4313302	Water Well 4313302	12/16/2011										DRY									
W-WW-4313603	Water Well 4313603	7/13/2006	1500	540	540	955	NA	NA	NA	NA	NA	NA	3370	0.0008 U	0.002 U	0.002 U	0.003 U	0.679 U	0.679 U	0.679 U	0.679 U

Table 3. Surface Water, Groundwater, and Produced Water Analytical Results

Sample ID	Sample Location	Sample Date	Chloride (mg/L)	Sulfate (mg/L)	Bromide (mg/L)	Sodium (mg/L)	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	Alkalinity, Carbonate (as CaCO3) (mg/L)	Alkalinity, Hydroxide (as CaCO3) (mg/L)	Alkalinity, Total (as CaCO3) (mg/L)	pH (pH units)	Specific Conductance (umhos/cm)	Total Dissolved Solids (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes, total (mg/L)	TX1005 >C12-C28 (mg/L)	TX1005 >C28-C35 (mg/L)	TX1005 C6-C12 (mg/L)	TX1005 C6-C35 (mg/L)
W-WW-4313603-D	Water Well 4313603 Duplicate	7/13/2006	1500	545	545	937	NA	NA	NA	NA	NA	NA	3340	0.0008 U	0.002 U	0.002 U	0.003 U	0.691 U	0.691 U	0.691 U	0.691 U
W-WW-4313603	Water Well 4313603	8/23/2006	1410	510	510	932	NA	NA	NA	NA	NA	NA	3320	0.0008 U	0.002 U	0.002 U	0.003 U	0.678 U	0.678 U	0.678 U	0.678 U
W-WW-4313603	Water Well 4313603	4/11/2007	PUMP NOT OPERATING																		
W-WW-4313603	Water Well 4313603	12/16/2011	DRY																		
W-WW-4313605	Water Well 4313605	8/23/2006	519	490	490	437	NA	NA	NA	NA	NA	NA	1740	0.0008 U	0.002 U	0.002 U	0.003 U	0.674 U	0.674 U	0.674 U	0.674 U
W-WW-4313605	Water Well 4313605	4/9/2007	563	506	506	470	NA	NA	NA	NA	NA	NA	1970	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-4313605	Water Well 4313605	12/16/2011	DRY																		
W-WW-4313608	Water Well 4313608	7/13/2006	210	112	112	205	NA	NA	NA	NA	NA	NA	763	0.0008 U	0.002 U	0.002 U	0.003 U	0.704 U	0.704 U	0.704 U	0.704 U
W-WW-4313608	Water Well 4313608	8/23/2006	197	104	104	191	NA	NA	NA	NA	NA	NA	718	0.0008 U	0.002 U	0.002 U	0.003 U	0.679 U	0.679 U	0.679 U	0.679 U
W-WW-4313608	Water Well 4313608	4/11/2007	PUMP NOT OPERATING																		
W-WW-4313608	Water Well 4313608	12/16/2011	DRY																		
W-WW-Mays-01	Water Well May's Ranch #1	8/23/2006	27200	1390	1390	12300	NA	NA	NA	NA	NA	NA	47000	0.0008 U	0.002 U	0.002 U	0.003 U	0.651 U	0.651 U	0.651 U	0.651 U
W-WW-Mays-01	Water Well May's Ranch #1	4/9/2007	27900	1650	1650	10600	NA	NA	NA	NA	NA	NA	50600	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Mays-01-D	Water Well May's Ranch #1 Duplicate	4/9/2007	28700	1670	1670	10300	NA	NA	NA	NA	NA	NA	51900	NA	NA	NA	NA	NA	NA	NA	NA
Water Well Mays-01 (73.5') *	Water Well May's Ranch #1 @73.5 ft btoc	6/21/2007	36000	1350	1350	11900	NA	NA	NA	NA	NA	NA	58200	NA	NA	NA	NA	NA	NA	NA	NA
Water Well Mays-01 (98.5') *	Water Well May's Ranch #1 @98.5 ft btoc	6/21/2007	35800	1600	1600	12100	NA	NA	NA	NA	NA	NA	57900	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Mays-01	Water Well May's Ranch #1	12/16/2011	DRY																		
W-WW-081	Water Well May's Ranch #2	8/6/2008	19200	3480	3480	9160	237	10.0 U	10.0 U	237	6.60	59400	36700	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Mays-02	Water Well May's Ranch #2	1/21/2009	17700	3300	3300	10000	270	10.0 U	10.0 U	270	NA	57900	35600	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Mays-02	Water Well May's Ranch #2	12/18/2009	19200	3330	3330	10000	267	10.0 U	10.0 U	267	NA	63700	37300	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Mays-02	Water Well May's Ranch #2	12/16/2011	20800	3460	<3.0	NA	NA	NA	NA	NA	NA	NA	35900	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Milford-01	Milford Water Well #1	7/14/2006	659	2960	2960	754	NA	NA	NA	NA	NA	NA	5210	0.0008 U	0.002 U	0.002 U	0.003 U	0.675 U	0.675 U	0.675 U	0.675 U
W-WW-Milford-01-D	Milford Water Well #1 Duplicate	7/14/2006	467	2020	2020	691	NA	NA	NA	NA	NA	NA	3730	0.0008 U	0.002 U	0.002 U	0.003 U	0.68 U	0.68 U	0.68 U	0.68 U
W-WW-Milford-01	Milford Water Well #1	8/24/2006	878	3930	3930	1680	NA	NA	NA	NA	NA	NA	7260	0.0008 U	0.002 U	0.002 U	0.003 U	0.676 U	0.676 U	0.676 U	0.676 U
W-WW-Milford-01-D	Milford Water Well #1 Duplicate	8/24/2006	640	2830	2830	1670	NA	NA	NA	NA	NA	NA	5340	0.0008 U	0.002 U	0.002 U	0.003 U	0.679 U	0.679 U	0.679 U	0.679 U
W-WW-Milford-01	Milford Water Well #1	4/11/2007	1480	6810	6810	3450	NA	NA	NA	NA	NA	NA	12400	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Milford-01	Milford Water Well #1	12/16/2011	40.3	56	<.3	NA	NA	NA	NA	NA	NA	NA	130	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Milford-02	Milford Water Well #2	7/14/2006	786	5110	5110	2450	NA	NA	NA	NA	NA	NA	7450	0.0008 U	0.002 U	0.002 U	0.003 U	0.686 U	0.686 U	0.686 U	0.686 U
W-WW-Milford-02	Milford Water Well #2	8/24/2006	756	5110	5110	2870	NA	NA	NA	NA	NA	NA	8860	0.0008 U	0.002 U	0.002 U	0.003 U	0.682 U	0.682 U	0.682 U	0.682 U
W-WW-Milford-02	Milford Water Well #2	4/11/2007	798	5710	5710	2520	NA	NA	NA	NA	NA	NA	9500	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Milford-02	Milford Water Well #2	8/5/2008	800	4890	4890	2470	431	10.0 U	10.0 U	431	7.22	11200	9980	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Milford-02	Milford Water Well #2	12/16/2011	81.6	355	<.3	NA	NA	NA	NA	NA	NA	NA	1130	NA	NA	NA	NA	NA	NA	NA	NA
W-WW-Rawlins	Rawlings Water Well	7/13/2006	175	126	126	184	NA	NA	NA	NA	NA	NA	780	0.0008 U	0.002 U	0.002 U	0.003 U	0.704 U	0.704 U	0.704 U	0.704 U
W-WW-Rawlins	Rawlings Water Well	12/16/2011	DRY																		
W-RS-03	Colorado River Segment 3	7/12/2006	624	273	273	366	NA	NA	NA	NA	NA	NA	1570	0.0008 U	0.002 U	0.002 U	0.003 U	0.694 U	0.694 U	0.694 U	0.694 U
W-RS-03	Colorado River Segment 3	8/29/2006	313	184	184	195	NA	NA	NA	NA	NA	NA	965	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-03	Colorado River Segment 3	4/19/2007	679	481	481	368	NA	NA	NA	NA	NA	NA	1870	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-03	Colorado River Segment 3	12/16/2011	DRY																		
W-RS-07	Colorado River Segment 7	7/12/2006	647	273	273	388	NA	NA	NA	NA	NA	NA	1600	0.0008 U	0.002 U	0.002 U	0.003 U	0.706 U	0.706 U	0.706 U	0.706 U
W-RS-07	Colorado River Segment 7	8/29/2006	324	192	192	196	NA	NA	NA	NA	NA	NA	980	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-07	Colorado River Segment 7	4/18/2007	716	531	531	392	NA	NA	NA	NA	NA	NA	1970	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-07	Colorado River Segment 7	12/16/2011	DRY																		
W-RS-08	Colorado River Segment 8	7/12/2006	666	358	358	396	NA	NA	NA	NA	NA	NA	1660	0.0008 U	0.002 U	0.002 U	0.003 U	0.697 U	0.697 U	0.697 U	0.697 U
W-RS-08	Colorado River Segment 8	8/30/2006	NO ACCESS																		
W-RS-08	Colorado River Segment 8	4/19/2007	NO ACCESS																		
W-RS-08	Colorado River Segment 8	12/16/2011	DRY																		
W-RS-09	Colorado River Segment 9	7/12/2006	713	302	302	415	NA	NA	NA	NA	NA	NA	1730	0.0008 U	0.002 U	0.002 U	0.003 U	0.671 U	0.671 U	0.671 U	0.671 U
W-RS-09	Colorado River Segment 9	8/30/2006	380	208	208	216	NA	NA	NA	NA	NA	NA	1070	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-09	Colorado River Segment 9	4/19/2007	738	543	543	360	NA	NA	NA	NA	NA	NA	2060	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-09	Colorado River Segment 9	12/16/2011	DRY																		
W-RS-10	Colorado River Segment 10	7/12/2006	735	300	300	420	NA	NA	NA	NA	NA	NA	1760	0.0008 U	0.002 U	0.002 U	0.003 U	0.693 U	0.693 U	0.693 U	0.693 U
W-RS-10	Colorado River Segment 10	8/30/2006	428	227	227	248	NA	NA	NA	NA	NA	NA	1100	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-10	Colorado River Segment 10	4/19/2007	784	576	576	374	NA	NA	NA	NA	NA	NA	2210	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-10	Colorado River Segment 10	12/16/2011	DRY																		
W-RS-11	Colorado River Segment 11	7/12/2006	636	319	319	379	NA	NA	NA	NA	NA	NA	1550	0.0008 U	0.002 U	0.002 U	0.003 U	0.699 U	0.699 U	0.699 U	0.699 U
W-RS-11	Colorado River Segment 11	8/29/2006	388	214	214	252	NA	NA	NA	NA	NA	NA	1110	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-11	Colorado River Segment 11	4/19/2007	809	600	600	403	NA	NA	NA	NA	NA	NA	2260	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-11	Colorado River Segment 11	12/16/2011	DRY																		
W-RS-12	Colorado River Segment 12	7/12/2006	775	325	325	460	NA	NA	NA	NA	NA	NA	1780	0.0008 U	0.002 U	0.002 U	0.003 U	0.701 U	0.701 U	0.701 U	0.701 U
W-RS-12	Colorado River Segment 12	8/29/2006	391	226	226	231	NA	NA	NA	NA	NA	NA	1060	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-12	Colorado River Segment 12	4/19/2007	841	632	632	441	NA	NA	NA	NA	NA	NA	2300	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-12	Colorado River Segment 12	1/19/2009	1200	727	727	724	182	10.0 U	10.0 U	182	NA	5020	3160	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-12	Colorado River Segment 12	12/16/2011	DRY																		
W-RS-13	Colorado River Segment 13	7/12/2006	794	319	319	474	NA	NA	NA	NA	NA	NA	1800	0.0008 U	0.002 U	0.002 U	0.003 U	0.691 U	0.691 U	0.691 U	0.691 U
W-RS-13	Colorado River Segment 13	8/29/2006	378	208	208	240	NA	NA	NA	NA	NA	NA	1040	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-13	Colorado River Segment 13	4/19/2007	884	643	643	427	NA	NA	NA	NA	NA	NA	2410	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-13	Colorado River Segment 13	1/19/2009	1310	770	770	810	153	10.0 U	10.0 U	153	NA	5380	3080	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-13	Colorado River Segment 13	12/16/2011	DRY																		
W-RS-14	Colorado River Segment 14	7/14/2006	859	342	342	467	NA	NA	NA	NA	NA	NA	2000	0.0008 U	0.002 U	0.002 U	0.003 U	0.673 U	0.673 U	0.673 U	0.673 U
W-RS-14	Colorado River Segment 14	8/29/2006	364	221	221	214	NA	NA	NA	NA	NA	NA	1010	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-14	Colorado River Segment 14	4/18/2007	899	667	667	463	NA	NA	NA	NA	NA	NA	2440	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-14	Colorado River Segment 14	1/19/2009	1280	744	744	834	182	10.0 U	10.0 U	182	NA	5230	3360	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-14-D	Colorado River Segment 14 Duplicate	1/19/2009	1330	753	753	824	183	10.0 U	10.0 U	183	NA	5360	3270	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-14	Colorado River Segment 14	12/16/2011	DRY																		

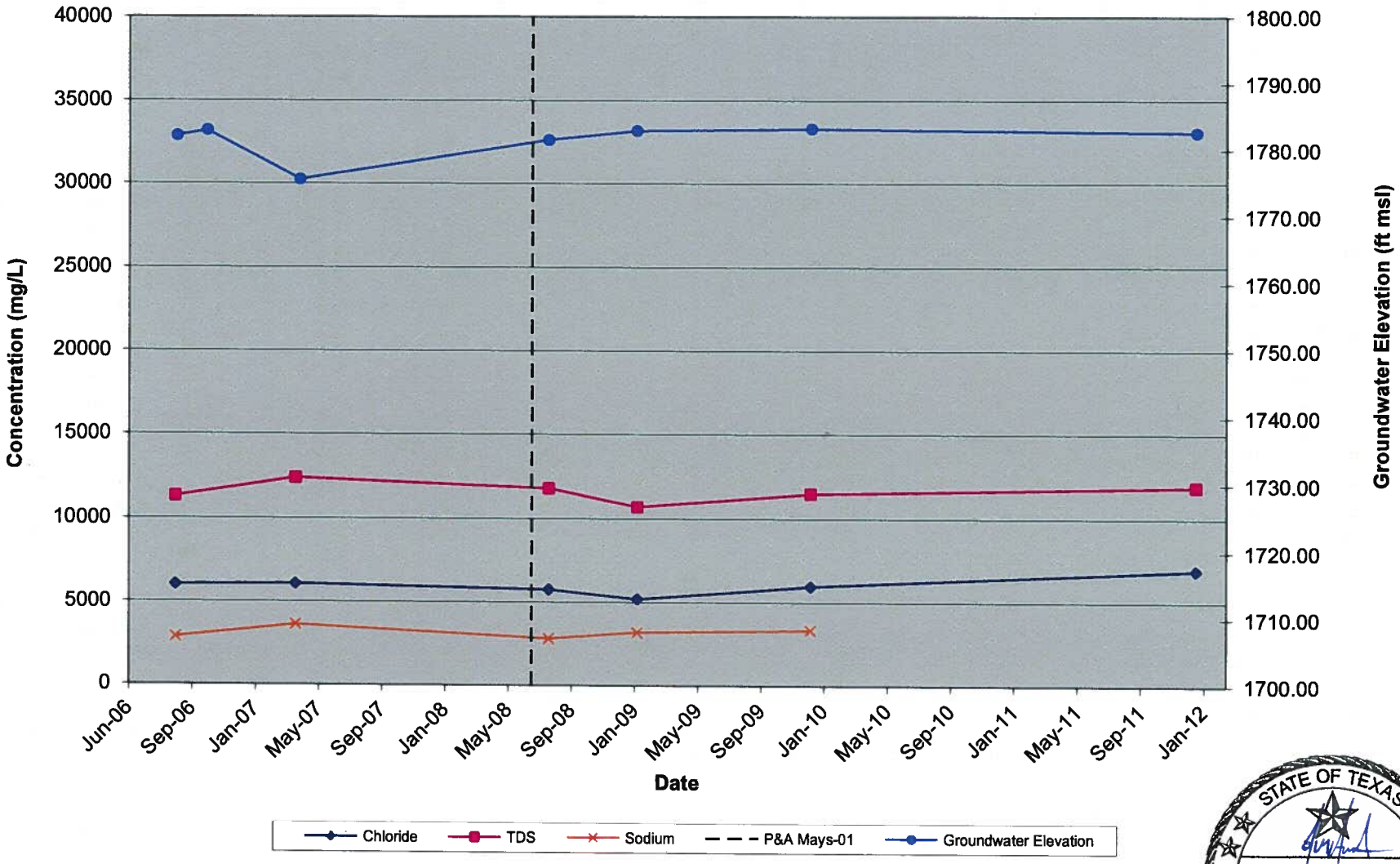
Table 3. Surface Water, Groundwater, and Produced Water Analytical Results

