Environmental Resources Management

2875 Michelle Drive
Suite 200
Irvine, CA 92606
(949) 623-4700
(949) 623-4711 (fax)
www.erm.com

29 July 2014

Via Electronic Mail

Mr. Wayne Praskins
Remedial Project Manager
United States Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

Subject: Final Monitoring Well Installation and Sampling Report
Source Area Operable Unit,
Rockets, Fireworks, and Flares Superfund Site

Dear Mr. Praskins:

On behalf of Emhart Industries, Inc. (Emhart), ERM-West, Inc. (ERM) submits this Final Monitoring Well Installation and Sampling Report for the Source Area Operable Unit (SAOU) at the Rockets, Fireworks, and Flares Superfund Site, formerly known as the B.F. Goodrich Superfund Site. This report supports the implementation of remedial actions described in the *Statement of Work for Remedial Design and Remedial Action for the Source Area Operable Unit, B.F. Goodrich Superfund Site* (Statement of Work), which is Appendix F to the Consent Decree entered by the U.S. District Court for the Central District of California in *City of Colton v. American Promotional Events, Inc. et al.*, Case No. ED CV 09-01864 PSG (SSx) on 2 July 2013 (Doc. No. 1820).

If you have any questions or concerns, please contact Mr. Truong Mai at (949) 623-4700 or Ms. Heather Balfour at (916) 924-9378.

Sincerely,

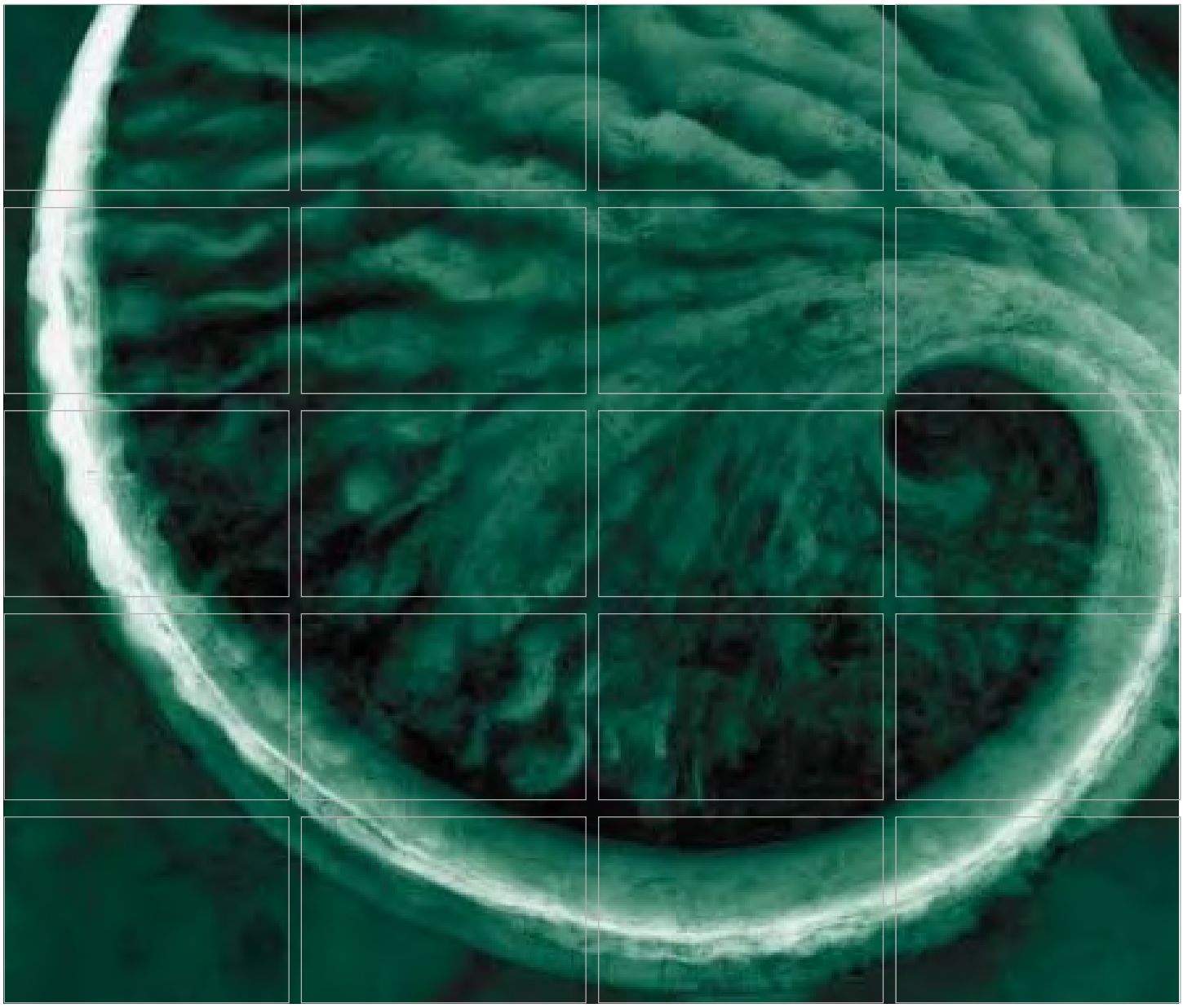
Heather D. Balfour, P.E.
Project Manager

Truong T. Mai, P.E.
Partner

Enclosure

cc:
Work Consent Decree Notices:
Kurt Berchtold, Regional Water Quality Control Board
Rafat Abbasi, Department of Toxic Substances Control
Joseph W. Hovermill, Miles & Stockbridge P.C.
Stephen Onstot, Attorney for City of Rialto
Peter Weiner, Paul Hastings LLP
Deborah Schmall, Paul Hastings LLP
Rod Foster, City Manager
Danielle Sakai, Best Best & Krieger LLP
Penny Alexander-Kelley, Office of County of San Bernardino County Counsel
Timothy V.P. Gallagher, Gallagher & Gallagher

Courtesy Copies:
Deborah Gitin, US Department of Justice
Mark A. Rigau, US Department of Justice
David Towell, CH2M HILL
Gene Tanaka, Best Best & Krieger LLP
Tom Bloomfield, The Gallagher Group
David Lawton, The Gallagher Group
James L. Meeder, Allen Matkins Leck Gamble Mallory & Natsis LLP
Kamran Javandel, Allen Matkins Leck Gamble Mallory & Natsis LLP
Michael Balster, Paul Hastings LLP
Kathryn Hinckley, Stanley Black & Decker
Marcus Fuller, Public Works Director/City Engineer for City of Rialto
Sean McCarthy, California Department of Public Health
Mike Cory, City of Colton
Marcus Fuller, City of Rialto
Peter Fox, Veolia Water



Final Monitoring Well Installation and Sampling Report

Prepared for:
Emhart Industries, Inc.