Sample ID	Sample Location	Sample Date	Chloride (mg/L)	Sulfate (mg/L)	Bromide (mg/L)	Sodium (mg/L)	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	Alkalinity, Carbonate (as CaCO3) (mg/L)	Alkalinity, Hydroxide (as CaCO3) (mg/L)	Alkalinity, Total (as CaCO3) (mg/L)	pH (pH units)	Specific Conductance (umhos/cm)	Total Dissolved Solids (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes, total (mg/L)	TX1005 >C12-C28 (mg/L)	TX1005 >C28-C35 (mg/L)	TX1005 C6-C12 (mg/L)	TX1005 C6-C35 (mg/L)
W-RS-15	Colorado River Segment 15	7/14/2006	906	351	351	499	NA	NA	NA	NA	NA	NA	2070	0.0008 U	0.002 U	0.002 U	0.003 U	0.686 U	0.686 U	0.686 U	0.686 U
W-RS-15	Colorado River Segment 15	8/29/2006	350	211	211	213	NA	NA	NA	NA	NA	NA	1020	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-15	Colorado River Segment 15	4/18/2007	909	665	665	497	NA	NA	NA	NA	NA	NA	2440	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-15	Colorado River Segment 15	1/19/2009	1370	767	767	834	189	10.0 U	10.0 U	189	NA	5430	3340	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-15	Colorado River Segment 15	12/16/2011										DRY									
W-RS-16	Colorado River Segment 16	7/14/2006	909	352	352	473	NA	NA	NA	NA	NA	NA	2070	0.0008 U	0.002 U	0.002 U	0.003 U	0.69 U	0.69 U	0.69 U	0.69 U
W-RS-16	Colorado River Segment 16	8/29/2006	338	193	193	214	NA	NA	NA	NA	NA	NA	1020	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-16	Colorado River Segment 16	4/18/2007	930	677	677	454	NA	NA	NA	NA	NA	NA	2480	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-16	Colorado River Segment 16	1/19/2009	1450	803	803	810	190	10.0 U	10.0 U	190	NA	5580	3580	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-16	Colorado River Segment 16	12/16/2011										DRY									
W-RS-17	Colorado River Segment 17	7/14/2006	899	354	354	471	NA	NA	NA	NA	NA	NA	2050	0.0008 U	0.002 U	0.002 U	0.003 U	0.691 U	0.691 U	0.691 U	0.691 U
W-RS-17	Colorado River Segment 17	8/29/2006	338	185	185	212	NA	NA	NA	NA	NA	NA	1010	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-17	Colorado River Segment 17	4/18/2007	948	677	677	483	NA	NA	NA	NA	NA	NA	2470	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-17	Colorado River Segment 17	1/19/2009	1440	798	798	873	190	10.0 U	10.0 U	190	NA	5740	3680	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-17	Colorado River Segment 17	12/16/2011										DRY									
W-RS-SSW-11	Colorado River Segment 11	12/18/2009	5870	2390	2390	3100	319	10.0 U	10.0 U	319	NA	19900	13200	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-SSW-11	Colorado River Segment 11	12/16/2011										DRY									
W-RS-SSW-12	Colorado River Segment 12	12/18/2009	3110	930	930	1490	238	10.0 U	10.0 U	238	NA	10200	7020	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-SSW-12	Colorado River Segment 12	12/16/2011										DRY									
W-RS-SSW-13	Colorado River Segment 13	12/18/2009	4780	2490	2490	2410	62.2	10.0 U	10.0 U	62.2	NA	17700	11800	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-SSW-13	Colorado River Segment 13	12/16/2011										DRY									
W-RS-SSW-14	Colorado River Segment 14	12/18/2009	6190	1820	1820	3060	409	10.0 U	10.0 U	409	NA	20800	14000	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-SSW-14	Colorado River Segment 14	12/16/2011										DRY									
W-RS-SSW-15	Colorado River Segment 15	12/18/2009	7310	1370	1370	3200	185	10.0 U	10.0 U	185	NA	21800	14000	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-SSW-15	Colorado River Segment 15	12/16/2011										DRY									
W-RS-SSW-16	Colorado River Segment 16	12/18/2009	2310	1010	1010	1190	194	10.0 U	10.0 U	194	NA	8420	5090	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-SSW-16	Colorado River Segment 16	12/16/2011										DRY									
W-RS-SSW-17	Colorado River Segment 17	12/18/2009	1170	407	407	652	418	10.0 U	10.0 U	418	NA	4520	2820	NA	NA	NA	NA	NA	NA	NA	NA
W-RS-SSW-17	Colorado River Segment 17	12/16/2011										DRY									
W-SG-4314102-01	Spring 4314102 - Downstream	7/13/2006	4400	2300	2300	168	NA	NA	NA	NA	NA	NA	9980	0.0008 U	0.002 U	0.002 U	0.003 U	0.699 U	0.699 U	0.699 U	0.699 U
W-SG-4314102-01	Spring 4314102 - Downstream	8/28/2006	7640	2480	2480	2760	NA	NA	NA	NA	NA	NA	15300	0.0008 U	0.002 U	0.002 U	0.003 U	0.663 U	0.663 U	0.663 U	0.663 U
W-SG-4314102-01	Spring 4314102 - Downstream	4/9/2007	6280	2710	2710	2750	NA	NA	NA	NA	NA	NA	12200	NA	NA	NA	NA	NA	NA	NA	NA
W-SG-4314102-01	Spring 4314102 - Downstream	1/19/2009	4510	2760	2760	2650	600	10.0 U	10.0 U	600	NA	16400	12000	NA	NA	NA	NA	NA	NA	NA	NA
W-SG-4314102-01	Spring 4314102 - Downstream	12/17/2009	4960	2800	2800	2920	450	10.0 U	10.0 U	450	NA	19000	14700	NA	NA	NA	NA	NA	NA	NA	NA
W-SG-4314102-01	Spring 4314102 - Downstream	12/15/2011	9500	3300	13.9	NA	NA	NA	NA	NA	NA	NA	16900	NA	NA	NA	NA	NA	NA	NA	NA
W-SG-4314102-02	Spring 4314102 - Upstream	4/9/2007	0.658 J	1.42 J	1.42 J	2.31	NA	NA	NA	NA	NA	NA	179	NA	NA	NA	NA	NA	NA	NA	NA
W-SG-4314102-02	Spring 4314102 - Upstream	12/16/2011										DRY									
W-SG-4314104-01	Spring 4314104	7/14/2006	4660	19100	19100	7640	NA	NA	NA	NA	NA	NA	31900	0.0008 U	0.002 U	0.002 U	0.003 U	0.674 U	0.674 U	0.674 U	0.674 U
W-SG-4314104	Spring 4314104	8/29/2006	4360	19000	19000	6770	NA	NA	NA	NA	NA	NA	31800	0.0008 U	0.002 U	0.002 U	0.003 U	0.657 U	0.657 U	0.657 U	0.657 U
W-SG-4314104-D	Spring 4314104 Duplicate	8/29/2006	4150	18000	18000	6090	NA	NA	NA	NA	NA	NA	31000	NA	NA	NA	NA	NA	NA	NA	NA
W-SG-4314104	Spring 4314104	4/11/2007	1070	4660	4660	2030	NA	NA	NA	NA	NA	NA	8650	NA	NA	NA	NA	NA	NA	NA	NA
W-SG-4314104	Spring 4314104	12/16/2011										DRY									
W-SP-01	May's Ranch Seep	7/13/2006	508	461	461	393	NA	NA	NA	NA	NA	NA	1630	0.0008 U	0.002 U	0.002 U	0.003 U	0.716 U	0.716 U	0.716 U	0.716 U
W-SP-01	May's Ranch Seep	8/23/2006	503	471	471	384	NA	NA	NA	NA	NA	NA	1650	0.0008 U	0.002 U	0.002 U	0.003 U	0.676 U	0.676 U	0.676 U	0.676 U
W-SP-01	May's Ranch Seep	4/9/2007	368	393	393	304	NA	NA	NA	NA	NA	NA	1330	NA	NA	NA	NA	NA	NA	NA	NA
W-SP-01	May's Ranch Seep	1/20/2009	462	443	443	361	350	10.0 U	10.0 U	350	NA	2520	1630	NA	NA	NA	NA	NA	NA	NA	NA
W-SP-01	May's Ranch Seep	12/17/2009	352	381	381	324	245	10.0 U	10.0 U	245	NA	2180	1440	NA	NA	NA	NA	NA	NA	NA	NA
W-SP-01	May's Ranch Seep	12/16/2011	347	401	<0.3	NA	NA	NA	NA	NA	NA	NA	1270	NA	NA	NA	NA	NA	NA	NA	NA
W-C-01	May's Ranch Creek (upstream)	7/13/2006	133	16.4	16.4	60.2	NA	NA	NA	NA	NA	NA	396	0.0008 U	0.002 U	0.002 U	0.003 U	0.679 U	0.679 U	0.679 U	0.679 U
W-C-01	May's Ranch Creek (upstream)	8/23/2006	282	9.51	9.51	141	NA	NA	NA	NA	NA	NA	590	0.0008 U	0.002 U	0.002 U	0.003 U	0.676 U	0.676 U	0.676 U	0.676 U
W-C-01	May's Ranch Creek (upstream)	4/9/2007	23.8	4.18	4.18	15.8	NA	NA	NA	NA	NA	NA	169	NA	NA	NA	NA	NA	NA	NA	NA
W-C-01	May's Ranch Creek (upstream)	12/16/2011										DRY									
W-C-02	May's Ranch Creek (downstream)	4/9/2007	75.6	30.2	30.2	43.6	NA	NA	NA	NA	NA	NA	291	NA	NA	NA	NA	NA	NA	NA	NA
W-C-02	May's Ranch Creek (downstream)	12/16/2011										DRY									
W-Q-01	SANCO Quarry Pond	7/12/2006	855	453	453	464	NA	NA	NA	NA	NA	NA	2100	0.0008 U	0.002 U	0.002 U	0.003 U	0.71 U	0.71 U	0.71 U	0.71 U
W-Q-01	SANCO Quarry Pond	8/30/2006	523	383	383	289	NA	NA	NA	NA	NA	NA	1510	NA	NA	NA	NA	NA	NA	NA	NA
W-Q-01	SANCO Quarry Pond	4/19/2007	803	606	606	422	NA	NA	NA	NA	NA	NA	2160	NA	NA	NA	NA	NA	NA	NA	NA
W-Q-01-D	SANCO Quarry Pond Duplicate	4/19/2007	809	609	609	374	NA	NA	NA	NA	NA	NA	2240	NA	NA	NA	NA	NA	NA	NA	NA
W-Q-01	SANCO Quarry Pond	12/16/2011										DRY									
W-T-01	Wendkirk Oil Field Produced Water Tank	4/16/2007	89900	224	224	38300	NA	NA	NA	NA	NA	NA	138000	0.326	0.278	0.0485	0.273	12.2	1.19 J	12.9	26.3
W-T-01	Wendkirk Oil Field Produced Water Tank	12/16/2011										DRY									

Notes
mg/L = milligrams per liter
U = analyte not detected
J = estimated concentration
NA = not analyzed
* = Grab sample for qualitative analysis only

GRAPHS

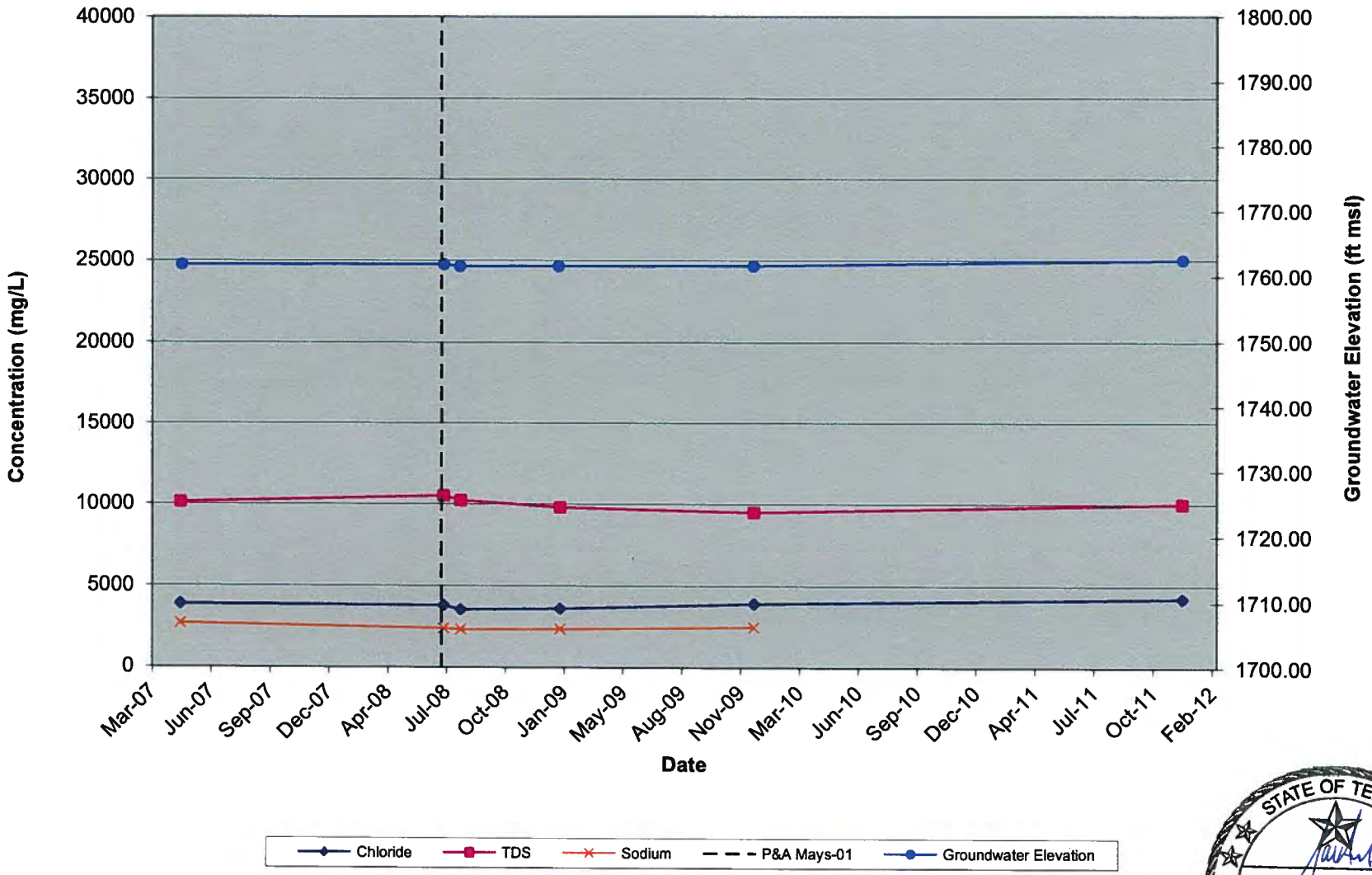
GRAPH 1. MW-06 Concentrations and Groundwater Elevations

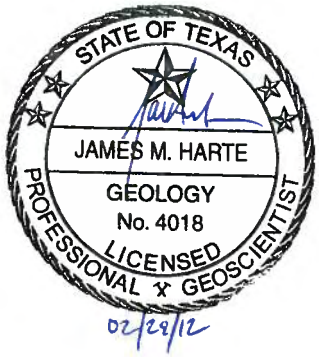


STATE OF TEXAS
JAMES M. HARTE
GEOLOGY
No. 4018
LICENSED
PROFESSIONAL GEOSCIENTIST

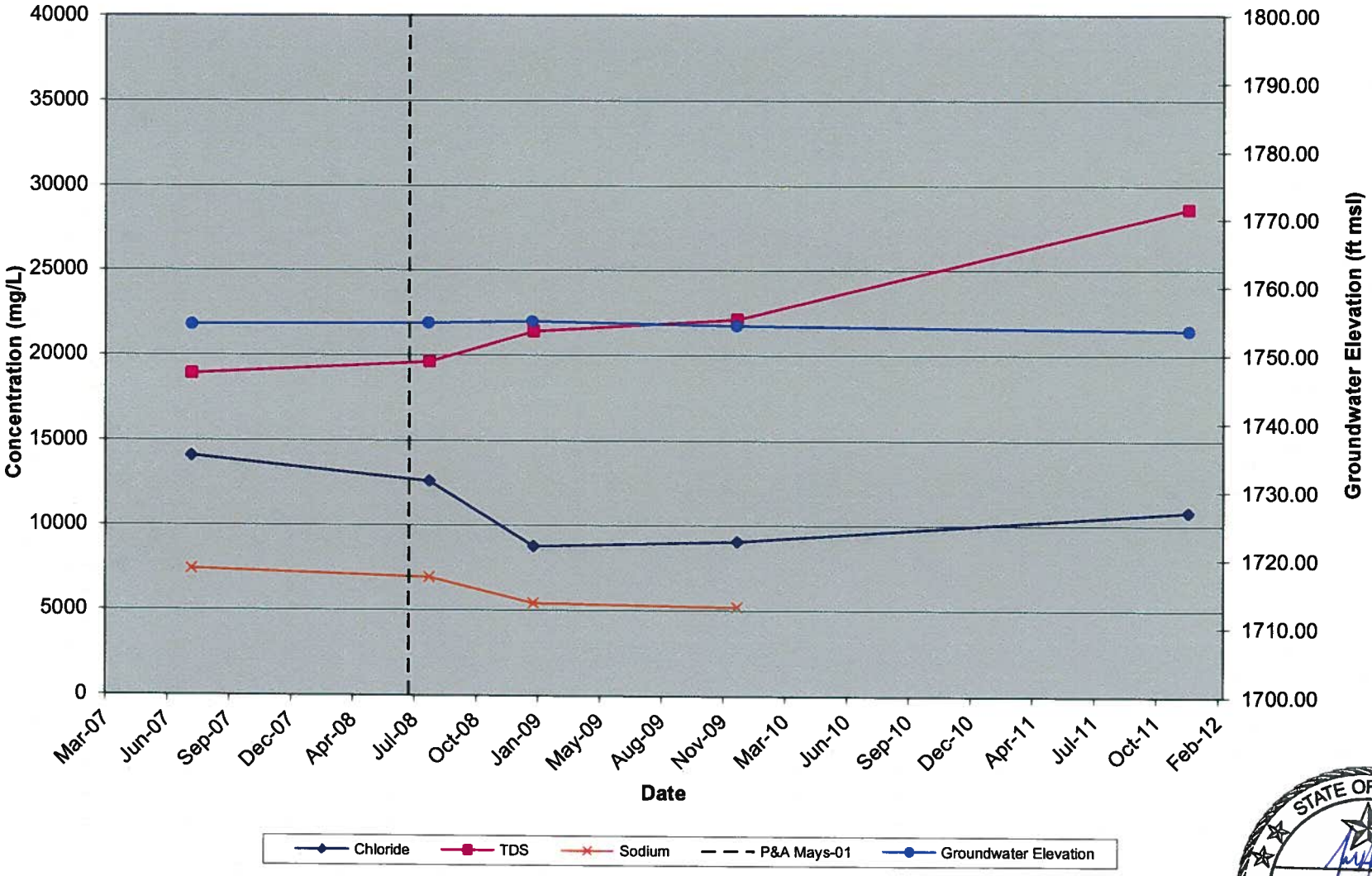
02/29/12

GRAPH 2. MW-17 Concentrations and Groundwater Elevations





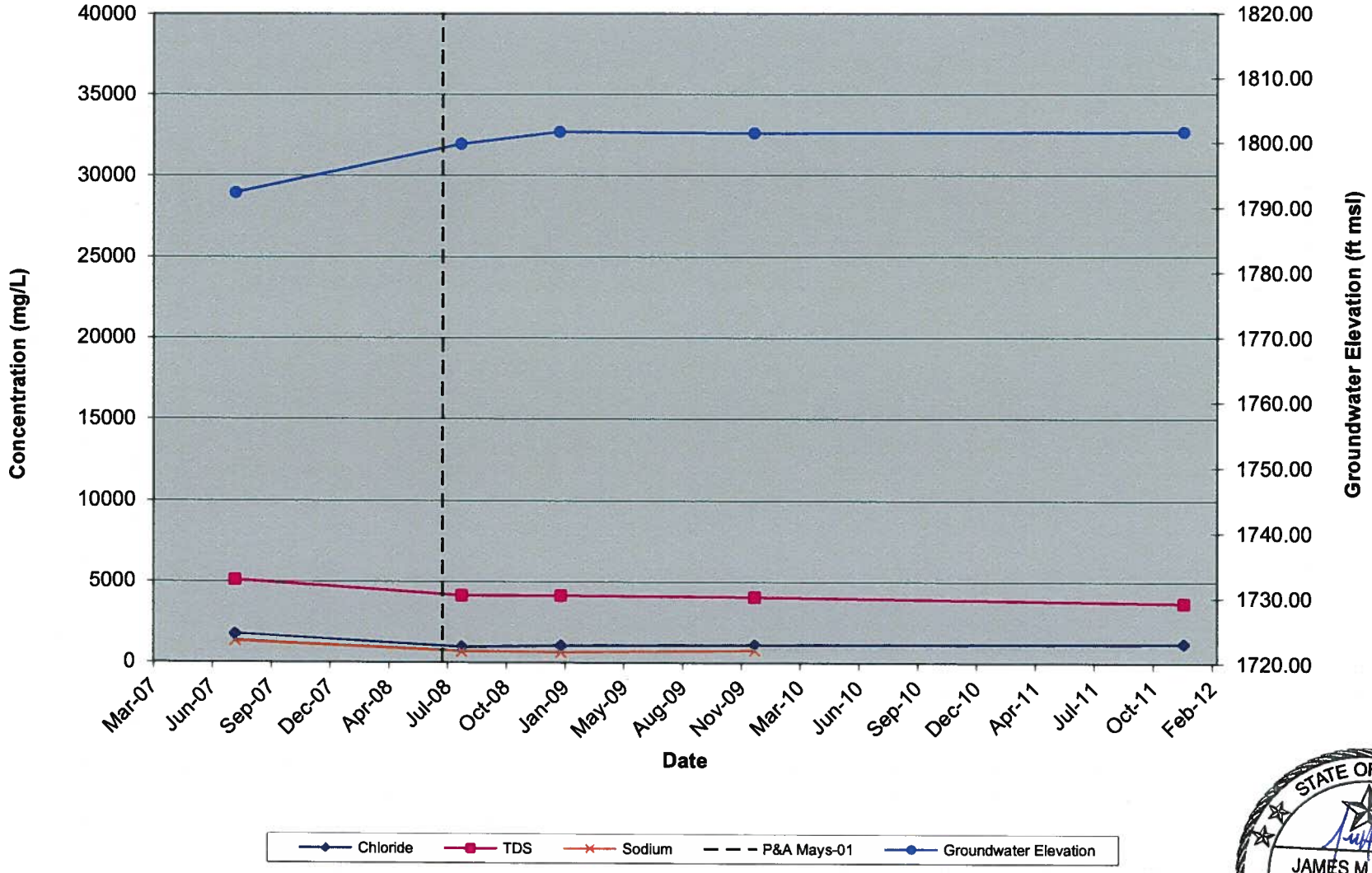
GRAPH 3. MW-19 Concentrations and Groundwater Elevations



STATE OF TEXAS
JAMES M. HARTE
GEOLOGY
No. 4018
LICENSED
PROFESSIONAL GEOSCIENTIST

02/29/12

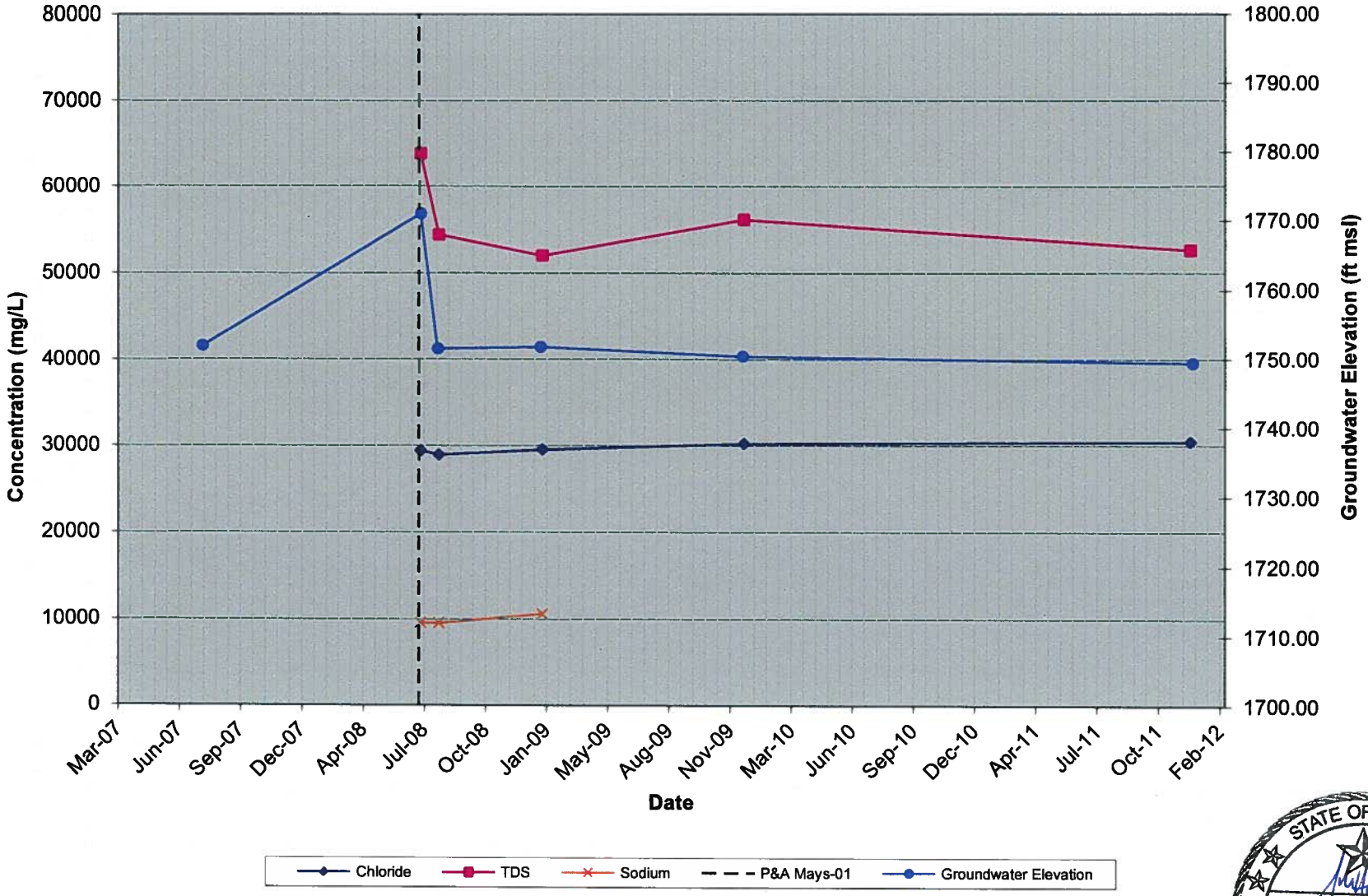
GRAPH 4. MW-20 Concentrations and Groundwater Elevations



STATE OF TEXAS
JAMES M. HARTE
GEOLOGY
No. 4018
LICENSED
PROFESSIONAL GEOSCIENTIST

02/29/12

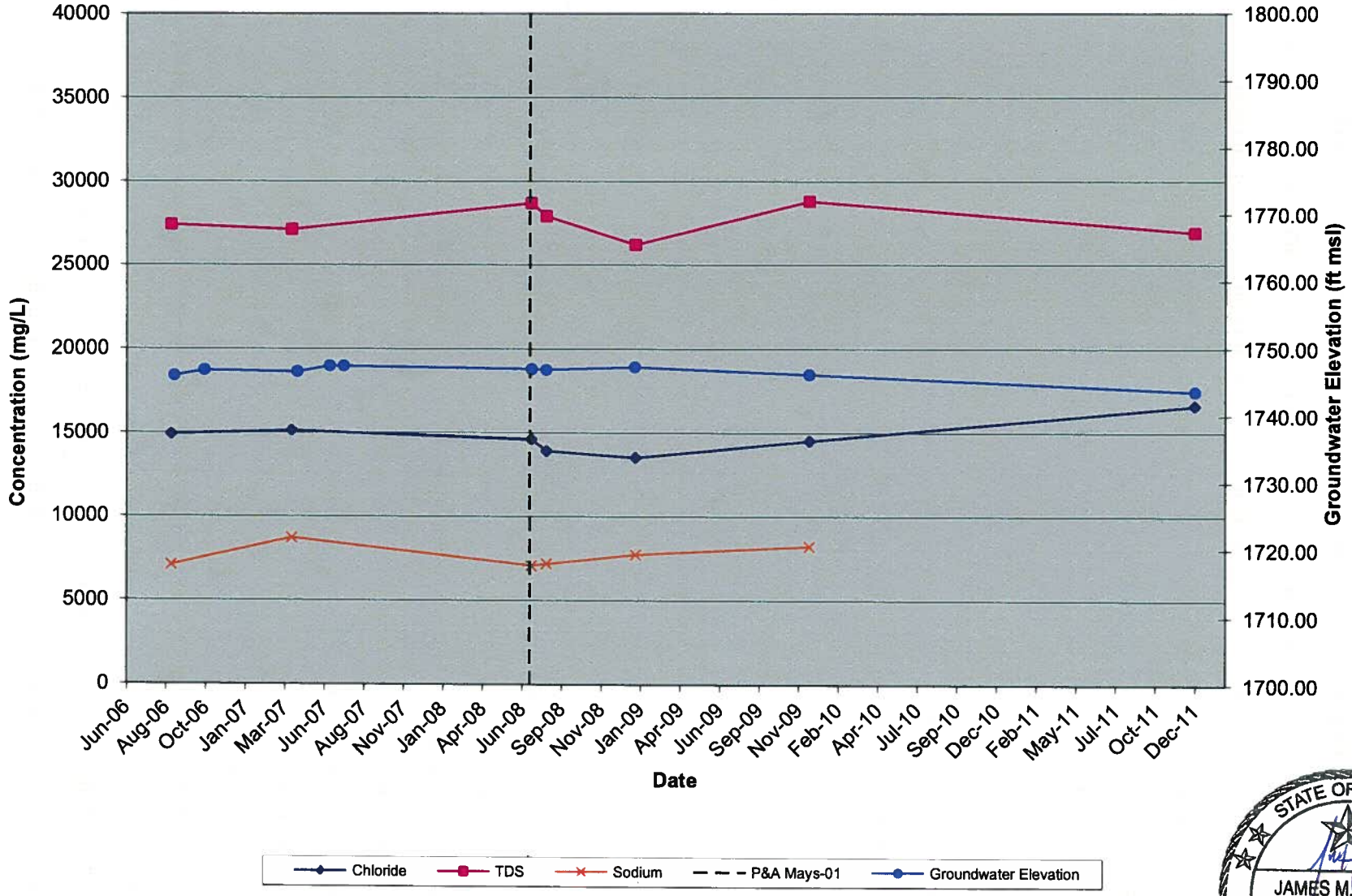
GRAPH 5. OW-01 Concentrations and Groundwater Elevations



STATE OF TEXAS
JAMES M. HARTE
GEOLOGY
No. 4018
LICENSED
PROFESSIONAL GEOSCIENTIST

02/29/12

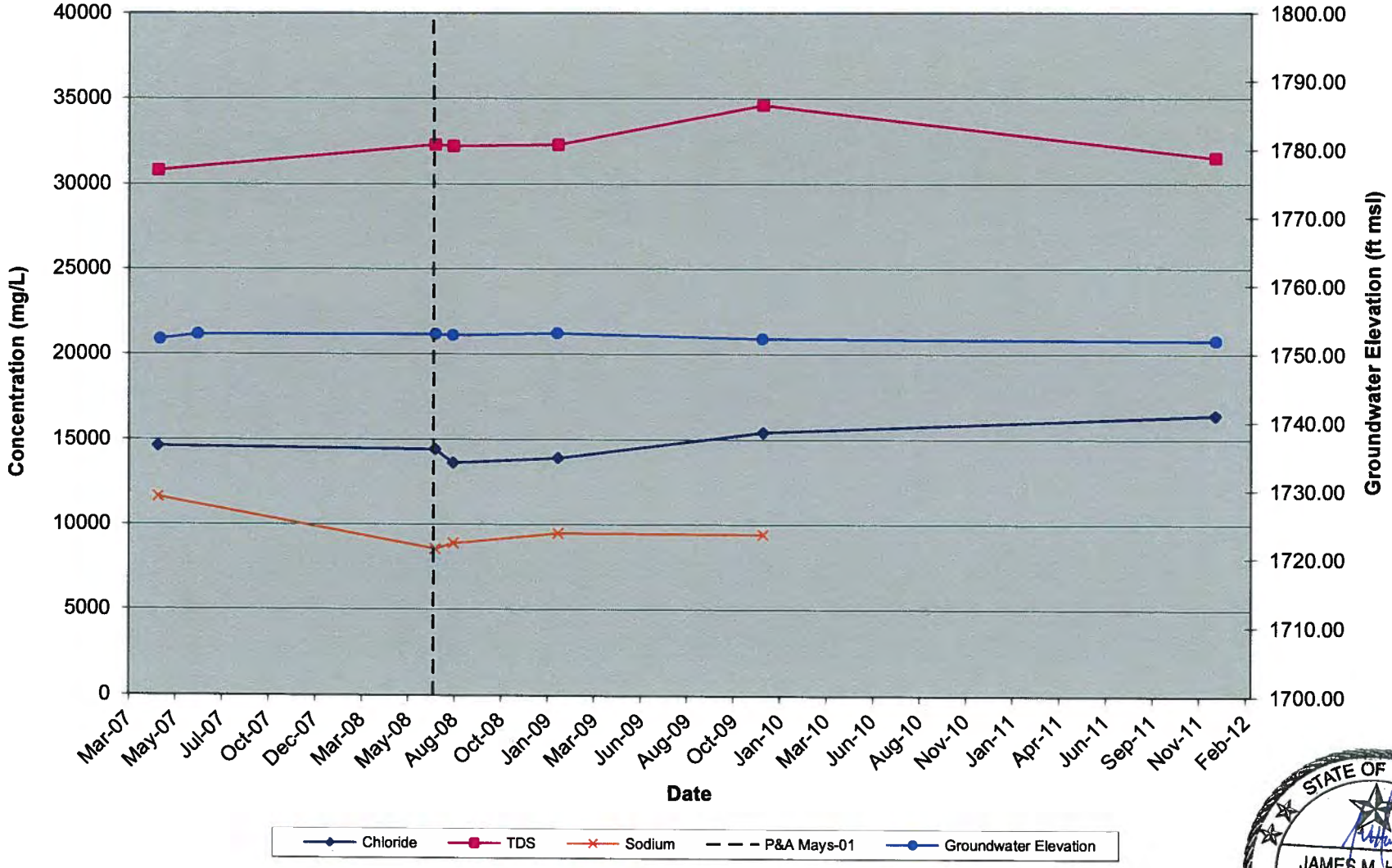
GRAPH 6. MW-05 Concentrations and Groundwater Elevations