Source Area Operable Unit
Rockets, Fireworks, and Flares Superfund Site
EPA ID: CAN000905945

July 2014

www.erm.com

ERM

Delivering sustainable solutions in a more competitive world

Emhart Industries, Inc.

Final Monitoring Well Installation and Sampling Report

Source Area Operable Unit
Rockets, Fireworks, and Flares Superfund Site
EPA ID: CAN000905945

July 2014

Truong Mai, P.E.
Partner

Heather D. Balfour, P.E.
Program Director

Environmental Resources Management
2875 Michelle Drive, Suite 200
Irvine, California 92606
T: 949-623-4700
F: 949-623-4711

TABLE OF CONTENTS

LIST OF FIGURES *iii*

LIST OF TABLES *iv*

LIST OF ACRONYMS *v*

1.0 INTRODUCTION ***1***

2.0 SITE BACKGROUND ***3***

2.1 SITE DESCRIPTION ***3***

2.2 GEOLOGY ***3***

2.3 HYDROGEOLOGY ***3***

2.3.1 Surface Water *3*

2.3.2 Groundwater *4*

3.0 GROUNDWATER MONITORING WELL INSTALLATION ***6***

3.1 WELL INSTALLATION OBJECTIVES ***6***

3.2 RATIONAL FOR NEW MONITORING WELL LOCATIONS ***7***

3.3 MONITORING WELL INSTALLATION ***7***

3.3.1 Pre-Field Activities *7*

3.3.2 Well Installation Field Activities *8*

3.3.3 Surveying *10*

3.3.4 Well Development *10*

3.3.5 Investigation–Derived Waste *10*

4.0 GROUNDWATER MONITORING ***12***

4.1 FIELD PROCEDURES ***12***

4.2 WATER LEVELS ***12***

4.3 WATER QUALITY SAMPLING ***12***

4.3.1 Sampler Assembly/Deployment Steps *13*

4.3.2 Sampler Retrieval / Sample Collection Steps *13*

4.3.3 Sample Handling *14*

5.0 GROUNDWATER MONITORING RESULTS 15

5.1 WATER LEVEL RESULTS 15

5.2 GROUNDWATER QUALITY RESULTS 15

5.3 DATA VALIDATION 16

6.0 REFERENCES 17

APPENDIX A – LITHOLOGY AND WELL CONSTRUCTION LOGS

APPENDIX B – GEOPHYSICAL LOGS

APPENDIX C– SURVEY MAPS AND DATA

APPENDIX D – WELL DEVELOPMENT RECORDS

APPENDIX E – MONITORING FIELD NOTES

APPENDIX F – CHAIN-OF-CUSTODY FORMS AND LABORATORY DATA

APPENDIX G - DATA VALIDATION REPORT

APPENDIX H – MONITORING WELL INSTALLATION AND SAMPLING REPORT COMMENTS AND RESPONSES

LIST OF FIGURES

Figure 1	*Site Location Map*
Figure 2	*Site Plan*
Figure 3	*Potentiometric Surface – Intermediate Aquifer*
Figure 4	*Potentiometric Surface – Regional Aquifer*
Figure 5	*Perchlorate Concentration in Groundwater and SAOU Target Area*
Figure 6	*TCE Concentration in Groundwater and SAOU Target Area*

LIST OF TABLES

Table 1 *Well Construction*

Table 2 *Sample Analysis Matrix*

Table 3 *Well Groundwater Elevations*

Table 4 *Groundwater Summary Table*

LIST OF ACRONYMS

ASTM	American Society for Testing and Materials
bgs	Below ground surface
CoC	Chain of custody
ERM	ERM-West, Inc.
MCL	Maximum Contaminant Level
MS	Matrix spike
MSD	Matrix spike duplicate
QAPP	Quality Assurance Project Plan
RCB	Rialto-Colton Basin
ROD	Record of Decision
SAOU	Source Area Operable Unit
SOW	Statement of Work
TCE	Trichloroethene
USCS	Unified Soil Classification System
USEPA	U.S. Environmental Protection Agency
VOC	Volatile organic compound
WP/FSP	Work Plan/Field Sampling Plan
WVWD	West Valley Water District

1.0 INTRODUCTION

On behalf of Emhart Industries, Inc. (Emhart), ERM-West, Inc. (ERM) has prepared this report to summarize the well construction and groundwater monitoring activities at the Source Area Operable Unit (SAOU) of the Rockets, Fireworks, and Flares Superfund Site (Figure 1). The well installation and sampling activities were conducted consistent with the *Final Monitoring Well Installation Work Plan/Field Sampling Plan* (WP/FSP) (ERM, 2013e) approved by the USEPA. These activities were associated with implementing remedial actions described in the *Statement of Work for Remedial Design and Remedial Action for the Source Area Operable Unit, B.F. Goodrich Superfund Site* (Statement of Work), which is Appendix F to the Consent Decree entered by the U.S. District Court for the Central District of California in *City of Colton v. American Promotional Events, Inc. et al.*, Case No. ED CV 09-01864 PSG (SSx) on 2 July 2013 (Doc. No. 1820). These activities were performed to support Emhart's implementation of its obligations under the Work Consent Decree (the "Work").

After this introductory section, this report is organized as follows:

- Section 2.0 provides information on site background, history, geology, and hydrogeology;
- Section 3.0 provides the well installation objectives, rationale, and describes the monitoring well installation activities;
- Section 4.0 describes groundwater monitoring activities;
- Section 5.0 summarizes groundwater monitoring results;
- Section 6.0 presents a list of references used in the preparation of this report.

Appendices to this report include:

- Appendix A – Lithology and Well Construction Logs;
- Appendix B – Geophysical Logs;
- Appendix C – Survey Maps and Data;
- Appendix D – Well Development Records;
- Appendix E – Monitoring Field Notes;
- Appendix F – Chain-of-Custody Forms and Laboratory Data;

- Appendix G - Data Validation Reports;
- Appendix H - Monitoring Well Installation and Sampling Report Comments and Responses

This report was modified based on comments provided by USEPA on the draft document. USEPA's comments and Emhart's responses associated with this report are provided in Appendix H.

2.0 SITE BACKGROUND

This section provides the site description, geology, hydrogeologic setting.

2.1 SITE DESCRIPTION

The site is located in San Bernardino County, California (County), approximately 60 miles east of the city of Los Angeles (Figure 1). The site includes a 160-acre area in Rialto, California where volatile organic compounds (VOCs) and perchlorate have impacted soil and groundwater, and all areas where contamination from the 160-acre area has come to be located, including, but not limited to, groundwater contamination downgradient of the 160-acre area. The SAOU is the first operable unit at the site and is the focus of this document.

2.2 GEOLOGY

The geology consists of unconsolidated deposits of sand, gravel, and coarser materials interbedded with silts and clays. These unconsolidated sediments are underlain by partially consolidated and consolidated sediments, which are in turn underlain by basement complex granitic and metamorphic rocks that crop out in the San Gabriel Mountains to the north.

The Rialto-Colton Basin (RCB) is fault-bounded to the northeast and southwest by the San Jacinto and Rialto-Colton Faults. Other faults that intersect the RCB, include the Unnamed Fault, Barrier E, Barrier H, and Barrier J. The deepest portion of the basin is the northeastern area between the San Jacinto Fault Zone and a parallel unnamed fault; the total sediment thickness in this area ranges between 2,500 feet and 5,000 feet. The remainder of the RCB is approximately 500 to 1,000 feet deep.

2.3 HYDROGEOLOGY

2.3.1 Surface Water

The Santa Ana River is the primary surface water feature and the largest source of surface water inflow to the RCB (Figure 1). The river crosses the southern end of the RCB near the confluences of Lytle Creek and Warm

Creek. The Santa Ana River flows into the RCB from Bunker Hill Basin along with Warm Creek.

2.3.2 Groundwater

Based on the results of investigation and groundwater modeling undertaken by Emhart to develop the Emhart Model, the USEPA's remedial investigation efforts, the County's development of its remedy to address releases emanating from and near the area proposed to be used for the future Unit 5 of the Mid-Valley Sanitary Landfill (County Remedy Area), and other historical investigations of the RCB, the following three laterally continuous water-bearing hydrogeologic units have been defined:

1. Upper Aquifer - From 1996-1998, the Upper Aquifer had a saturated thickness of about 15 to 35 feet. However, the current regional drought has resulted in the unit's dewatering (GLA, 2012).
2. Intermediate Aquifer – The Intermediate Aquifer is first encountered at a depth of approximately 400 to 450 feet below ground surface (bgs). It is unconfined, with thickness of approximately 40 to 140 feet, and is underlain by the laterally extensive BC Aquitard that is approximately 100 feet thick under the 160-acre area.
3. Regional Aquifer – The Regional Aquifer is generally unconfined to partly confined, and is approximately 300 to 500 feet thick.

Under the 160-acre area, the potentiometric head differences between the Intermediate Aquifer and Regional Aquifer are as great as 150 feet, resulting in a downward hydraulic gradient between the two aquifers. Downgradient of the 160-acre area, the BC Aquitard thins to the southeast and appears to end north/upgradient of EPA-MW9. Southeast of the terminus of the BC Aquitard, the Intermediate and Regional Aquifers merge into one aquifer.

Groundwater elevations and flow rates in the RCB vary spatially, seasonally, and year-to-year. In the southeastern part of the basin, in the river-channel deposits and upper water-bearing unit, groundwater generally flows from northeast to southwest. For most of the RCB, groundwater in both the Intermediate and Regional Aquifers generally flows to the southeast, parallel to the Rialto-Colton and San Jacinto Faults. The cause of the seasonal and year-to-year variability is year-to-year change in precipitation and associated recharge, and seasonal and year-to-year variability in groundwater pumping.

The principal recharge components of the basin have been identified as underflows from Lytle Creek Basin and run-off/inflows from the San Gabriel Mountains in the northwestern part of the basin and the Bunker Hill Basin underflows in the southeastern part of the basin (USGS, 1997). Smaller components of recharge to the basin have also come from irrigation return flow and urban recharge pathways (USGS, 2001) and from the Badlands in younger Santa Ana River deposits at the southern end of the basin (Dutcher and Garrett, 1958; USGS, 2001).

Groundwater recharge from precipitation falling directly on the basins in this semiarid region is likely to be minimal (Danskin et al., 2006). The RCB has an average precipitation of about 16.45 inches measured in San Bernardino for the period of 1871-1998 (USGS, 2001). Most precipitation is evaporated or transpired before it can infiltrate or run-off (Danskin et al., 2006). Also typical of a semiarid basin, many storms have short duration and high intensity, which means these events are less affected by evapotranspiration and may produce some run-off (Danskin et al., 2006). Limited direct recharge from precipitation occurs only in exceptionally wet years (Danskin et al., 2006).

The principal sources of discharge from the RCB are evapotranspiration, groundwater extraction by water purveyors, and outflow to the Riverside Basin.

3.0 GROUNDWATER MONITORING WELL INSTALLATION

This section provides objectives of the well installation, rationale for locations, and a summary of the well installation activities.

3.1 WELL INSTALLATION OBJECTIVES

On 28 June 2013, USEPA approved groundwater extraction rates and locations proposed in the *Draft Groundwater Flow Modeling Report* (ERM, 2013a) and subsequent correspondence. In its approval letter, USEPA requested the following new monitoring wells be installed:

- Three wells downgradient of the targeted area of groundwater contamination;
- At least one well located southwest of West Valley Water District (WVWD) Well 22 to determine if SAOU contamination is migrating southwest; and
- One or more wells to better define the upgradient boundary of the Regional Aquifer target area.

In addition, Emhart agreed to install certain monitoring wells as part of a tentative agreement in principle regarding an implementation agreement for Combined Remedies entered with the County ("County/Emhart Agreement in Principle").