STATE OF TEXAS
JAMES M. HARTE
GEOLOGY
No. 4018
LICENSED
PROFESSIONAL GEOSCIENTIST

02/29/12

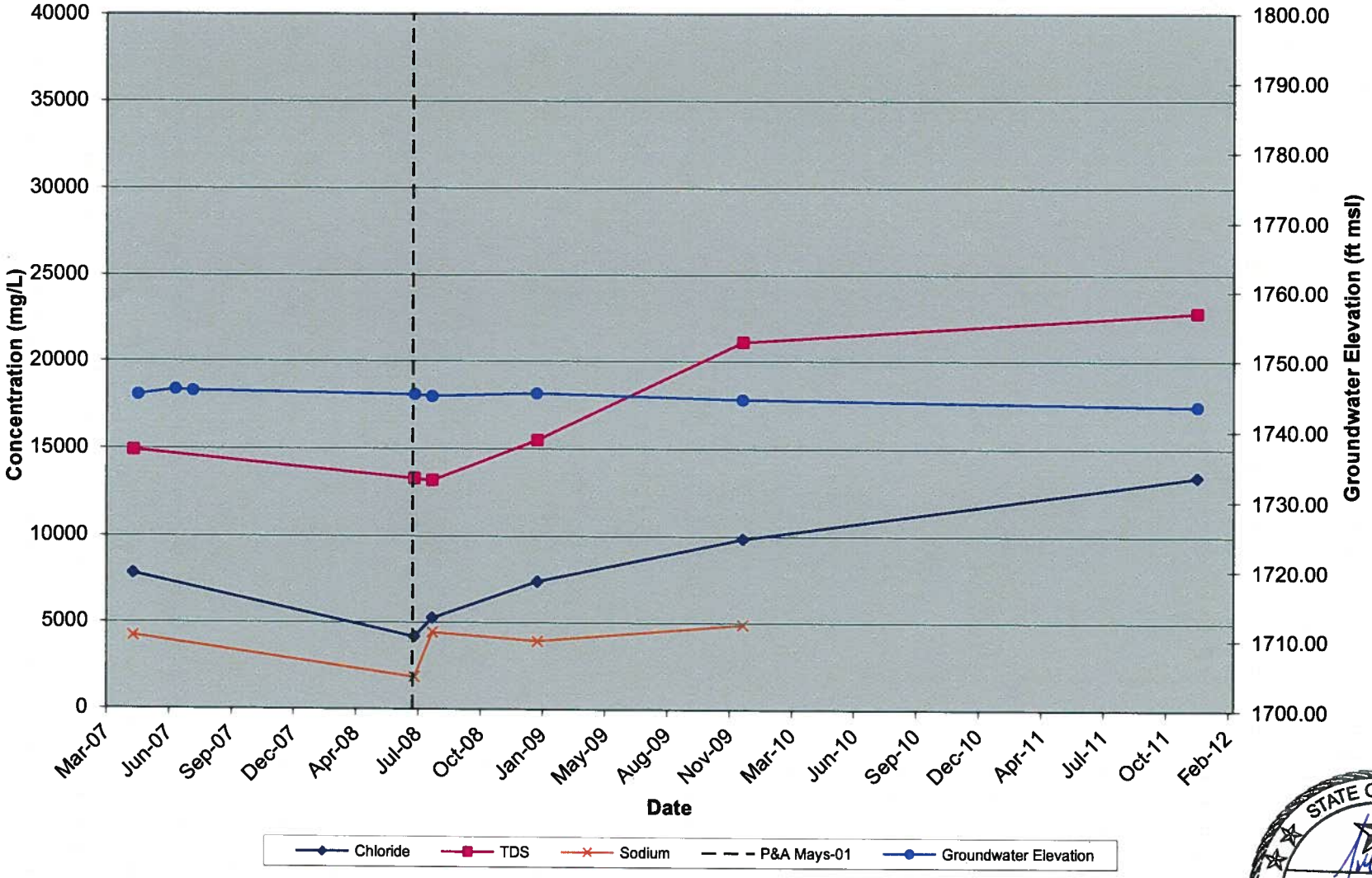
GRAPH 7. MW-10 Concentrations and Groundwater Elevations



STATE OF TEXAS
JAMES M. HARTE
GEOLOGY
No. 4018
LICENSED
PROFESSIONAL GEOSCIENTIST

02/29/12

GRAPH 8. MW-11 Concentrations and Groundwater Elevations



STATE OF TEXAS
JAMES M. HARTE
GEOLOGY
No. 4018
LICENSED
PROFESSIONAL GEOSCIENTIST

02/29/12

ATTACHMENT 1

Field Forms

SURFACE WATER SAMPLING FORM

TRC	Sample Location	SG-4314102
	Client	RRC
	Site	Wendkirk
Sample Collection Time	1210	
Sample Method	Grab	
Water Description	Clear	
Sampling Personnel	BCAP	

Date	Time	pH (SU)	Temp (C)	Conductivity (µ-siemens/cm)	TDS (ppm)	ORP (mV)
12/15/11	1210	7.61	12.2	23.03	23.58	162

Form Date: 01/24/07 Initial KV Date 12/20 Page ____ of ____

SURFACE WATER SAMPLING FORM

TRC	Sample Location	SP-01
	Client	RRC
	Site	Wendkirk
Sample Collection Time	1500	
Sample Method	Grab	
Water Description	clear	
Sampling Personnel	TJC	

Date	Time	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)
12/16/11	1500	8.28	14.1	1953	1496	-11

Form Date: 01/24/07 Initial AF Date 12/20 Page _____ of _____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	OW-1		
Client	RRC		
Site	Wendkirk		
Depth to Water (ft) — Before Sampling	69.09	Sample Collection Time	945
Depth to Water (ft) — After Sampling		Purge Method	Bailer
Total Depth (ft)	97.80	Sample Method	Bailer
Standing Water Column (ft)	28.75	Water Description	slightly silty red
One Purge Volume (gal)	4.75	Sampling Personnel	BC

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (µ-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
	929	4.75	4.75		6.19	20.4	61.92	78.91	90		
	935	5.00	9.75		6.21	20.3	61.55	75.21	100		
	940	5.00	14.75		6.19	20.3	62.21	76.21	95		

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MAMS WATER WELL 02
Client	RRC
Site	WENDKIRK

Depth to Water (ft)	Before Sampling	93.24	Sample Collection Time	17:20
	After Sampling	~	Purge Method	BAILER
Total Depth (ft)		~	Sample Method	BAILER
Standing Water Column (ft)		~	Water Description	CLEAR, NO ODOR
One Purge Volume (gal)		~	Sampling Personnel	BC AF

Date	Time	Purge Volume (gal)		Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
		This Period	Cumulative								
12/16	17:20	X	X	93.24	6.85	17.9	48.34	56.21	45	X	X

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC	Sample Location	MILFORD 1	
	Client	RRC	
	Site	~~MILFORD~~ WENDKIRK	

Depth to Water (ft)	Before Sampling	83.48'	Sample Collection Time	11:15
	After Sampling	NM	Purge Method	BAILER
Total Depth (ft)		NM	Sample Method	BAILER
Standing Water Column (ft)		NM	Water Description	CLEAR, NO ODOR
One Purge Volume (gal)		NM	Sampling Personnel	BC

Date	Time	Purge Volume (gal)		Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
		This Period	Cumulative								
12/16	11:15	X	X	83.48	6.64	19.2	240.8	164.8	81	X	X

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MILFORD 2
Client	RRC
Site	WENDKIRK

Depth to Water (ft)	Before Sampling	64.43'	Sample Collection Time	11:20
	After Sampling	NM	Purge Method	BAILER
Total Depth (ft)		NM	Sample Method	BAILER
Standing Water Column (ft)		NM	Water Description	CLEAR, NO ODOR
One Purge Volume (gal)		NM	Sampling Personnel	BC

Date	Time	Purge Volume (gal)		Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
		This Period	Cumulative								
12/16	11:20	X	X	64.43	7.72	19.5	3441	2728	-113	X	X

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-01		
Client	RRC		
Site	Wendkirk		
Depth to Water (ft) — Before Sampling	27.68' ~~44.12~~	Sample Collection Time	13:25
Depth to Water (ft) — After Sampling	NM	Purge Method	Bailer
Total Depth (ft)	44.12	Sample Method	"
Standing Water Column (ft)	16.44	Water Description	Clear
One Purge Volume (gal)	2.75	Sampling Personnel	BCAF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	~~Depth to Water (ft)~~	pH (SU)	Temp (C)	Conductivity (µ-siemens/cm)	TDS (ppm)	ORP (mV)	~~Dissolved Oxygen (mg/L)~~	~~Turbidity (NTUs)~~
12/15/11	1301	2.75	2.75		7.00	21.7	27.11	27.96	135		
	1308	2.75	5.50		7.00	21.3	27.09	27.94	129		
	1311	~~2.50~~	7.00								
			*Bailed Dry								

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-02
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	29.70	Sample Collection Time	1420
	After Sampling	NM	Purge Method	Bailer
Total Depth (ft)		39.30	Sample Method	Bailer
Standing Water Column (ft)		9.6	Water Description	Clear
One Purge Volume (gal)		1.5	Sampling Personnel	BCAF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	~~Depth to Water (ft)~~	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	~~Dissolved Oxygen (mg/L)~~	~~Turbidity (NTUs)~~
12/15/11	1405	1.50	1.50		7.45	21.2	3512	2795	~~200~~ BC 215		
	1415	.05	2.00								
		* Bailed DRY									

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-03
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	23.61	Sample Collection Time	1505
	After Sampling	NM	Purge Method	Bailer
Total Depth (ft)		40.50	Sample Method	Bailer (BC)
Standing Water Column (ft)		16.89	Water Description	~~Clear~~ turbid
One Purge Volume (gal)		2.75	Sampling Personnel	BCAF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	~~Depth to Water (ft)~~	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	~~Dissolved Oxygen (mg/L)~~	~~Turbidity (NTUs)~~
12/15/1	1437	3.00	3.00		7.02	20.8	9010	7839	-1		
	1443	3.00	6.00		7.00	20.8	9157	7964	-2		
	1449	2.50	8.50		6.98	21.0	8907	7739	-7		
	1455	2.25	10.75		7.04	20.0	8960	7803	-27		
	1459	2.50	13.25		7.01	20.5	8890	7763	-16		
	1500	1.50	14.75		7.02	20.0	8891	7800	-12		

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-04
Client	RRC
Site	Wendlich

Depth to Water (ft)	Before Sampling	12.62	Sample Collection Time	1700
	After Sampling	NM	Purge Method	Bailer
Total Depth (ft)		35.91	Sample Method	Bailer
Standing Water Column (ft)		21.29	Water Description	Silty Red
One Purge Volume (gal)		3.50	Sampling Personnel	BCAP

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
12/8/11	~~1605~~	12.00	12.00		6.84	19.7	1542	112.44	-19		
		* Bailed to Recharge Quickly									

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-05
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	19.60	Sample Collection Time	16:15
	After Sampling	NM	Purge Method	BAILER
Total Depth (ft)		35.57	Sample Method	BAILER
Standing Water Column (ft)		15.97	Water Description	TURBID, NO ODOR, LIGHT GRAY
One Purge Volume (gal)		2.75	Sampling Personnel	AF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
12/16	15:47	2.75	2.75	X	6.65	19.5	38.38	42.42	7	X	X
	15:56	2.75	5.50	X	6.75	19.3	38.63	42.77	-16	X	X
	16:06	2.75	8.25	X	6.73	19.6	38.33	42.39	-22	X	X
	16:16	3.0	11.25	X	6.72	19.8	38.29	42.36	-17	X	X

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-06
Client	RRC
Site	WENDKIRK

Depth to Water (ft)	Before Sampling	51.86	Sample Collection Time	14:25
	After Sampling	NM	Purge Method	BAILER
Total Depth (ft)		91.54	Sample Method	BAILER
Standing Water Column (ft)		39.68	Water Description	CLEAR, SOME TURBIDITY
One Purge Volume (gal)		6.75	Sampling Personnel	BC AF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
12/16	13:55	6.75	6.75	x	6.86	19.9	17.13	16.38	-41	x	x
	14:04	5	11.75	x	6.87	20.2	17.26	16.52	-39	x	x
	14:22	5	16.75	x	6.88	19.9	17.27	16.50	-36	x	x

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-7
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	31.01	Sample Collection Time	1100
	After Sampling	NM	Purge Method	Bailer
Total Depth (ft)		40.65	Sample Method	Bailer
Standing Water Column (ft)		11.64	Water Description	~~Clear~~. Slightly turbid
One Purge Volume (gal)		2.0	Sampling Personnel	BCAP

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	~~Depth to Water (ft)~~	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	~~Dissolved Oxygen (mg/L)~~	~~Turbidity (NTUs)~~
12/16/11	1030	2.0	2.0		7.46	20.1	2149	1907	-43		
	1037	2.0	4.0		7.39	20.4	1876	1870	-51		
	1045	2.0	2.0		7.36	20.8	2119	1861	-50		
		* Bailed Dry									

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-8		
Client	RRC		
Site	Wendkirk		
Depth to Water (ft) — Before Sampling	35.53	Sample Collection Time	950
Depth to Water (ft) — After Sampling	NM	Purge Method	Bailer
Total Depth (ft)	63.30	Sample Method	Bail
Standing Water Column (ft)	27.77	Water Description	Clear
One Purge Volume (gal)	4.75	Sampling Personnel	BCAF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
12/10/11	920	5.0	5.0		7.07	19.8	12.49	11.34	28		
	925	5.0	10.0		7.08	19.8	12.50	11.35	29		
	942	5.0	15.0		7.09	19.9	12.47	11.99	34		
	949	2.5	17.7		7.07	19.9	12.44	11.01	30		

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-09
Client	RRC
Site	WENDKIRK

Depth to Water (ft)	Before Sampling	17.85'	Sample Collection Time	12:30
	After Sampling	NM	Purge Method	BAILER
Total Depth (ft)		31.24'	Sample Method	BAILER
Standing Water Column (ft)		13.79	Water Description	CLEAR
One Purge Volume (gal)		2.25	Sampling Personnel	BC

Date	Time	Purge Volume (gal)		Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
		This Period	Cumulative								
12/16	12:30	4.5	4.5	X	6.94	19.3	3084	2423	-26	X	X
*PURGED DRY PARAMETERS TAKEN @ SAMPLING											

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-10
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	15.14	Sample Collection Time	1530
	After Sampling	NM	Purge Method	Bailer
Total Depth (ft)		73.87	Sample Method	Bailer
Standing Water Column (ft)		58.73	Water Description	Clear
One Purge Volume (gal)		10.00	Sampling Personnel	AFDC

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
12/16/11	1551	10.0	10.0	X	6.79	19.7	42.81	48.22	-16	X	X
	1610	10.5	20.5	X	6.70	19.9	42.58	47.87	-12	X	X
	1628	9.5	30.0	X	6.77	19.5	42.27	47.57	-8	X	X

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-11
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	23.25	Sample Collection Time	1635
	After Sampling	NM	Purge Method	Bailer
Total Depth (ft)		32.80	Sample Method	Bailer
Standing Water Column (ft)		9.55	Water Description	CLEAR
One Purge Volume (gal)		1.50	Sampling Personnel	BCAF

*ERR Equipment ERROR

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	~~Depth to Water (ft)~~	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	~~Dissolved Oxygen (mg/L)~~	~~Turbidity (NTUs)~~
12/15/11	1630	17.00	17.00		ERR	ERR	ERR	ERR	ERR		