The data collected from the new monitoring wells will be used to:

- Supplement the existing groundwater monitoring network;
- Develop an updated and more comprehensive potentiometric dataset for evaluating hydraulic containment;
- Provide groundwater monitoring data to support cost allocation for the Combined Remedies; and
- Evaluate remedy performance and compliance with the hydraulic containment criteria described in the Statement of Work (SOW).

3.2 RATIONAL FOR NEW MONITORING WELL LOCATIONS

New well locations, EMW-01, and EMW-03 through EMW-05, are depicted on Figure 2. The rationale for each well is listed below:

- **EMW-01:** Located on the east side of Jerry Eaves Park approximately 1,500 feet downgradient of EW-1 (and outside of the stagnation zone) (Figure 2), EMW-01 provides one of the three wells downgradient of the Target Area as requested in USEPA's 28 June 2013 letter.
- **EMW-03:** Located on W. Casmalia Street as shown on Figure 2, EMW-03 provides a well southwest of WVWD-22 as requested in USEPA's 28 June 2013 letter. Additionally, EMW-03 is one of three "Upgradient Monitoring Wells" contemplated by the County/Emhart Agreement in Principle.
- **EMW-04:** Located near the corner of N. Maple Avenue and Banyon Avenue, EMW-04 was installed to provide groundwater elevation and groundwater quality data in the area between the 160-acre site and WVWD-22 where no wells currently exist in the Regional Aquifer groundwater as requested in USEPA's 28 June 2013. EMW-04 also serves as the second Upgradient Monitoring Well.
- **EMW-05:** Located in the vicinity of existing well N-1 on W. Stonehurst Drive, EMW-05 serves as the third Upgradient Monitoring Well. This well also provides chemical and groundwater elevation data useful for better understanding the presence of contaminants and flow of groundwater in the RCB.

The list of wells and constructed screen depths are provided in Table 1.

3.3 MONITORING WELL INSTALLATION

The following subsections describe EMW-01, EMW-03, EMW-04, and EMW-05 installation and development activities, which were conducted between 27 December 2013 and 29 March 2014.

3.3.1 Pre-Field Activities

In preparation for the field activities, the following tasks were completed:

- The necessary permits were acquired from the City of Rialto and County;
- Drilling locations were evaluated for access, logistics and space requirements, site safety, and security; and

- Subsurface clearance was completed at each location in accordance with the *Monitoring Well Installation Work Plan/Field Sampling Plan* (WP/FSP; ERM, 2013e).

All field activities were performed in accordance with the site-specific Health and Safety Plan (Appendix C of WP/FSP).

3.3.2 Well Installation Field Activities

An ERM field geologist provided continuous on-site supervision during the drilling, construction, and development of the groundwater monitoring wells. All drilling and lithologic characterization was performed under the oversight of a California Professional Geologist.

3.3.2.1 Drilling Technique

The groundwater monitoring wells were installed using a Speedstar 30K high-torque, mud-rotary drilling rig operated by National EWP of Montclair, California. The rig was equipped with either a 14 ¾ inch or 12 ¼ inch, outer-diameter tri-cone drill bit, depending on whether two or three wells casings were installed in the boring.

3.3.2.2 Geological and Geophysical Logging

Soil cuttings were collected for geological logging during mud-rotary drilling from the shaker table. ERM's on-site geologist used a mesh strainer to collect the cuttings while allowing the excess drilling fluid to fall away. Borehole cuttings were collected at approximately 10-foot intervals for characterization. The on-site geologist described the soil cuttings on boring logs according to the Unified Soil Classification System (USCS), per American Society for Testing and Materials (ASTM) Methods D-1452, D-2487, and D-2488. Boring and well construction logs are provided in Appendix A. Soils encountered consisted predominantly of sand, gravel, and silty sand.

Upon completion of mud-rotary drilling to the desired depth, geophysical logging was completed in each borehole. The geophysical log consisted of the following suite of logs:

- Spontaneous potential log;
- 16-inch short normal and 64-inch long normal resistivity logs;
- Guard resistivity log;
- Sonic log;

- Natural gamma-ray log; and
- Caliper log.

The geophysical logging was conducted by Pacific Surveys of Claremont, California under the direction of ERM. Geophysical logs are provided in Appendix B.

3.3.2.3 Groundwater Monitoring Well Construction

Monitoring well construction details are summarized in Table 1 and Appendix A. Final depths and screened intervals were selected based on the rationale for the well, lithology, and geophysical logs. Final well constructions were determined in consultation with USEPA. For wells to be used to support the County/Emhart Agreement in Principle (EMW-03, EMW-04, and EMW-05), well constructions were finalized in consultation with the County.

The nested wells were constructed using new, 3-inch diameter, Schedule 40 low carbon steel casings, and stainless steel, wire-wrapped well screen, 0.020-inch slotted. The well screens were attached to the blank casing with dielectric couplings. Centralizers were installed at approximately every 50 feet during installation. The well casings were secured to the well screen by flush-jointed threads and placed into the borehole. No glue of any type or oils and greases were used in well construction.

Filter pack and grout were placed in the annular space between the edge of the borehole and the well casing using a tremmie pipe. The filter pack materials consisted of No. 3 Monterey Sand. A minimum of 5 feet of filter pack material was placed below the bottom of the well screens to provide a firm footing and an unrestricted flow under the screened area. The filter packs extend a minimum of 3 to 5 feet above the top of the well screen to allow for settling. Once the filter pack was emplaced, the well was surged using surge block for 10 to 15 minutes. The surging allows for the filter packs to consolidate and establish a good connection with the surrounding aquifer before the bentonite seal is added.

The bentonite seals were emplaced above the filter pack to prevent the possibility of grout infiltration into the screened interval prior to setting. The bentonite seals consisted of bentonite pellets approximately ¼-inch diameter and the seal thickness was a minimum of 5 feet. Pellets were poured slowly into the annular space between the borehole and the well casing. The bentonite pellets were allowed to hydrate for a minimum of 45 minutes prior to grouting.

The annular space between the casing and the borehole wall from the surface to the top of the first well seal was filled with Portland cement grout. Below the first well screen, the blank casing annulus was filled with No. 12 sand and bentonite chips mixed in a one-to-one ratio. The grout was allowed to cure for a minimum of 12 hours before the well vaults and concrete pads were installed.