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-12		
Client	RFC		
Site	Wendkirk		
Depth to Water (ft) — Before Sampling	18.56	Sample Collection Time	8:55 am
Depth to Water (ft) — After Sampling	~ m	Purge Method	Bailer
Total Depth (ft)	43.33	Sample Method	Bailer
Standing Water Column (ft)	24.77	Water Description	clear
One Purge Volume (gal)	4.25	Sampling Personnel	BL

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
12/12/11	835	5.0	5.0		6.76	20.4	43.27	48.90	10		
	845	5.0	10.0		6.81	20.3	52.21	50.59	14		
	850	3.0	13.0		6.77	20.3	51.99	49.81	20		
			*Bailed								
			Dry								

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-13
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	19.49	Sample Collection Time	12:15
	After Sampling	—	Purge Method	Bailer
Total Depth (ft)		28.44	Sample Method	Bailer
Standing Water Column (ft)		8.95	Water Description	TURBID, LOT OF SOLIDS, ORANGE
One Purge Volume (gal)		1.5	Sampling Personnel	AF

Date	Time	Purge Volume (gal)		Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
		This Period	Cumulative								
12/16	12:02	1.5	1.5	X	6.80	20.3	16.82	16.00	-37	X	X
	12:07	1.5	3.0	X	6.83	21.0	15.85	14.90	-32	X	X
	12:12	1.5	4.5	X	6.83	20.7	15.41	14.40	-28	X	X

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-14
Client	RRC
Site	WenAkirk

Depth to Water (ft)	Before Sampling	25.34	Sample Collection Time	1005
	After Sampling	NM	Purge Method	BAILER
Total Depth (ft)		81.91	Sample Method	Bailer
Standing Water Column (ft)		56.57	Water Description	clear
One Purge Volume (gal)		9.5	Sampling Personnel	BCAF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	~~Depth to Water (ft)~~	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	~~Dissolved Oxygen (mg/L)~~	~~Turbidity (NTUs)~~
12/16/11	902	9.50	9.50		6.87	20.1	22.55	22.77	50		
	914	4.00	13.50		6.99	20.2	24.99	25.09	85		
		* Bailed Dry									

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-15
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	27.45	Sample Collection Time	1545
	After Sampling	NM	Purge Method	Bailer
Total Depth (ft)		43.43	Sample Method	Bailer
Standing Water Column (ft)		15.98	Water Description	Clear
One Purge Volume (gal)		2.75	Sampling Personnel	BCAP

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (µ-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
12/15/11	1525	2.75	2.75		7.10	20.09	19.78	19.92	-48		
	1532	3.00	5.75								
		*Bailed	DM								

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-16
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	16.51	Sample Collection Time	1520
	After Sampling	~~	Purge Method	Bailer
Total Depth (ft)		38.58	Sample Method	Bailer
Standing Water Column (ft)		22.07	Water Description	clear
One Purge Volume (gal)		3.75	Sampling Personnel	RCAF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
12/16	15:00	3.75	3.75	X	7.08	22.1	5865	4870	3	X	X
	15:07	3.75	7.50	X	6.98	21.4	7063	5967	37	X	X
		*bailed Dry									

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-17
Client	RRC
Site	Wendkirk

Depth to Water (ft)	Before Sampling	65.13'	Sample Collection Time	1705
	After Sampling	~	Purge Method	Bailer
Total Depth (ft)		75.10	Sample Method	Bailer
Standing Water Column (ft)		10.03	Water Description	clear
One Purge Volume (gal)		1.67	Sampling Personnel	BCAF

* ERR Equipment malfunction

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	~~Depth to Water (ft)~~	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	~~Dissolved Oxygen (mg/L)~~	~~Turbidity (NTUs)~~
12/17/11	1653	2.0	2.0		ERR	ERR	ERR	ERR	ERR		
		* Bailed DRY									

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-18 (And MW-18-D)		
Client	RRC		
Site	Wendkirk		
Depth to Water (ft) — Before Sampling	20.02	Sample Collection Time	9:45 AM
Depth to Water (ft) — After Sampling	~~	Purge Method	Bailer
Total Depth (ft)	69.50	Sample Method	Bailer
Standing Water Column (ft)	49.48	Water Description	TURBID, ORANGE, NO ODOR
One Purge Volume (gal)	8.5	Sampling Personnel	AF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	~~Depth to Water (ft)~~	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm) ppt	ORP (mV)	~~Dissolved Oxygen (mg/L)~~	~~Turbidity (NTUs)~~
12/17/16	8:45	8.5	8.5		6.24	19.8	65.54	79.04	50		
	9:25	8.5	19		6.32	19.1	66.95	81.43	26		
	9:45	8.5	27.5		6.360	19.2	66.62	80.71	21		

Form Date: 01/24/07

Initial AF Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-19
Client	RRC
Site	WENDKIRK

Depth to Water (ft)	Before Sampling	76.55	Sample Collection Time	1030
	After Sampling	NM	Purge Method	BAILER
Total Depth (ft)		110.50	Sample Method	BAILER
Standing Water Column (ft)		33.95	Water Description	CLEAR
One Purge Volume (gal)		5.75	Sampling Personnel	BC

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	~~Depth to Water (ft)~~	pH (SU)	Temp (C)	Conductivity (µ-siemens/cm)	TDS (ppm)	ORP (mV)	~~Dissolved Oxygen (mg/L)~~	~~Turbidity (NTUs)~~
12/17/11	1008	6.00	6.0		6.80	21.1	24.49	25.52	47		
	1018	6.00	12.0		6.80	20.8	26.61	27.00	45		
	1023	1.50	13.5		6.78	20.8	26.54	27.43	35		
	1025	1.50	15.0		6.71	21.0	26.75	27.49	32		
	1028	1.50	16.5		6.73	21.2	26.77	27.55	30		

Form Date: 01/24/07

Initial AK Date 12/20

Page ____ of ____

GROUNDWATER SAMPLING FORM

TRC

Sample Location	MW-20		
Client	RRC		
Site	Wendkorle		
Depth to Water (ft) — Before Sampling	89.27	Sample Collection Time	755 (12/17/11)
Depth to Water (ft) — After Sampling	NM	Purge Method	BAILER
Total Depth (ft)	118.87	Sample Method	BAILER
Standing Water Column (ft)	28.8	Water Description	TURBID, ORANGE
One Purge Volume (gal)	5.0	Sampling Personnel	BC AF

Date	Time	Purge Volume (gal) This Period	Purge Volume (gal) Cumulative	Depth to Water (ft)	pH (SU)	Temp (C)	Conductivity (u-siemens/cm)	TDS (ppm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTUs)
12/16	1800	5.0	50	X	7.03	19.3	5144	4240	-3	X	X
	1806	2.0	7.0								
		* Bailed Dry									

Form Date: 01/24/07

Initial Af Date 12/20

Page ____ of ____

Attachment 2

Laboratory Analytical Data Reports

(See Attached CD)

December 28, 2011

Daniel Stine
TRC Environmental Corp.
505 East Huntland Drive Suite 250
Austin, Texas 78752

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

Order No: 1112140

RE: RRC - Wendkirk

Dear Daniel Stine:

DHL Analytical received 27 sample(s) on 12/17/2011 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: T104704211-11-7

Table of Contents

Miscellaneous Documents **3**

Case Narrative **9**

Sample Summary **10**

Prep Dates Report **11**

Analytical Dates Report **15**

Sample Results **19**

Analytical QC Summary Report **46**

MQL Summary Report **55**

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 53433

CHAIN-OF-CUSTODY

CLIENT: TRC
ADDRESS:
PHONE: FAX/E-MAIL:
DATA REPORTED TO: DAN Stine
ADDITIONAL REPORT COPIES TO: DStine@trcsolutions.com

DATE: 12/17/11 PAGE 1 OF 2
PO #: DHL WORK ORDER #: 1112140
PROJECT LOCATION OR NAME: TRC-Wendkirk
CLENT PROJECT #: COLLECTOR: BCAF

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

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID

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

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8081 PEST ☐ 608 PEST/PCB ☐ 8270 PEST ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐ | METALS 6020 ☐ METALS 2008 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ ALKALINITY ☐ | PH ☐ HEX CHROM ☐ ANIONS ☒ see notes ☐ | CHLORIDE ☒ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	Chloride	TDS	FIELD NOTES
W-SG-4314102-01	01	12/15/11	1210	W	500mL poly	1				X		X	X	ANIONS = Chloride, Bromide, Sulfate
W-MW-01	02		1325	W		1						X	X	
W-MW-02	03		1420	W		1						X	X	
W-MW-03	04		1505	W		1						X	X	
W-MW-15	05		1545	W		1						X	X	
W-MW-11	06		1635	W		1						X	X	
W-MW-17	07		1705	W		1						X	X	
W-MW-8	08	12/16/11	0950	W		1						X	X	
W-MW-7	09		1100	W		1						X	X	
W-MW-MilForkOl	10		1115	W		1						X	X	? Not on Hold pm
W-MW-MilForkOl-02	11		1120	W		1						X	X	(Anchow 12/19/11 JO)
W-MW-13	12		1215	W		1						X	X	
W-MW-9	13		1230	W		1						X	X	
W-MW-6	14		1425	W		1						X	X	
W-SP-01	15		1500	W		1						X	X	

TOTAL

RELINQUISHED BY: (Signature) DATE/TIME 12/18/11 1500 RECEIVED BY: (Signature)
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: 23 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #:
☐ APC DELIVERY
☒ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 53435

CHAIN-OF-CUSTODY

CLIENT: TRC
ADDRESS:
PHONE: FAX/E-MAIL:
DATA REPORTED TO:
ADDITIONAL REPORT COPIES TO:

DATE: PAGE 2 OF 2
PO #: DHL WORK ORDER #: 1112140
PROJECT LOCATION OR NAME: RRC - Bandera
CLENT PROJECT #: COLLECTOR: BCAF

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

S=SOIL W=WATER A=AIR L=LIQUID P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: 8260/5035 ☐	8081 PEST ☐ 608 PEST/PCB ☐ 8082 PCB ☐ 8270 PCB ☐	8270 O-P PEST ☐ 8270 PEST ☐	8321 HERB ☐ 8330 EXPL ☐ PERCHLORATE ☐	METALS 6020 ☐ METALS-200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐	PH ☐ HEX CHROM ☐ ALKALINITY ☐	CHLORIDE ☒ ANIONS ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐	FIELD NOTES
W-MW-16	16	12/16/11	1520	W	500 poly	1				X									X			X		
W-MW-05	17		1615			1				X									X			X		
W-MW-04	18		1655			1				X									X			X		
W-WW-MW13-02	19		1720			1				X									X			X		
W-MW-20	20	12/17/11	755			1				X									X			X		
W-MW-12	21		855			1				X									X			X		
W-OW-1	22		945			1				X									X			X		
W-MW-19	23		1030			1				X									X			X		
W-MW-18	24	12/17/11	945	W		1				X									X			X		
W-MW-18-D	25	12/17/11	945	W		1				X									X			X		
W-MW-14	26	12/16/11	1005			1				X									X			X		
W-MW-10	27	12/16/11	1530			1				X									X			X		
TOTAL																								

RELINQUISHED BY: (Signature) DATE/TIME 12/16/11 RECEIVED BY: (Signature) 1500
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: 2.3 THERM #: 57
CUSTODY SEALS: ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #:
☐ APC DELIVERY
☐ HAND DELIVERED

DHL Analytical

Sample Receipt Checklist

Client Name TRC Environmental Corp. Date Received: 12/17/2011

Work Order Number 1112140 Received by JB

Checklist completed by: [signature] (Signature) 12/19/2011 (Date) Reviewed by SJ (Initials) 12/19/2011 (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 ☑	SJ 12-20-2011
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 ☐	2.3 °C
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 TRC Date contacted: 12/16/11 Person contacted Andrew

Contacted by: [signature] Regarding: MW-14 + MW-10

Comments: Per Andrew, add samples to COC and analyze.

Corrective Action Added samples to COC and logged in for requested analysis.

Page 1 of 1

Laboratory Data Package Signature Page – RG-366/TRRP-13

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 Chapter 5,
  - 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) and detectability check sample results (DCS results can be found with the Miscellaneous Documents) 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 and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on May 17-20, 2011. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager Scott Schroeder – Technical Director	Scott Schroeder Signature	12-28-11 Date

DHL Analytical, Inc.

Laboratory Review Checklist: Reportable Data

Project Name: RRC - Wendkirk	Date: 12/28/2011
Reviewer Name: Angie O'Donnell	Laboratory Work Order: 1112140
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?	X				R1-01
		2) Were all departures from standard conditions described in an exception report?	X				
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	X				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		3) Were calculations checked by a peer or supervisor?	X				
		4) Were all analyte identifications checked by a peer or supervisor?	X				
		5) Were sample detection limits reported for all analytes not detected?	X				
		6) Were all results for soil and sediment samples reported on a dry weight basis?			X		
		7) Were % moisture (or solids) reported for all soil and sediment samples?			X		
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			X		
		9) If required for the project, TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?			X		
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	X				
		2) Were blanks analyzed at the appropriate frequency?	X				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		4) Were blank concentrations < MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	X				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		3) Were LCSs analyzed at the required frequency?	X				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		6) Was the LCSD RPD within QC limits (if applicable)?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	X				
		2) Were MS/MSD analyzed at the appropriate frequency?	X				
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			R7-03
		4) Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?	X				
		2) Were analytical duplicates analyzed at the appropriate frequency?	X				
		3) Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	X				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				R10-01
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	X				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

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 - Wendkirk	Date: 12/28/2011
Reviewer Name: Angie O'Donnell	Laboratory Work Order: 1112140

#[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?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
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?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?			X		
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?			X		
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

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).

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

CASE NARRATIVE

The sample was analyzed using the methods outlined in the following references:

Method M2540C - Total Dissolved Solids
Method E300 - Anions by IC

Exception Report R1-01

The samples were received and log-in performed on 12/18/2011. A total of 27 samples were received and all were analyzed. The samples arrived in good condition and were properly packaged. Samples W-MW-14 and W-MW-10 were added to the Chain of Custody per the client's request on 12/19/2011. Additionally, samples indicated by client are not on hold for analysis per the client on 12/19/2011.

Exception Report R7-03

For Anions Analysis, batch 49683, the recoveries of Bromide and/or Chloride for the Matrix Spike and Matrix Spike Duplicate (1112140-26 MS/MSD) were slightly above the method control limits. These are flagged accordingly in the QC Summary Report. These analytes were within method control limits in the associated LCS's. The reference samples selected for the QC sample was from this workorder. No further corrective action was taken.

Exception Report R10-01

For Anions Analysis, some of the samples were diluted for Bromide due to concentration of anions.

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recv'd
1112140-01	W-SG-4314102-01		12/15/11 12:10 PM	12/17/11
1112140-02	W-MW-01		12/15/11 01:25 PM	12/17/11
1112140-03	W-MW-02		12/15/11 02:20 PM	12/17/11
1112140-04	W-MW-03		12/15/11 03:05 PM	12/17/11
1112140-05	W-MW-15		12/15/11 03:45 PM	12/17/11
1112140-06	W-MW-11		12/15/11 04:35 PM	12/17/11
1112140-07	W-MW-17		12/15/11 05:05 PM	12/17/11
1112140-08	W-MW-8		12/16/11 09:50 AM	12/17/11
1112140-09	W-MW-7		12/16/11 11:00 AM	12/17/11
1112140-10	W-WW-Milford-01		12/16/11 11:15 AM	12/17/11
1112140-11	W-WW-Milford-02		12/16/11 11:20 AM	12/17/11
1112140-12	W-MW-13		12/16/11 12:15 PM	12/17/11
1112140-13	W-MW-9		12/16/11 12:30 PM	12/17/11
1112140-14	W-MW-6		12/16/11 02:25 PM	12/17/11
1112140-15	W-SP-01		12/16/11 03:00 PM	12/17/11
1112140-16	W-MW-16		12/16/11 03:20 PM	12/17/11
1112140-17	W-MW-05		12/16/11 04:15 PM	12/17/11
1112140-18	W-MW-04		12/16/11 04:55 PM	12/17/11
1112140-19	W-WW-Mays-02		12/16/11 05:20 PM	12/17/11
1112140-20	W-MW-20		12/17/11 07:55 AM	12/17/11
1112140-21	W-MW-12		12/17/11 08:55 AM	12/17/11
1112140-22	W-OW-1		12/17/11 09:45 AM	12/17/11
1112140-23	W-MW-19		12/17/11 10:30 AM	12/17/11
1112140-24	W-MW-18		12/17/11 09:45 AM	12/17/11
1112140-25	W-MW-18-D		12/17/11 09:45 AM	12/17/11
1112140-26	W-MW-14		12/16/11 10:05 AM	12/17/11
1112140-27	W-MW-10		12/16/11 03:30 PM	12/17/11