The wells were completed with traffic-rated, flush-mounted, secured well boxes. Each well is equipped with a padlock to prevent tampering. Permanent markings were applied to the well monument and casing to provide reference points for the surveyors and to enable consistent future measurements.

3.3.3 Surveying

Each well was surveyed by J. B. Koenig and Associates of Anaheim, California, a State-of-California licensed land surveyor, using the State Plane North American Datum 1983 (NAD 83) California Zone V system. The vertical survey coordinates of monitoring wells were surveyed to an accuracy of 0.01 foot; horizontal coordinates were measured to an accuracy of 1.0 foot. Survey data are provided in Appendix C.

3.3.4 Well Development

After allowing for a minimum of 24 hours following monitoring well installation, a supervised pump crew completed the development at each well. Well development consisted of bailing and/or airlifting, swabbing, and pumping. Field parameters including temperature, pH, turbidity, and specific conductivity were collected at frequent intervals during bailing. Each well was developed until the discharge water had a turbidity of <5 Nephelometric Turbidity Units and groundwater parameters stabilized. Well development records are provided in Appendix D.

3.3.5 Investigation–Derived Waste

Well drilling and development water was collected in roll-off bins located at each well site. Water and solids were profiled for disposal purposes. Profile samples were analyzed by Eurofins Calscience, Inc. of Garden Grove, California. All waste was determined to be nonhazardous. Drilling and development water (approximately 45,000 gallons) was pumped off into vac-trucks and disposed of at the South Yuma County Landfill, in accordance with USEPA's Off-Site Rule. Approximately 5,000 gallons of nonhazardous drilling water was disposed of at All American

Asphalt located in Corona, California. Drilling and development solids (approximately 420 tons) were allowed to dry in the bins and then were likewise transported to the South Yuma County Landfill for disposal, in accordance with USEPA's Off-Site Rule.

4.0 GROUNDWATER MONITORING

This section summarizes groundwater monitoring activities performed for the new wells in accordance with the WP/FSP (ERM, 2013e). Field activities were performed by Blaine Tech Services, Inc., subcontracted by ERM, between 5 and 9 May 2014.

4.1 FIELD PROCEDURES

The following tasks were completed during the groundwater monitoring event at EMW-01, -03, -04, and -05:

- Calibrated field equipment;
- Measured water levels;
- Measured field water quality parameters; and
- Collected groundwater samples for laboratory analysis.

Groundwater sampling results are summarized in Section 5.0.

4.2 WATER LEVELS

Water level measurements were collected at each well using a decontaminated water level meter. Measurements were collected from a marked reference point at the top of each well casing and recorded on field data sheets to the nearest 0.01 foot.

4.3 WATER QUALITY SAMPLING

Water quality samples were collected per the sample collection guidelines identified in the *Field Sampling Plan* (ERM, 2013b; Appendix E of the WP/FSP) and described in detail below.

Groundwater samples were collected using HYDRASleeve™ sampling methodology. The HYDRASleeve Standard Operating Procedures (GeoInsight Inc., 2010), included in Appendix C4 of the *Field Sampling Plan* (Appendix E of the WP/FSP), contains diagrams illustrating the steps required for HYDRASleeve sampler deployment, retrieval, and sample recovery.

The following steps were taken to deploy and retrieve the HYDRASleeve sampler:

4.3.1 Sampler Assembly/Deployment Steps

1. Removed the sampler from the packaging and creased the reinforced fins outward to open the top of the sampler.
2. Attached a calibrated tether to one of the holes at the top of the sampler.
3. Folded the bottom of the sampler, aligning the two holes, and attached the weight using the stainless steel clip.
4. Lowered the weighted sampler to the middle of the well screen interval.
5. Secured the sampler at the top of the well by attaching the tether to the well cap. Once the sampler was secured at the surface, the well was given a minimum of 24 hours to equilibrate before the sample was collected.

4.3.2 Sampler Retrieval / Sample Collection Steps

1. The sampler was pulled upward (out of the well) at a rate of 1 to 2 feet per second.
2. Once the sampler was at the surface, it was grabbed just below the top to expel water resting on top of the check valve.
3. The sampler was punctured approximately 3 to 4 inches below the white reinforcing strips located at the top of the sampler.
4. Water was decanted from the sampler through the discharge tube into the appropriate containers for desired laboratory analysis.

In accordance with the WP/FSP (ERM, 2013e), the following field parameters were collected during sampling to ensure the samples collected were representative of formation groundwater:

- Temperature;
- pH;
- Turbidity; and
- Electrical conductivity.

Field parameter data are presented on the monitoring field logs included in Appendix E.

4.3.3 Sample Handling

Per the packaging and shipment guidelines listed in the WP/FSP (ERM, 2013e), immediately following sample collection, all sample containers were labeled appropriately, bubble wrapped, secured with tape, placed into a plastic resealable bag, and placed on ice in a properly packaged ice chest. A self-adhesive custody seal was placed across the lid of each sample. For VOC samples, the seal was wrapped around the cap. The shipping containers in which samples were stored (sturdy ice chests) were sealed with self-adhesive custody seals before shipping. All custody seals were signed and dated.

Sample data and chain-of-custody (CoC) forms were completed for all samples as appropriate. The completed CoC forms (Appendix F) identified the contents of each shipment, the analytical requirements, and maintained the custodial integrity of the samples. The CoC includes laboratory receipt remarks regarding the sample integrity including bottle intact, preserved, custody seals, seals intact, chilled, or any other relevant comments.

Sample custody was maintained by the field team until samples were shipped to the contracted laboratory, Accutest Laboratories of San Jose, California. Samples were collected and analyzed for the following laboratory analyses:

- VOCs by USEPA Method 8260B; and
- Perchlorate by USEPA Method 314.0.

The sample analysis matrix is summarized in Table 2.

5.0 GROUNDWATER MONITORING RESULTS

This section summarizes the results of groundwater monitoring performed in May 2014.

5.1 WATER LEVEL RESULTS

During the remedial design investigation, the depth to groundwater was measured in accordance with the WP/FSP with one exception (Table 3). The depth to water could not be collected at EMW-04C because the water level meter would not extend beyond 550 feet bgs; it is believed that the meter stuck to the side of the well.