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1112140-01A	W-SG-4314102-01	12/15/11 12:10 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-SG-4314102-01	12/15/11 12:10 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-SG-4314102-01	12/15/11 12:10 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-SG-4314102-01	12/15/11 12:10 PM	Aqueous	M2540C	TDS Preparation	12/21/11 04:30 PM	49665
1112140-02A	W-MW-01	12/15/11 01:25 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-01	12/15/11 01:25 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-01	12/15/11 01:25 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-01	12/15/11 01:25 PM	Aqueous	M2540C	TDS Preparation	12/21/11 04:30 PM	49665
1112140-03A	W-MW-02	12/15/11 02:20 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-02	12/15/11 02:20 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-02	12/15/11 02:20 PM	Aqueous	M2540C	TDS Preparation	12/21/11 04:30 PM	49665
1112140-04A	W-MW-03	12/15/11 03:05 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-03	12/15/11 03:05 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-03	12/15/11 03:05 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-03	12/15/11 03:05 PM	Aqueous	M2540C	TDS Preparation	12/21/11 04:30 PM	49665
1112140-05A	W-MW-15	12/15/11 03:45 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-15	12/15/11 03:45 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-15	12/15/11 03:45 PM	Aqueous	M2540C	TDS Preparation	12/21/11 04:30 PM	49665
1112140-06A	W-MW-11	12/15/11 04:35 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-11	12/15/11 04:35 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-11	12/15/11 04:35 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-11	12/15/11 04:35 PM	Aqueous	M2540C	TDS Preparation	12/21/11 04:30 PM	49665
1112140-07A	W-MW-17	12/15/11 05:05 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-17	12/15/11 05:05 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-17	12/15/11 05:05 PM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-17	12/15/11 05:05 PM	Aqueous	M2540C	TDS Preparation	12/21/11 04:30 PM	49665
1112140-08A	W-MW-8	12/16/11 09:50 AM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-8	12/16/11 09:50 AM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-8	12/16/11 09:50 AM	Aqueous	M2540C	TDS Preparation	12/21/11 04:30 PM	49665

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1112140-09A	W-MW-7	12/16/11 11:00 AM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-7	12/16/11 11:00 AM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-MW-7	12/16/11 11:00 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-10A	W-WW-Milford-01	12/16/11 11:15 AM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-WW-Milford-01	12/16/11 11:15 AM	Aqueous	E300	Anion Preparation	12/20/11 08:54 AM	49659
	W-WW-Milford-01	12/16/11 11:15 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-11A	W-WW-Milford-02	12/16/11 11:20 AM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-WW-Milford-02	12/16/11 11:20 AM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-WW-Milford-02	12/16/11 11:20 AM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-WW-Milford-02	12/16/11 11:20 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-12A	W-MW-13	12/16/11 12:15 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-13	12/16/11 12:15 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-13	12/16/11 12:15 PM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-13A	W-MW-9	12/16/11 12:30 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-9	12/16/11 12:30 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-9	12/16/11 12:30 PM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-14A	W-MW-6	12/16/11 02:25 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-6	12/16/11 02:25 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-6	12/16/11 02:25 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-6	12/16/11 02:25 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-6	12/16/11 02:25 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-6	12/16/11 02:25 PM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-15A	W-SP-01	12/16/11 03:00 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-SP-01	12/16/11 03:00 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-SP-01	12/16/11 03:00 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-SP-01	12/16/11 03:00 PM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-16A	W-MW-16	12/16/11 03:20 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-16	12/16/11 03:20 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-16	12/16/11 03:20 PM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1112140-17A	W-MW-05	12/16/11 04:15 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-05	12/16/11 04:15 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-05	12/16/11 04:15 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-05	12/16/11 04:15 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-05	12/16/11 04:15 PM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-18A	W-MW-04	12/16/11 04:55 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-04	12/16/11 04:55 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-04	12/16/11 04:55 PM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-19A	W-WW-Mays-02	12/16/11 05:20 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-WW-Mays-02	12/16/11 05:20 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-WW-Mays-02	12/16/11 05:20 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-WW-Mays-02	12/16/11 05:20 PM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-WW-Mays-02	12/16/11 05:20 PM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-20A	W-MW-20	12/17/11 07:55 AM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-20	12/17/11 07:55 AM	Aqueous	E300	Anion Preparation	12/21/11 08:36 AM	49668
	W-MW-20	12/17/11 07:55 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-21A	W-MW-12	12/17/11 08:55 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-12	12/17/11 08:55 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-12	12/17/11 08:55 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-12	12/17/11 08:55 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-22A	W-OW-1	12/17/11 09:45 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-OW-1	12/17/11 09:45 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-OW-1	12/17/11 09:45 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-OW-1	12/17/11 09:45 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-23A	W-MW-19	12/17/11 10:30 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-19	12/17/11 10:30 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-19	12/17/11 10:30 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-19	12/17/11 10:30 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-19	12/17/11 10:30 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1112140-24A	W-MW-18	12/17/11 09:45 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-18	12/17/11 09:45 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-18	12/17/11 09:45 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-18	12/17/11 09:45 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-25A	W-MW-18-D	12/17/11 09:45 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-18-D	12/17/11 09:45 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-18-D	12/17/11 09:45 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-18-D	12/17/11 09:45 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-26A	W-MW-14	12/16/11 10:05 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-14	12/16/11 10:05 AM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-14	12/16/11 10:05 AM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690
1112140-27A	W-MW-10	12/16/11 03:30 PM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-10	12/16/11 03:30 PM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-10	12/16/11 03:30 PM	Aqueous	E300	Anion Preparation	12/22/11 08:39 AM	49683
	W-MW-10	12/16/11 03:30 PM	Aqueous	M2540C	TDS Preparation	12/22/11 04:30 PM	49690

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1112140-01A	W-SG-4314102-01	Aqueous	E300	Anions by IC method - Water	49659	100	12/20/11 09:46 AM	IC_111220A
	W-SG-4314102-01	Aqueous	E300	Anions by IC method - Water	49659	1000	12/20/11 10:44 AM	IC_111220A
	W-SG-4314102-01	Aqueous	E300	Anions by IC method - Water	49659	10	12/20/11 01:41 PM	IC_111220A
	W-SG-4314102-01	Aqueous	M2540C	Total Dissolved Solids	49665	1	12/21/11 04:30 PM	WC_111221B
1112140-02A	W-MW-01	Aqueous	E300	Anions by IC method - Water	49659	100	12/20/11 09:58 AM	IC_111220A
	W-MW-01	Aqueous	E300	Anions by IC method - Water	49659	1000	12/20/11 10:56 AM	IC_111220A
	W-MW-01	Aqueous	E300	Anions by IC method - Water	49659	10	12/20/11 01:52 PM	IC_111220A
	W-MW-01	Aqueous	M2540C	Total Dissolved Solids	49665	1	12/21/11 04:30 PM	WC_111221B
1112140-03A	W-MW-02	Aqueous	E300	Anions by IC method - Water	49659	100	12/20/11 10:10 AM	IC_111220A
	W-MW-02	Aqueous	E300	Anions by IC method - Water	49659	1	12/20/11 04:12 PM	IC_111220A
	W-MW-02	Aqueous	M2540C	Total Dissolved Solids	49665	1	12/21/11 04:30 PM	WC_111221B
1112140-04A	W-MW-03	Aqueous	E300	Anions by IC method - Water	49659	1000	12/20/11 10:21 AM	IC_111220A
	W-MW-03	Aqueous	E300	Anions by IC method - Water	49659	100	12/20/11 11:08 AM	IC_111220A
	W-MW-03	Aqueous	E300	Anions by IC method - Water	49659	1	12/20/11 02:15 PM	IC_111220A
	W-MW-03	Aqueous	M2540C	Total Dissolved Solids	49665	1	12/21/11 04:30 PM	WC_111221B
1112140-05A	W-MW-15	Aqueous	E300	Anions by IC method - Water	49659	1000	12/20/11 10:33 AM	IC_111220A
	W-MW-15	Aqueous	E300	Anions by IC method - Water	49659	1	12/20/11 02:26 PM	IC_111220A
	W-MW-15	Aqueous	M2540C	Total Dissolved Solids	49665	1	12/21/11 04:30 PM	WC_111221B
1112140-06A	W-MW-11	Aqueous	E300	Anions by IC method - Water	49659	1000	12/20/11 11:34 AM	IC_111220A
	W-MW-11	Aqueous	E300	Anions by IC method - Water	49659	100	12/20/11 12:34 PM	IC_111220A
	W-MW-11	Aqueous	E300	Anions by IC method - Water	49659	10	12/20/11 02:38 PM	IC_111220A
	W-MW-11	Aqueous	M2540C	Total Dissolved Solids	49665	1	12/21/11 04:30 PM	WC_111221B
1112140-07A	W-MW-17	Aqueous	E300	Anions by IC method - Water	49659	1000	12/20/11 11:46 AM	IC_111220A
	W-MW-17	Aqueous	E300	Anions by IC method - Water	49659	100	12/20/11 12:46 PM	IC_111220A
	W-MW-17	Aqueous	E300	Anions by IC method - Water	49659	10	12/20/11 02:50 PM	IC_111220A
	W-MW-17	Aqueous	M2540C	Total Dissolved Solids	49665	1	12/21/11 04:30 PM	WC_111221B
1112140-08A	W-MW-8	Aqueous	E300	Anions by IC method - Water	49659	1000	12/20/11 11:57 AM	IC_111220A
	W-MW-8	Aqueous	E300	Anions by IC method - Water	49659	10	12/20/11 03:01 PM	IC_111220A
	W-MW-8	Aqueous	M2540C	Total Dissolved Solids	49665	1	12/21/11 04:30 PM	WC_111221B

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1112140-09A	W-MW-7	Aqueous	E300	Anions by IC method - Water	49659	10	12/20/11 12:09 PM	IC_111220A
	W-MW-7	Aqueous	E300	Anions by IC method - Water	49659	1	12/20/11 03:13 PM	IC_111220A
	W-MW-7	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-10A	W-WW-Milford-01	Aqueous	E300	Anions by IC method - Water	49659	100	12/20/11 12:21 PM	IC_111220A
	W-WW-Milford-01	Aqueous	E300	Anions by IC method - Water	49659	1	12/20/11 03:24 PM	IC_111220A
	W-WW-Milford-01	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-11A	W-WW-Milford-02	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 09:32 AM	IC_111221A
	W-WW-Milford-02	Aqueous	E300	Anions by IC method - Water	49668	10	12/21/11 10:30 AM	IC_111221A
	W-WW-Milford-02	Aqueous	E300	Anions by IC method - Water	49668	1	12/21/11 12:46 PM	IC_111221A
	W-WW-Milford-02	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-12A	W-MW-13	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 09:43 AM	IC_111221A
	W-MW-13	Aqueous	E300	Anions by IC method - Water	49668	10	12/21/11 12:59 PM	IC_111221A
	W-MW-13	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-13A	W-MW-9	Aqueous	E300	Anions by IC method - Water	49668	10	12/21/11 09:55 AM	IC_111221A
	W-MW-9	Aqueous	E300	Anions by IC method - Water	49668	1	12/21/11 01:11 PM	IC_111221A
	W-MW-9	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-14A	W-MW-6	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 10:06 AM	IC_111221A
	W-MW-6	Aqueous	E300	Anions by IC method - Water	49668	1	12/21/11 01:47 PM	IC_111221A
	W-MW-6	Aqueous	E300	Anions by IC method - Water	49668	10	12/21/11 01:59 PM	IC_111221A
	W-MW-6	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 04:14 PM	IC_111221A
	W-MW-6	Aqueous	E300	Anions by IC method - Water	49668	1000	12/21/11 04:37 PM	IC_111221A
	W-MW-6	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-15A	W-SP-01	Aqueous	E300	Anions by IC method - Water	49668	10	12/21/11 10:18 AM	IC_111221A
	W-SP-01	Aqueous	E300	Anions by IC method - Water	49668	1	12/21/11 02:11 PM	IC_111221A
	W-SP-01	Aqueous	E300	Anions by IC method - Water	49668	10	12/21/11 04:26 PM	IC_111221A
	W-SP-01	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-16A	W-MW-16	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 11:19 AM	IC_111221A
	W-MW-16	Aqueous	E300	Anions by IC method - Water	49668	10	12/21/11 02:22 PM	IC_111221A
	W-MW-16	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1112140-17A	W-MW-05	Aqueous	E300	Anions by IC method - Water	49668	1000	12/21/11 11:31 AM	IC_111221A
	W-MW-05	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 12:23 PM	IC_111221A
	W-MW-05	Aqueous	E300	Anions by IC method - Water	49668	10	12/21/11 02:34 PM	IC_111221A
	W-MW-05	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 02:45 PM	IC_111221A
	W-MW-05	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-18A	W-MW-04	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 11:42 AM	IC_111221A
	W-MW-04	Aqueous	E300	Anions by IC method - Water	49668	1	12/21/11 02:57 PM	IC_111221A
	W-MW-04	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-19A	W-WW-Mays-02	Aqueous	E300	Anions by IC method - Water	49668	1000	12/21/11 11:54 AM	IC_111221A
	W-WW-Mays-02	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 12:35 PM	IC_111221A
	W-WW-Mays-02	Aqueous	E300	Anions by IC method - Water	49668	10	12/21/11 03:09 PM	IC_111221A
	W-WW-Mays-02	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 03:20 PM	IC_111221A
	W-WW-Mays-02	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-20A	W-MW-20	Aqueous	E300	Anions by IC method - Water	49668	100	12/21/11 12:05 PM	IC_111221A
	W-MW-20	Aqueous	E300	Anions by IC method - Water	49668	1	12/21/11 03:32 PM	IC_111221A
	W-MW-20	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-21A	W-MW-12	Aqueous	E300	Anions by IC method - Water	49683	100	12/22/11 09:48 AM	IC_111222A
	W-MW-12	Aqueous	E300	Anions by IC method - Water	49683	1000	12/22/11 10:00 AM	IC_111222A
	W-MW-12	Aqueous	E300	Anions by IC method - Water	49683	10	12/22/11 10:46 AM	IC_111222A
	W-MW-12	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-22A	W-OW-1	Aqueous	E300	Anions by IC method - Water	49683	1000	12/22/11 10:12 AM	IC_111222A
	W-OW-1	Aqueous	E300	Anions by IC method - Water	49683	10	12/22/11 10:58 AM	IC_111222A
	W-OW-1	Aqueous	E300	Anions by IC method - Water	49683	100	12/22/11 11:35 AM	IC_111222A
	W-OW-1	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-23A	W-MW-19	Aqueous	E300	Anions by IC method - Water	49683	100	12/22/11 10:23 AM	IC_111222A
	W-MW-19	Aqueous	E300	Anions by IC method - Water	49683	1000	12/22/11 10:35 AM	IC_111222A
	W-MW-19	Aqueous	E300	Anions by IC method - Water	49683	1	12/22/11 12:47 PM	IC_111222A
	W-MW-19	Aqueous	E300	Anions by IC method - Water	49683	10	12/22/11 02:57 PM	IC_111222A
	W-MW-19	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Lab Order: 1112140

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1112140-24A	W-MW-18	Aqueous	E300	Anions by IC method - Water	49683	100	12/22/11 11:46 AM	IC_111222A
	W-MW-18	Aqueous	E300	Anions by IC method - Water	49683	1000	12/22/11 11:58 AM	IC_111222A
	W-MW-18	Aqueous	E300	Anions by IC method - Water	49683	10	12/22/11 12:59 PM	IC_111222A
	W-MW-18	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-25A	W-MW-18-D	Aqueous	E300	Anions by IC method - Water	49683	100	12/22/11 12:09 PM	IC_111222A
	W-MW-18-D	Aqueous	E300	Anions by IC method - Water	49683	10	12/22/11 01:10 PM	IC_111222A
	W-MW-18-D	Aqueous	E300	Anions by IC method - Water	49683	1000	12/22/11 02:34 PM	IC_111222A
	W-MW-18-D	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-26A	W-MW-14	Aqueous	E300	Anions by IC method - Water	49683	1000	12/22/11 12:21 PM	IC_111222A
	W-MW-14	Aqueous	E300	Anions by IC method - Water	49683	10	12/22/11 01:23 PM	IC_111222A
	W-MW-14	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B
1112140-27A	W-MW-10	Aqueous	E300	Anions by IC method - Water	49683	100	12/22/11 12:33 PM	IC_111222A
	W-MW-10	Aqueous	E300	Anions by IC method - Water	49683	1000	12/22/11 02:22 PM	IC_111222A
	W-MW-10	Aqueous	E300	Anions by IC method - Water	49683	10	12/22/11 02:45 PM	IC_111222A
	W-MW-10	Aqueous	M2540C	Total Dissolved Solids	49690	1	12/22/11	WC_111222B

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-SG-4314102-01
Lab ID: 1112140-01
Collection Date: 12/15/11 12:10 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	13.9	3.00	10.0		mg/L	10	12/20/11 01:41 PM
Chloride	9500	300	1000		mg/L	1000	12/20/11 10:44 AM
Sulfate	3300	100	300		mg/L	100	12/20/11 09:46 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	16900	200	200		mg/L	1	12/21/11 04:30 PM

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-01
Lab ID: 1112140-02
Collection Date: 12/15/11 01:25 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	9.63	3.00	10.0	J	mg/L	10	12/20/11 01:52 PM
Chloride	9470	300	1000		mg/L	1000	12/20/11 10:56 AM
Sulfate	5480	100	300		mg/L	100	12/20/11 09:58 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	20100	200	200		mg/L	1	12/21/11 04:30 PM