Groundwater elevation in wells sampled during the May 2014 were used to estimate groundwater elevation contours of the Intermediate and Regional Aquifers' potentiometric surfaces in the SAOU as depicted on Figures 3 and 4, respectively. For locations with multiple screens in an aquifer, the average water elevation was posted.

Based on these elevations, groundwater flow was generally to the southeast at a horizontal hydraulic gradient of approximately 0.0112 feet-per-foot in the Intermediate Aquifer and at a horizontal hydraulic gradient of approximately 0.0011 feet-per-foot in the Regional Aquifer. The direction of flow and hydraulic gradient in the Intermediate and Regional Aquifers are generally consistent with water level trends from the May 2013 sample event.

5.2 GROUNDWATER QUALITY RESULTS

Water quality samples were collected in accordance with the sampling schedule provided in the WP/FSP (ERM, 2013e). Analytical results are summarized in Table 4.

The following compounds were detected at concentrations above their respective maximum contaminant level (MCL):

- 1,2-Dichloroethane;
- Perchlorate;
- Toluene; and
- Trichloroethene (TCE).

TCE and perchlorate are the only constituents of concern for the site (as defined in the 2010 ROD [USEPA, 2010]) that exceed SAOU cleanup standards. Perchlorate and TCE results from the remedial design investigation are presented on Figures 5 and 6, respectively.

5.3 DATA VALIDATION

The data validation process evaluated the analytical data for method quality control and laboratory quality control compliance, and determined the validity and applicability of the data. Data validation was completed internally by ERM in accordance with the procedures outlined in the Quality Assurance Project Plan (QAPP; ERM, 2013c). Based on the findings of the validation process, data validation qualifiers were assigned to explain the rationale for applying a particular validation qualifier. The validated project data, including qualifiers and reason codes, are represented in Table 4.

Data validation reports are provided in Appendix G.

Validation qualifiers were applied to the dataset because matrix spike (MS) and matrix spike duplicate (MSD) recoveries of perchlorate (77.4%) were slightly below control limits (80-120%). The associated sample data were qualified as "estimated result biased low" (J-) for positive results and "estimated" (UJ) for non-detects. All of the analytical data collected during this event can be used for decision-making purposes.

6.0 REFERENCES

Danskin, W.R., McPherson, K.R., Woolfenden, L.R. 2006. *Hydrology, Description of Computer Models, and Evaluation of Selected Water-Management Alternatives in the San Bernardino Area, California.* U.S. Geological Survey, Open File Report 2005-1278, 194 p.

Dutcher, L.C. and Garrett, A.A. 1958. *Geologic and Hydrologic Features of the San Bernardino Area, California, with Special Reference to Underflow Across the San Jacinto Fault.* U.S. Geological Survey Open-File Report.

ERM-West, Inc. 2013a. *Draft Groundwater Flow Modeling Report*. April.

ERM-West, Inc. 2013b. *Field Sampling Plan*. May.

ERM-West, Inc. 2013c. *Quality Assurance Project Plan*. May.

ERM. 2013d. *Final Groundwater Flow Modeling Report, Source Area Operable Unit, B.F. Goodrich Superfund Site*. 26 July 2013.

ERM. 2013e. *Final Monitoring Well Installation Work Plan/Field Sampling Plan, Source Area Operable Unit, B.F. Goodrich Superfund Site*. 1 November 2013.

GeoInsight, Inc. 2010. *Standard Operating Procedure: Sampling Ground Water with a HydraSleeve.* Available at http://www.hydrasleeve.com.

GLA. 2012. *Groundwater Monitoring Report Third Quarter 2012, Rialto Groundwater Treatment System Perchlorate and VOC Remediation. San Bernardino County, California.* October.

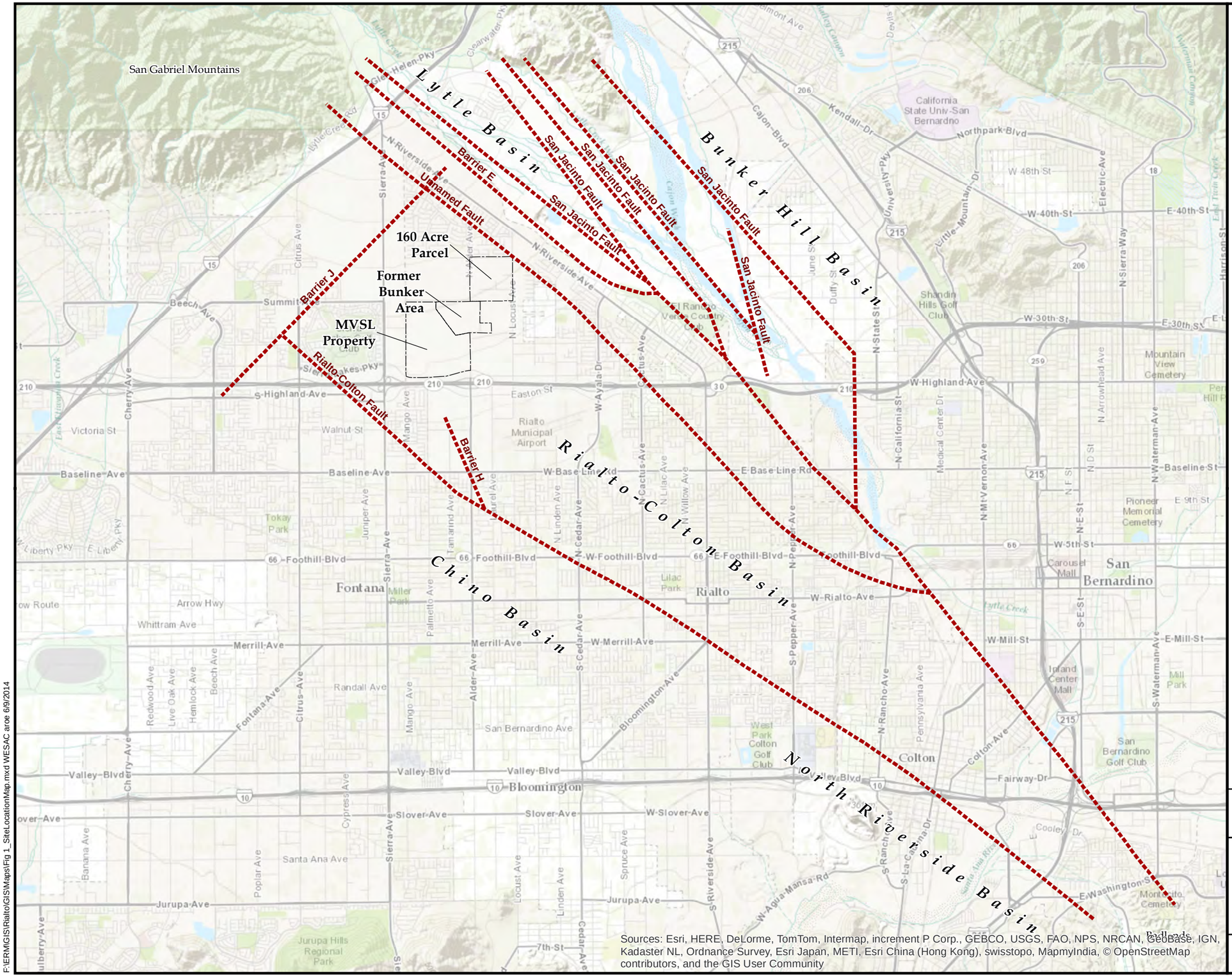
U.S. Environmental Protection Agency (USEPA). 2010. *EPA Superfund Interim Action Record of Decision, Source Area Operable Unit, B.F. Goodrich Superfund Site, San Bernardino County, CA*. EPA ID: CAN000905945. 30 September.