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-02
Lab ID: 1112140-03
Collection Date: 12/15/11 02:20 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<0.300	0.300	1.00		mg/L	1	12/20/11 04:12 PM
Chloride	192	30.0	100		mg/L	100	12/20/11 10:10 AM
Sulfate	2030	100	300		mg/L	100	12/20/11 10:10 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	3470	10.0	10.0		mg/L	1	12/21/11 04:30 PM

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-03
Lab ID: 1112140-04
Collection Date: 12/15/11 03:05 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<0.300	0.300	1.00		mg/L	1	12/20/11 02:15 PM
Chloride	1980	30.0	100		mg/L	100	12/20/11 11:08 AM
Sulfate	3180	100	300		mg/L	100	12/20/11 11:08 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	6990	50.0	50.0		mg/L	1	12/21/11 04:30 PM

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-15
Lab ID: 1112140-05
Collection Date: 12/15/11 03:45 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	4.80	0.300	1.00		mg/L	1	12/20/11 02:26 PM
Chloride	5650	300	1000		mg/L	1000	12/20/11 10:33 AM
Sulfate	6990	1000	3000		mg/L	1000	12/20/11 10:33 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	17400	50.0	50.0		mg/L	1	12/21/11 04:30 PM

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-11
Lab ID: 1112140-06
Collection Date: 12/15/11 04:35 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	22.5	3.00	10.0		mg/L	10	12/20/11 02:38 PM
Chloride	13400	300	1000		mg/L	1000	12/20/11 11:34 AM
Sulfate	1660	100	300		mg/L	100	12/20/11 12:34 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	22800	200	200		mg/L	1	12/21/11 04:30 PM

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-17
Lab ID: 1112140-07
Collection Date: 12/15/11 05:05 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<3.00	3.00	10.0		mg/L	10	12/20/11 02:50 PM
Chloride	4240	300	1000		mg/L	1000	12/20/11 11:46 AM
Sulfate	2710	100	300		mg/L	100	12/20/11 12:46 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	10000	50.0	50.0		mg/L	1	12/21/11 04:30 PM

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-8
Lab ID: 1112140-08
Collection Date: 12/16/11 09:50 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	7.29	3.00	10.0	J	mg/L	10	12/20/11 03:01 PM
Chloride	7530	300	1000		mg/L	1000	12/20/11 11:57 AM
Sulfate	6990	1000	3000		mg/L	1000	12/20/11 11:57 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	20300	200	200		mg/L	1	12/21/11 04:30 PM

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-7
Lab ID: 1112140-09
Collection Date: 12/16/11 11:00 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<0.300	0.300	1.00		mg/L	1	12/20/11 03:13 PM
Chloride	255	3.00	10.0		mg/L	10	12/20/11 12:09 PM
Sulfate	714	10.0	30.0		mg/L	10	12/20/11 12:09 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	1560	10.0	10.0		mg/L	1	12/22/11

Qualifiers:

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

DHL Analytical

Date: 12/28/11

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-WW-Milford-01
Lab ID: 1112140-10
Collection Date: 12/16/11 11:15 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<0.300	0.300	1.00		mg/L	1	12/20/11 03:24 PM
Chloride	40.3	0.300	1.00		mg/L	1	12/20/11 03:24 PM
Sulfate	56.0	1.00	3.00		mg/L	1	12/20/11 03:24 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	130	10.0	10.0		mg/L	1	12/22/11

Qualifiers:

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

DHL Analytical

Date: 12/28/11

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-WW-Milford-02
Lab ID: 1112140-11
Collection Date: 12/16/11 11:20 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<0.300	0.300	1.00		mg/L	1	12/21/11 12:46 PM
Chloride	81.6	3.00	10.0		mg/L	10	12/21/11 10:30 AM
Sulfate	355	10.0	30.0		mg/L	10	12/21/11 10:30 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	1130	10.0	10.0		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-13
Lab ID: 1112140-12
Collection Date: 12/16/11 12:15 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	12.1	3.00	10.0		mg/L	10	12/21/11 12:59 PM
Chloride	5020	30.0	100		mg/L	100	12/21/11 09:43 AM
Sulfate	2010	100	300		mg/L	100	12/21/11 09:43 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	10800	50.0	50.0		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-9
Lab ID: 1112140-13
Collection Date: 12/16/11 12:30 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	0.784	0.300	1.00	J	mg/L	1	12/21/11 01:11 PM
Chloride	474	3.00	10.0		mg/L	10	12/21/11 09:55 AM
Sulfate	592	10.0	30.0		mg/L	10	12/21/11 09:55 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	1920	10.0	10.0		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-6
Lab ID: 1112140-14
Collection Date: 12/16/11 02:25 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<3.00	3.00	10.0		mg/L	10	12/21/11 01:59 PM
Chloride	6930	300	1000		mg/L	1000	12/21/11 04:37 PM
Sulfate	1190	10.0	30.0		mg/L	10	12/21/11 01:59 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	11900	50.0	50.0		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-SP-01
Lab ID: 1112140-15
Collection Date: 12/16/11 03:00 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<0.300	0.300	1.00		mg/L	1	12/21/11 02:11 PM
Chloride	347	3.00	10.0		mg/L	10	12/21/11 04:26 PM
Sulfate	401	10.0	30.0		mg/L	10	12/21/11 04:26 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	1270	10.0	10.0		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-16
Lab ID: 1112140-16
Collection Date: 12/16/11 03:20 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<3.00	3.00	10.0		mg/L	10	12/21/11 02:22 PM
Chloride	2210	30.0	100		mg/L	100	12/21/11 11:19 AM
Sulfate	1290	100	300		mg/L	100	12/21/11 11:19 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	4950	50.0	50.0		mg/L	1	12/22/11

Qualifiers: See Final Page of Report for MQLs and MDLs

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-05
Lab ID: 1112140-17
Collection Date: 12/16/11 04:15 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<3.00	3.00	10.0		mg/L	10	12/21/11 02:34 PM
Chloride	16600	300	1000		mg/L	1000	12/21/11 11:31 AM
Sulfate	2900	100	300		mg/L	100	12/21/11 12:23 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	26900	200	200		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-04
Lab ID: 1112140-18
Collection Date: 12/16/11 04:55 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	3.68	0.300	1.00		mg/L	1	12/21/11 02:57 PM
Chloride	4990	30.0	100		mg/L	100	12/21/11 11:42 AM
Sulfate	2130	100	300		mg/L	100	12/21/11 11:42 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	10700	50.0	50.0		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-WW-Mays-02
Lab ID: 1112140-19
Collection Date: 12/16/11 05:20 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<3.00	3.00	10.0		mg/L	10	12/21/11 03:09 PM
Chloride	20800	300	1000		mg/L	1000	12/21/11 11:54 AM
Sulfate	3460	100	300		mg/L	100	12/21/11 12:35 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	35900	200	200		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-20
Lab ID: 1112140-20
Collection Date: 12/17/11 07:55 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	1.27	0.300	1.00		mg/L	1	12/21/11 03:32 PM
Chloride	1180	30.0	100		mg/L	100	12/21/11 12:05 PM
Sulfate	1290	100	300		mg/L	100	12/21/11 12:05 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	3670	10.0	10.0		mg/L	1	12/22/11

Qualifiers: See Final Page of Report for MQLs and MDLs

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-12
Lab ID: 1112140-21
Collection Date: 12/17/11 08:55 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<3.00	3.00	10.0		mg/L	10	12/22/11 10:46 AM
Chloride	21100	300	1000		mg/L	1000	12/22/11 10:00 AM
Sulfate	5460	100	300		mg/L	100	12/22/11 09:48 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	34400	200	200		mg/L	1	12/22/11

Qualifiers: See Final Page of Report for MQLs and MDLs

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-OW-1
Lab ID: 1112140-22
Collection Date: 12/17/11 09:45 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	78.8	3.00	10.0		mg/L	10	12/22/11 10:58 AM
Chloride	30400	300	1000		mg/L	1000	12/22/11 10:12 AM
Sulfate	2410	100	300		mg/L	100	12/22/11 11:35 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	52600	200	200		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-19
Lab ID: 1112140-23
Collection Date: 12/17/11 10:30 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	9.66	3.00	10.0	J	mg/L	10	12/22/11 02:57 PM
Chloride	10800	300	1000		mg/L	1000	12/22/11 10:35 AM
Sulfate	3370	100	300		mg/L	100	12/22/11 10:23 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	18900	200	200		mg/L	1	12/22/11

Qualifiers:

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

DHL Analytical

Date: 12/28/11

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-18
Lab ID: 1112140-24
Collection Date: 12/17/11 09:45 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	20.5	3.00	10.0		mg/L	10	12/22/11 12:59 PM
Chloride	30700	300	1000		mg/L	1000	12/22/11 11:58 AM
Sulfate	4640	100	300		mg/L	100	12/22/11 11:46 AM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	47700	200	200		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-18-D
Lab ID: 1112140-25
Collection Date: 12/17/11 09:45 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	22.4	3.00	10.0		mg/L	10	12/22/11 01:10 PM
Chloride	30500	300	1000		mg/L	1000	12/22/11 02:34 PM
Sulfate	4540	100	300		mg/L	100	12/22/11 12:09 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	47700	200	200		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-14
Lab ID: 1112140-26
Collection Date: 12/16/11 10:05 AM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	<3.00	3.00	10.0		mg/L	10	12/22/11 01:23 PM
Chloride	7350	300	1000		mg/L	1000	12/22/11 12:21 PM
Sulfate	7440	1000	3000		mg/L	1000	12/22/11 12:21 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	18500	200	200		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Project: RRC - Wendkirk
Project No:
Lab Order: 1112140

Client Sample ID: W-MW-10
Lab ID: 1112140-27
Collection Date: 12/16/11 03:30 PM
Matrix: Aqueous

Analyses	Result	SDL	RL	Qual	Units	DF	Date Analyzed
Anions by IC method - Water		**E300**					**Analyst: JBC**
Bromide	15.6	3.00	10.0		mg/L	10	12/22/11 02:45 PM
Chloride	16400	300	1000		mg/L	1000	12/22/11 02:22 PM
Sulfate	6650	100	300		mg/L	100	12/22/11 12:33 PM
Total Dissolved Solids		**M2540C**					**Analyst: JCG**
Total Dissolved Solids (Residue, Filterable)	31500	200	200		mg/L	1	12/22/11

Qualifiers:

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

CLIENT: TRC Environmental Corp.
Work Order: 1112140
Project: RRC - Wendkirk

ANALYTICAL QC SUMMARY REPORT

RunID: IC_111011A

Sample ID:	**DCS-48640**	**Batch ID:**	**48640**	**TestNo:**	**E300**	**Units:**	**mg/L**
SampType:	**DCS**	**Run ID:**	**IC_111011A**	**Analysis Date:**	**10/11/11 10:49 AM**	**Prep Date:**	**10/11/11**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPD Limit	Qual
Bromide	1.07	1.00	1.000	0	107	20	400	0	0	
Chloride	0.421	1.00	0.5000	0	84.2	20	400	0	0	
Sulfate	1.61	3.00	1.500	0	107	20	400	0	0	

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: 1112140
Project: RRC - Wendkirk

ANALYTICAL QC SUMMARY REPORT

RunID: IC_111220A

Sample ID:	**LCS-49659**	**Batch ID:**	**49659**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**LCS**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 09:08 AM**		**Prep Date:**		**12/20/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.9	1.00	20.00	0	105	90	110			
Chloride		10.9	1.00	10.00	0	109	90	110			
Sulfate		31.0	3.00	30.00	0	103	90	110			

Sample ID:	**LCSD-49659**	**Batch ID:**	**49659**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**LCSD**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 09:20 AM**		**Prep Date:**		**12/20/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.9	1.00	20.00	0	105	90	110	0.119	20	
Chloride		10.9	1.00	10.00	0	109	90	110	0.035	20	
Sulfate		31.1	3.00	30.00	0	104	90	110	0.158	20	

Sample ID:	**MB-49659**	**Batch ID:**	**49659**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MBLK**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 09:31 AM**		**Prep Date:**		**12/20/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		<0.300	1.00								
Chloride		<0.300	1.00								
Sulfate		<1.00	3.00								

Sample ID:	**1112140-09A MS**	**Batch ID:**	**49659**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MS**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 12:57 PM**		**Prep Date:**		**12/20/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		258	10.0	100.0	153.2	105	90	110			
Sulfate		746	30.0	300.0	428.6	106	90	110			

Sample ID:	**1112140-09A MSD**	**Batch ID:**	**49659**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MSD**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 01:09 PM**		**Prep Date:**		**12/20/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		257	10.0	100.0	153.2	103	90	110	0.616	20	
Sulfate		744	30.0	300.0	428.6	105	90	110	0.267	20	

Sample ID:	**1112140-09A MS**	**Batch ID:**	**49659**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MS**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 03:49 PM**		**Prep Date:**		**12/20/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		22.0	1.00	20.00	0	110	90	110			

Sample ID:	**1112140-09A MSD**	**Batch ID:**	**49659**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MSD**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 04:00 PM**		**Prep Date:**		**12/20/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		22.0	1.00	20.00	0	110	90	110	0.258	20	

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: 1112140
Project: RRC - Wendkirk

ANALYTICAL QC SUMMARY REPORT

RunID: IC_111220A

Sample ID:	**ICV-111220**	**Batch ID:**	**R58300**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**ICV**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 08:53 AM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		53.5	1.00	50.00	0	107	90	110			
Chloride		27.4	1.00	25.00	0	109	90	110			
Sulfate		79.3	3.00	75.00	0	106	90	110			

Sample ID:	**CCV1-111220**	**Batch ID:**	**R58300**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 11:19 AM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.9	1.00	20.00	0	104	90	110			
Chloride		10.8	1.00	10.00	0	108	90	110			
Sulfate		31.1	3.00	30.00	0	104	90	110			

Sample ID:	**CCV2-111220**	**Batch ID:**	**R58300**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 01:21 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.9	1.00	20.00	0	104	90	110			
Chloride		10.8	1.00	10.00	0	108	90	110			
Sulfate		31.2	3.00	30.00	0	104	90	110			

Sample ID:	**CCV3-111220**	**Batch ID:**	**R58300**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 03:36 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.7	1.00	20.00	0	104	90	110			
Chloride		10.7	1.00	10.00	0	107	90	110			
Sulfate		31.1	3.00	30.00	0	104	90	110			

Sample ID:	**CCV4-111220**	**Batch ID:**	**R58300**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111220A**		**Analysis Date:**		**12/20/11 04:58 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.7	1.00	20.00	0	103	90	110			
Chloride		10.7	1.00	10.00	0	107	90	110			
Sulfate		31.0	3.00	30.00	0	103	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: 1112140
Project: RRC - Wendkirk

ANALYTICAL QC SUMMARY REPORT

RunID: IC_111221A

Sample ID:	**LCS-49668**	**Batch ID:**	**49668**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**LCS**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 08:52 AM**		**Prep Date:**		**12/21/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.9	1.00	20.00	0	104	90	110			
Chloride		10.7	1.00	10.00	0	107	90	110			
Sulfate		30.7	3.00	30.00	0	102	90	110			

Sample ID:	**LCSD-49668**	**Batch ID:**	**49668**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**LCSD**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 09:03 AM**		**Prep Date:**		**12/21/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		21.0	1.00	20.00	0	105	90	110	0.562	20	
Chloride		10.8	1.00	10.00	0	108	90	110	0.661	20	
Sulfate		30.8	3.00	30.00	0	103	90	110	0.417	20	

Sample ID:	**MB-49668**	**Batch ID:**	**49668**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MBLK**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 09:15 AM**		**Prep Date:**		**12/21/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		<0.300	1.00								
Chloride		<0.300	1.00								
Sulfate		<1.00	3.00								

Sample ID:	**1112140-13A MS**	**Batch ID:**	**49668**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MS**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 10:41 AM**		**Prep Date:**		**12/21/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		206	10.0	200.0	0	103	90	110			
Chloride		388	10.0	100.0	284.5	104	90	110			
Sulfate		668	30.0	300.0	354.9	104	90	110			

Sample ID:	**1112140-13A MSD**	**Batch ID:**	**49668**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MSD**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 10:53 AM**		**Prep Date:**		**12/21/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		207	10.0	200.0	0	103	90	110	0.599	20	
Chloride		389	10.0	100.0	284.5	105	90	110	0.290	20	
Sulfate		669	30.0	300.0	354.9	105	90	110	0.135	20	

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: 1112140
Project: RRC - Wendkirk

ANALYTICAL QC SUMMARY REPORT

RunID: IC_111221A

Sample ID:	**ICV-111221**	**Batch ID:**	**R58314**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**ICV**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 08:38 AM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		53.2	1.00	50.00	0	106	90	110			
Chloride		27.1	1.00	25.00	0	108	90	110			
Sulfate		78.6	3.00	75.00	0	105	90	110			

Sample ID:	**CCV1-111221**	**Batch ID:**	**R58314**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 11:04 AM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.8	1.00	20.00	0	104	90	110			
Chloride		10.7	1.00	10.00	0	107	90	110			
Sulfate		30.9	3.00	30.00	0	103	90	110			

Sample ID:	**CCV2-111221**	**Batch ID:**	**R58314**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 01:34 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.7	1.00	20.00	0	103	90	110			
Chloride		10.8	1.00	10.00	0	108	90	110			
Sulfate		31.1	3.00	30.00	0	104	90	110			

Sample ID:	**CCV3-111221**	**Batch ID:**	**R58314**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 03:55 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.8	1.00	20.00	0	104	90	110			
Chloride		10.9	1.00	10.00	0	109	90	110			
Sulfate		31.2	3.00	30.00	0	104	90	110			

Sample ID:	**CCV4-111221**	**Batch ID:**	**R58314**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111221A**		**Analysis Date:**		**12/21/11 04:50 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		10.7	1.00	10.00	0	107	90	110			
Sulfate		31.1	3.00	30.00	0	104	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: 1112140
Project: RRC - Wendkirk

ANALYTICAL QC SUMMARY REPORT

RunID: IC_111222A

Sample ID:	**LCS-49683**	**Batch ID:**	**49683**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**LCS**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 08:56 AM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.8	1.00	20.00	0	104	90	110			
Chloride		10.7	1.00	10.00	0	107	90	110			
Sulfate		30.6	3.00	30.00	0	102	90	110			

Sample ID:	**LCSD-49683**	**Batch ID:**	**49683**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**LCSD**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 09:08 AM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.8	1.00	20.00	0	104	90	110	0.184	20	
Chloride		10.7	1.00	10.00	0	107	90	110	0.270	20	
Sulfate		30.8	3.00	30.00	0	103	90	110	0.593	20	

Sample ID:	**MB-49683**	**Batch ID:**	**49683**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MBLK**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 09:20 AM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		<0.300	1.00								
Chloride		<0.300	1.00								
Sulfate		<1.00	3.00								

Sample ID:	**1112140-26A MS**	**Batch ID:**	**49683**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MS**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 01:59 PM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		15000	1000	10000	4419	106	90	110			
Sulfate		35400	3000	30000	4462	103	90	110			

Sample ID:	**1112140-26A MSD**	**Batch ID:**	**49683**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MSD**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 02:11 PM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Chloride		15800	1000	10000	4419	114	90	110	5.41	20	S
Sulfate		35400	3000	30000	4462	103	90	110	0.070	20	

Sample ID:	**1112140-26A MS**	**Batch ID:**	**49683**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MS**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 03:09 PM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		249	10.0	200.0	0	125	90	110			S

Sample ID:	**1112140-26A MSD**	**Batch ID:**	**49683**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**MSD**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 03:20 PM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		248	10.0	200.0	0	124	90	110	0.586	20	S

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: 1112140
Project: RRC - Wendkirk

ANALYTICAL QC SUMMARY REPORT

RunID: IC_111222A

Sample ID:	**ICV-111222**	**Batch ID:**	**R58333**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**ICV**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 08:43 AM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		53.3	1.00	50.00	0	107	90	110			
Chloride		27.1	1.00	25.00	0	109	90	110			
Sulfate		78.7	3.00	75.00	0	105	90	110			

Sample ID:	**CCV1-111222**	**Batch ID:**	**R58333**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 11:21 AM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.8	1.00	20.00	0	104	90	110			
Chloride		10.8	1.00	10.00	0	108	90	110			
Sulfate		30.8	3.00	30.00	0	103	90	110			

Sample ID:	**CCV2-111222**	**Batch ID:**	**R58333**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 01:46 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.8	1.00	20.00	0	104	90	110			
Chloride		10.8	1.00	10.00	0	108	90	110			
Sulfate		31.0	3.00	30.00	0	103	90	110			

Sample ID:	**CCV3-111222**	**Batch ID:**	**R58333**		**TestNo:**		**E300**		**Units:**		**mg/L**
SampType:	**CCV**	**Run ID:**	**IC_111222A**		**Analysis Date:**		**12/22/11 03:43 PM**		**Prep Date:**		
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Bromide		20.7	1.00	20.00	0	104	90	110			
Chloride		10.8	1.00	10.00	0	108	90	110			
Sulfate		31.0	3.00	30.00	0	103	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: 1112140
Project: RRC - Wendkirk

ANALYTICAL QC SUMMARY REPORT

RunID: WC_111221B

Sample ID:	**LCS-49665**	**Batch ID:**	**49665**		**TestNo:**		**M2540C**		**Units:**		**mg/L**
SampType:	**LCS**	**Run ID:**	**WC_111221B**		**Analysis Date:**		**12/21/11 04:30 PM**		**Prep Date:**		**12/21/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		711	10.0	745.6	0	95.4	90	113			

Sample ID:	**MB-49665**	**Batch ID:**	**49665**		**TestNo:**		**M2540C**		**Units:**		**mg/L**
SampType:	**MBLK**	**Run ID:**	**WC_111221B**		**Analysis Date:**		**12/21/11 04:30 PM**		**Prep Date:**		**12/21/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		<10.0	10.0								

Sample ID:	**1112139-14ADUP**	**Batch ID:**	**49665**		**TestNo:**		**M2540C**		**Units:**		**mg/L**
SampType:	**DUP**	**Run ID:**	**WC_111221B**		**Analysis Date:**		**12/21/11 04:30 PM**		**Prep Date:**		**12/21/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		2930	10.0	0	2938				0.170	5	

Sample ID:	**1112140-08ADUP**	**Batch ID:**	**49665**		**TestNo:**		**M2540C**		**Units:**		**mg/L**
SampType:	**DUP**	**Run ID:**	**WC_111221B**		**Analysis Date:**		**12/21/11 04:30 PM**		**Prep Date:**		**12/21/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		20600	200	0	20260				1.47	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

CLIENT: TRC Environmental Corp.
Work Order: 1112140
Project: RRC - Wendkirk

ANALYTICAL QC SUMMARY REPORT

RunID: WC_111222B

Sample ID:	**LCS-49690**	**Batch ID:**	**49690**		**TestNo:**		**M2540C**		**Units:**		**mg/L**
SampType:	**LCS**	**Run ID:**	**WC_111222B**		**Analysis Date:**		**12/22/11 12:00 AM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		700	10.0	745.6	0	93.9	90	113			

Sample ID:	**MB-49690**	**Batch ID:**	**49690**		**TestNo:**		**M2540C**		**Units:**		**mg/L**
SampType:	**MBLK**	**Run ID:**	**WC_111222B**		**Analysis Date:**		**12/22/11 12:00 AM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		<10.0	10.0								

Sample ID:	**1112140-09ADUP**	**Batch ID:**	**49690**		**TestNo:**		**M2540C**		**Units:**		**mg/L**
SampType:	**DUP**	**Run ID:**	**WC_111222B**		**Analysis Date:**		**12/22/11 12:00 AM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		1560	10.0	0	1564				0.256	5	

Sample ID:	**1112140-27ADUP**	**Batch ID:**	**49690**		**TestNo:**		**M2540C**		**Units:**		**mg/L**
SampType:	**DUP**	**Run ID:**	**WC_111222B**		**Analysis Date:**		**12/22/11 12:00 AM**		**Prep Date:**		**12/22/11**
Analyte		**Result**	**RL**	**SPK value**	**Ref Val**	**%REC**	**LowLimit**	**HighLimit**	**%RPD**	**RPD Limit**	**Qual**
Total Dissolved Solids (Residue, Fi		31900	200	0	31460				1.39	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

CLIENT: TRC Environmental Corp.
Work Order: 1112140
Project: RRC - Wendkirk

MQL SUMMARY REPORT

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

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

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

ATTACHMENT 3

Historical Monthly and Annual Precipitation Data - San Angelo, Texas

Attachment 3.

Historical Monthly and Annual Rainfall Data
San Angelo

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1977	0.61	0.26	0.99	5.10	2.14	0.47	0.52	0.38	0.27	1.38	0.68	0.15	12.95
1978	0.61	1.17	0.41	0.73	1.83	2.81	0.41	2.93	1.35	0.42	1.75	0.25	14.67
1979	0.19	1.83	2.25	1.90	0.67	2.15	1.30	2.18	0.06	0.93	T	2.70	16.16
1980	0.84	0.79	0.71	0.52	4.72	3.14	0.33	3.30	11.00	0.01	2.53	2.20	30.09
1981	1.17	0.68	2.81	3.51	4.70	1.97	2.68	1.23	2.72	8.86	T	0.02	30.17
1982	1.06	1.53	0.40	0.83	4.17	6.01	0.35	0.46	0.09	1.26	1.11	0.91	18.18
1983	2.06	0.42	1.20	0.81	0.52	3.72	1.18	0.03	T	3.47	1.78	0.07	15.26
1984	2.38	0.54	0.49	0.23	0.54	2.82	0.60	0.26	2.99	3.74	1.09	3.48	19.14
1985	0.67	0.38	1.69	0.42	4.78	3.55	1.13	0.24	2.84	5.64	0.48	0.01	21.83
1986	0.30	0.65	0.52	0.07	7.28	3.30	0.74	2.50	7.53	5.72	1.83	2.48	32.93
1987	0.65	4.45	1.77	1.33	11.24	3.28	0.22	1.91	3.96	0.34	0.80	2.05	31.90
1988	0.01	0.42	0.69	1.36	3.31	2.14	1.22	0.92	3.20	T	0.00	0.79	14.06
1989	0.68	3.01	1.95	1.04	1.06	2.83	0.35	2.78	2.82	0.41	0.43	0.23	17.64
1990	1.60	1.65	0.85	4.14	4.02	0.05	4.09	1.05	6.23	2.40	2.51	0.21	27.20
1991	2.08	0.26	0.61	0.48	1.15	4.22	1.80	1.36	1.36	4.77	3.34	0.24	24.29
1992	1.90	3.79	1.05	1.00	1.49	4.73	1.98	1.78	0.27	1.33	0.95	0.75	21.03
1993	0.94	0.81	0.28	1.46	3.87	0.94	0.82	2.64	1.99	1.07	0.05	0.76	15.63
1994	1.69	0.34	0.04	0.97	3.29	1.04	0.25	1.30	3.04	4.27	1.96	1.21	19.40
1995	0.31	2.81	1.01	2.67	4.39	1.37	0.17	2.41	2.27	1.86	1.68	0.20	21.15
1996	0.06	0.23	0.28	2.38	2.08	1.81	0.26	7.66	1.92	2.42	3.35	0.05	22.50
1997	0.37	4.54	2.69	2.50	2.69	2.57	0.74	2.76	1.56	0.82	0.76	1.38	23.38
1998	0.70	0.53	1.85	T	1.75	0.88	0.46	2.77	0.10	2.39	1.06	0.49	12.98
1999	0.61	0.01	2.32	1.85	1.55	4.70	0.66	0.03	0.76	0.94	T	0.09	13.52
2000	0.08	0.23	0.77	0.57	2.21	3.44	0.02	0.00	0.58	3.61	3.08	0.60	15.19
2001	1.29	2.17	1.26	0.82	2.52	0.26	0.57	3.67	0.89	1.48	3.46	0.14	18.53
2002	0.32	1.10	1.31	0.33	0.45	0.88	2.02	0.41	1.64	4.06	0.52	1.37	14.41
2003	0.33	1.57	1.25	0.06	1.07	4.78	0.90	2.52	3.16	3.38	0.74	T	19.76
2004	1.37	1.72	1.70	1.91	0.86	3.65	2.18	4.32	2.05	5.16	5.18	0.38	30.48
2005	0.55	2.03	2.81	0.03	4.43	0.98	1.15	4.66	0.02	3.72	0.00	0.02	20.40
2006	0.16	0.64	1.92	1.34	1.90	0.30	0.87	4.87	2.60	2.21	0.01	0.83	17.65
2007	1.86	0.55	3.86	2.66	4.74	5.54	1.84	6.55	2.55	0.83	0.89	0.18	32.05
2008	0.39	0.30	4.64	0.62	1.01	2.19	0.19	3.59	3.99	1.81	0.23	0.04	19.00
2009	0.06	0.48	1.73	4.61	0.12	1.74	4.64	1.89	5.66	2.92	0.01	1.68	25.54
2010	2.16	2.72	1.17	2.65	1.42	1.96	1.73	1.10	1.72	2.51	T	0.99	20.13
2011	0.67	0.31	0.10	0.03	1.36	0.46	T	1.64	0.43	2.91	0.32	1.00	9.23
	JAN	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**ANNUAL**
Normal	**0.93**	**1.35**	**1.50**	**1.42**	**2.82**	**2.59**	**1.20**	**2.26**	**2.46**	**2.73**	**1.14**	**0.85**	**21.25**

* Incomplete Record
T- denotes trace amounts of precipitation
First Order Station November 1, 1947
Normals based on the period 1981-2010, and are provided by the National Climatic Data Center
All measurements are in inches

Source: *National Oceanic and Atmospheric Association's National Weather Service*

ATTACHMENT 4

Analytical Data Review/Data Validation Checklist

QA Data Evaluation Results
RRC –Wendkirk BMP

December 2011 Analytical Data

Background

Water samples were collected on December 15, 16, and 17, 2011. The samples were submitted to DHL Analytical in Round Rock, Texas for analysis. Results for the following methods are reported:

- Bromide, Chloride, and Sulfate by U.S. EPA Method 300.0
- Total Dissolved Solids (TDS) by SM 2540 C

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 Downstream of Spence Reservoir (Segment 1426) Quality Assurance Project Plan* (Railroad Commission of Texas, Oil and Gas Division, Revision 2, March 19, 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 analyzed within method-defined holding times.

Blank Analyses

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

Spike Recoveries

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

Samples W-MW-7 and W-MW-9 were analyzed as MS/MSD pairs for anions. All recoveries are within QAPP-specified limits and no data interpretation issues are indicated by these results.

Sample W-MW-14 was analyzed as MS/MSD pairs for anions. One recovery of chloride is slightly greater than control limits and the other recovery is within limits; therefore, since one recovery is within expected tolerances, no data interpretation issues are indicated for chloride. Both recoveries of bromide are, however, greater than QAPP-defined limits. These results are indicative a high bias for bromide in sample W-MW-14 due to matrix interferences. This bias may extend to other samples collected as part of this project.

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 W-MW-18-D was collected as a field duplicate of sample W-MW-18. 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.

Samples W-MW-8, W-MW-7, and W-MW-10 were analyzed as laboratory duplicates for TDS. All RPD values are within laboratory-specified control limits and no data interpretation issues are indicated.

Conclusions

QC data associated with laboratory measurements indicate that data are defensible and that measurement data reliability is generally within expected limits of sampling and analytical error. The data user is advised of a likely high bias for bromide in sample W-MW-14, based on MS/MSD recoveries.

Table 1. Evaluated Samples

TRC ID	Collected	Matrix	DHL ID
W-SG-4314102-01	12/15/11	Aqueous	1112140-01
W-MW-01	12/15/11	Aqueous	1112140-02
W-MW-02	12/15/11	Aqueous	1112140-03
W-MW-03	12/15/11	Aqueous	1112140-04
W-MW-15	12/15/11	Aqueous	1112140-05
W-MW-11	12/15/11	Aqueous	1112140-06
W-MW-17	12/15/11	Aqueous	1112140-07
W-MW-8	12/16/11	Aqueous	1112140-08
W-MW-7	12/16/11	Aqueous	1112140-09
W-WW-Milford-01	12/16/11	Aqueous	1112140-10
W-WW-Milford-02	12/16/11	Aqueous	1112140-11
W-MW-13	12/16/11	Aqueous	1112140-12
W-MW-9	12/16/11	Aqueous	1112140-13
W-MW-6	12/16/11	Aqueous	1112140-14
W-SP-01	12/16/11	Aqueous	1112140-15
W-MW-16	12/16/11	Aqueous	1112140-16
W-MW-05	12/16/11	Aqueous	1112140-17
W-MW-04	12/16/11	Aqueous	1112140-18
W-WW-Mays-02	12/16/11	Aqueous	1112140-19
W-MW-20	12/17/11	Aqueous	1112140-20
W-MW-12	12/17/11	Aqueous	1112140-21
W-OW-1	12/17/11	Aqueous	1112140-22
W-MW-19	12/17/11	Aqueous	1112140-23
W-MW-18	12/17/11	Aqueous	1112140-24
W-MW-18-D	12/17/11	Aqueous	1112140-25
W-MW-14	12/16/11	Aqueous	1112140-26
W-MW-10	12/16/11	Aqueous	1112140-27

Table 2. Calculated RPD Values for Field Duplicate Analyses of Sample W-MW-18

Analyte	Result	Duplicate Result	Units	RPD	Flag
Bromide	20.5	22.4	mg/L	8.8	
Chloride	30700	30500	mg/L	0.65	
Sulfate	4640	4540	mg/L	2.2	
TDS	47700	47700	mg/L	0	

* RPD Greater than expected (i.e., RPD > 20)
NC Not Calculated
ND Not Detected