USEPA. 2013. *EPA Approval of Groundwater Extraction Rates and Locations B.F. Goodrich Superfund Site, Source Area Operable*. 28 June 2013.

U.S. Geological Survey (USGS). 1997. *Geohydrology and Water Chemistry in the Rialto-Colton Basin, San Bernardino County, California.* Water-Resources Investigation Report 97-4012. Linda R. Woolfenden and Dina Kadhim.

USGS. 2001. *Numerical Simulation of Ground-Water Flow and Assessment of the Effects of Artificial Recharge in the RCB, San Bernardino County, California.* Water-Resources Investigation Report 00-4243. L.R. Woolfenden and K.M. Koczot.

Figures



Legend

- Approximate Location Fault/Geologic Contact
- Property Boundary

REFERENCE:
Remedial Investigation/Feasibility Study Report,
BF Goodrich Superfund Site
Rialto, California, CH2MHill,
January 2010.

N

0 6,000

Scale in Feet

SOURCE AREA OPERABLE UNIT
ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE

FIGURE 1

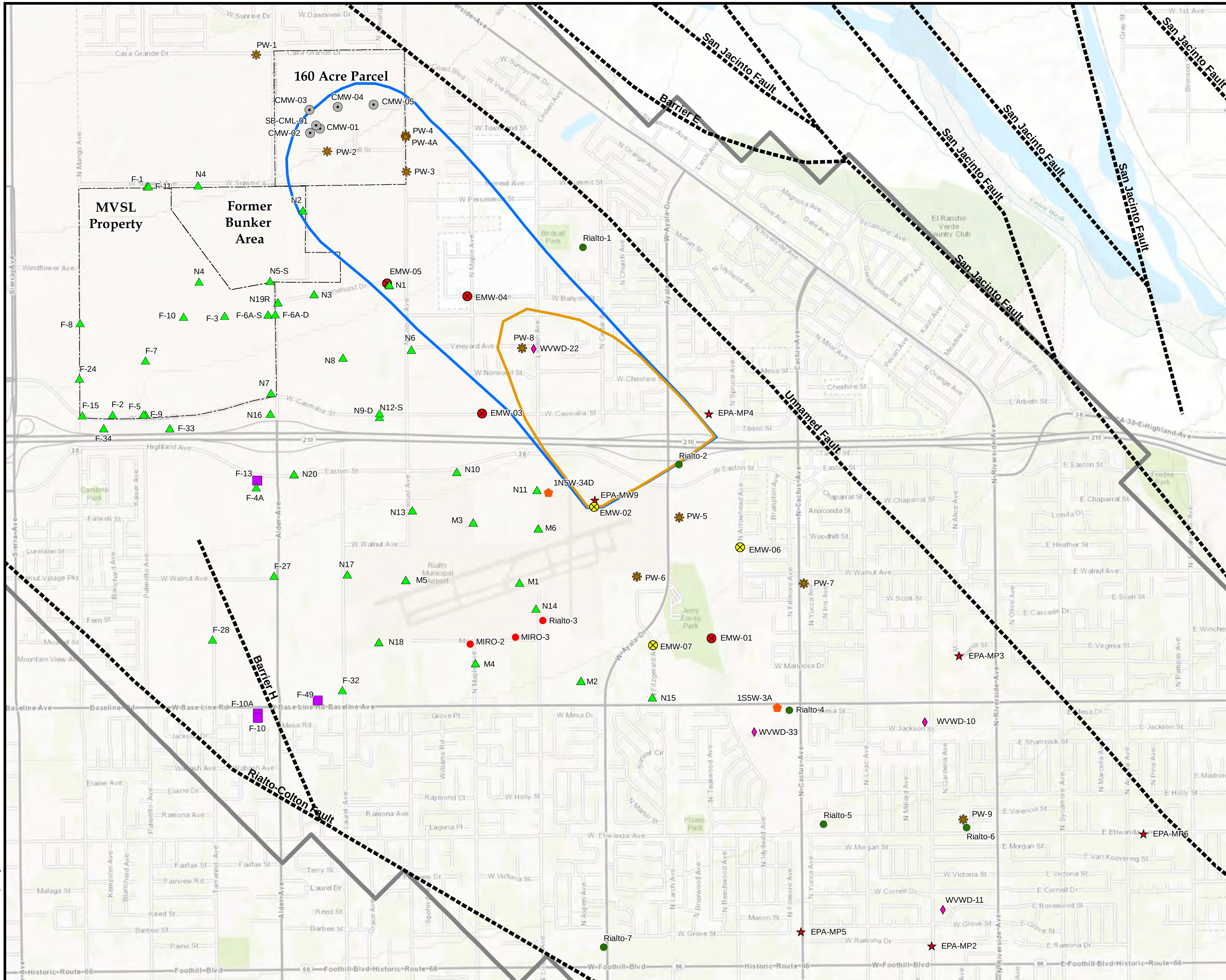
SITE LOCATION MAP

ERM

PREPARED BY:
aroe (ERM)

JOB NO. 0179962
FILE: Fig 1_SiteLocationMap.mxd

F:\ERMGIS\Rialto\GIS\Maps\Fig 1_SiteLocationMap.mxd WESAC aroe 6/9/2014



F:\ERM\GIS\Rialto\GIS\Maps\Fig 2 Site Plan.mxd WESAC AP 6/9/2014

Legend

- Proposed Future Well
- Newly Installed Emhart Well
- County Remedy Well
- 160 Acre Area - Upgradient or Downgradient Monitoring Well
- 160 Acre Area Monitoring Well
- City of Rialto Production Well
- EPA Monitoring Well
- San Bernardino County Well
- USGS Cluster Well
- Fontana Water Company Production Well
- West Valley Water District Production Well
- Faults
- IROD/Emhart Model Regional Target Capture Zone
- IROD/Emhart Model Intermediate Target Capture Zone
- Model Boundary
- Site Boundary

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User

N

0 2,000

Feet

SOURCE AREA OPERABLE UNIT
ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE

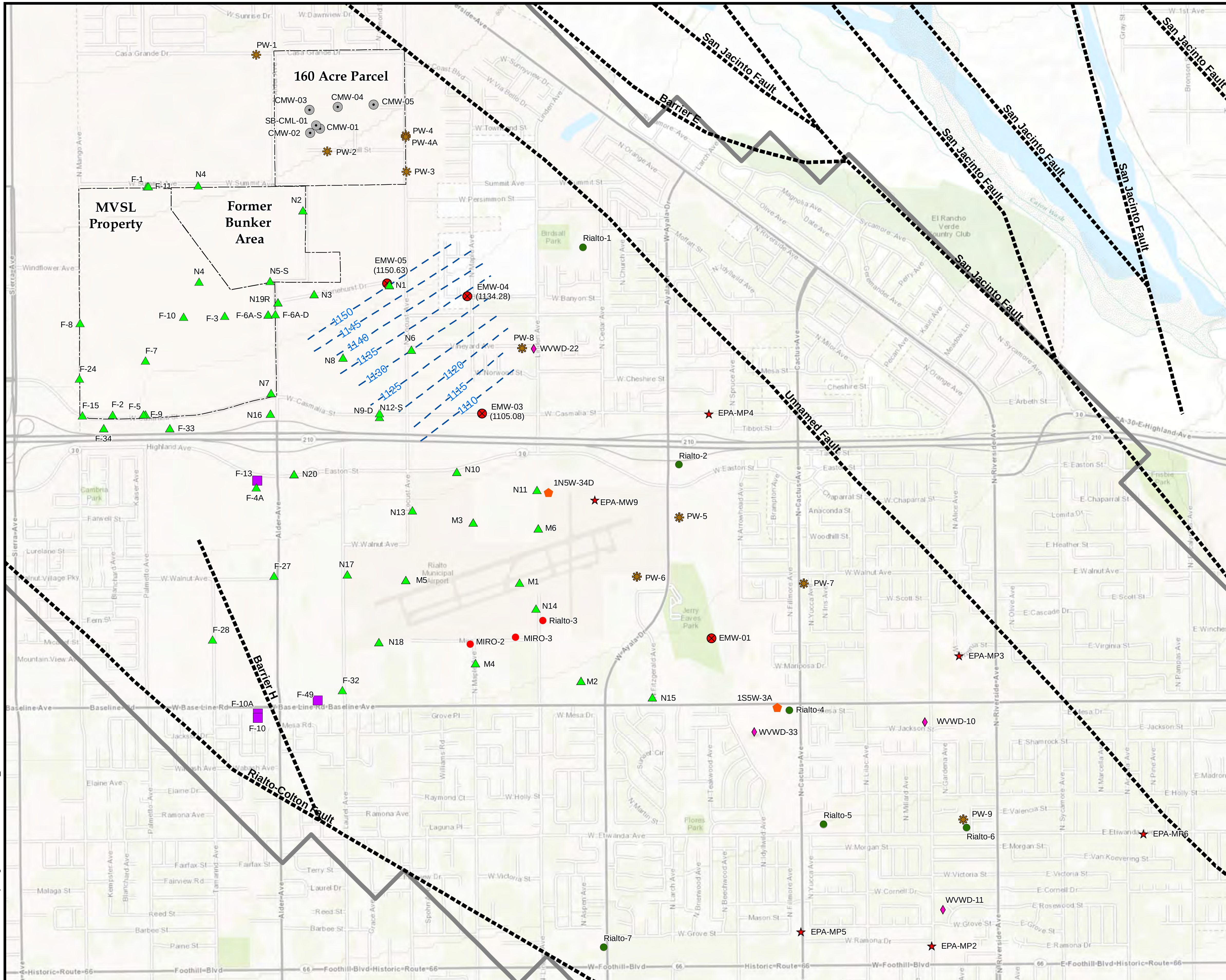
FIGURE 2

SITE PLAN

ERM

PREPARED BY:
AP (ERM)

JOB NO. 0179962.03.A
FILE: Fig 2 Site Plan.mxd



F:\ERM\GIS\Rialto\GIS\Maps\Fig 3 Potentiometric Surface_Intermediate.mxd WESAC RK 6/9/2014

Legend

- Newly Installed Emhart Well
- County Remedy Well
- 160 Acre Area - Upgradient or Downgradient Monitoring Well
- 160 Acre Area Monitoring Well
- City of Rialto Production Well
- EPA Monitoring Well
- San Bernardino County Well
- USGS Cluster Well
- Fontana Water Company Production Well
- West Valley Water District Production Well
- Groundwater Contours (Dashed where inferred)
- Faults
- Model Boundary
- Site Boundary

Note:
1. Average water table elevation posted for wells with multiple screening levels within the zone
2. Average Horizontal Hydraulic Gradient = 0.0112
3. Groundwater elevation in feet

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User

N

0 2,000

Feet

SOURCE AREA OPERABLE UNIT
ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE

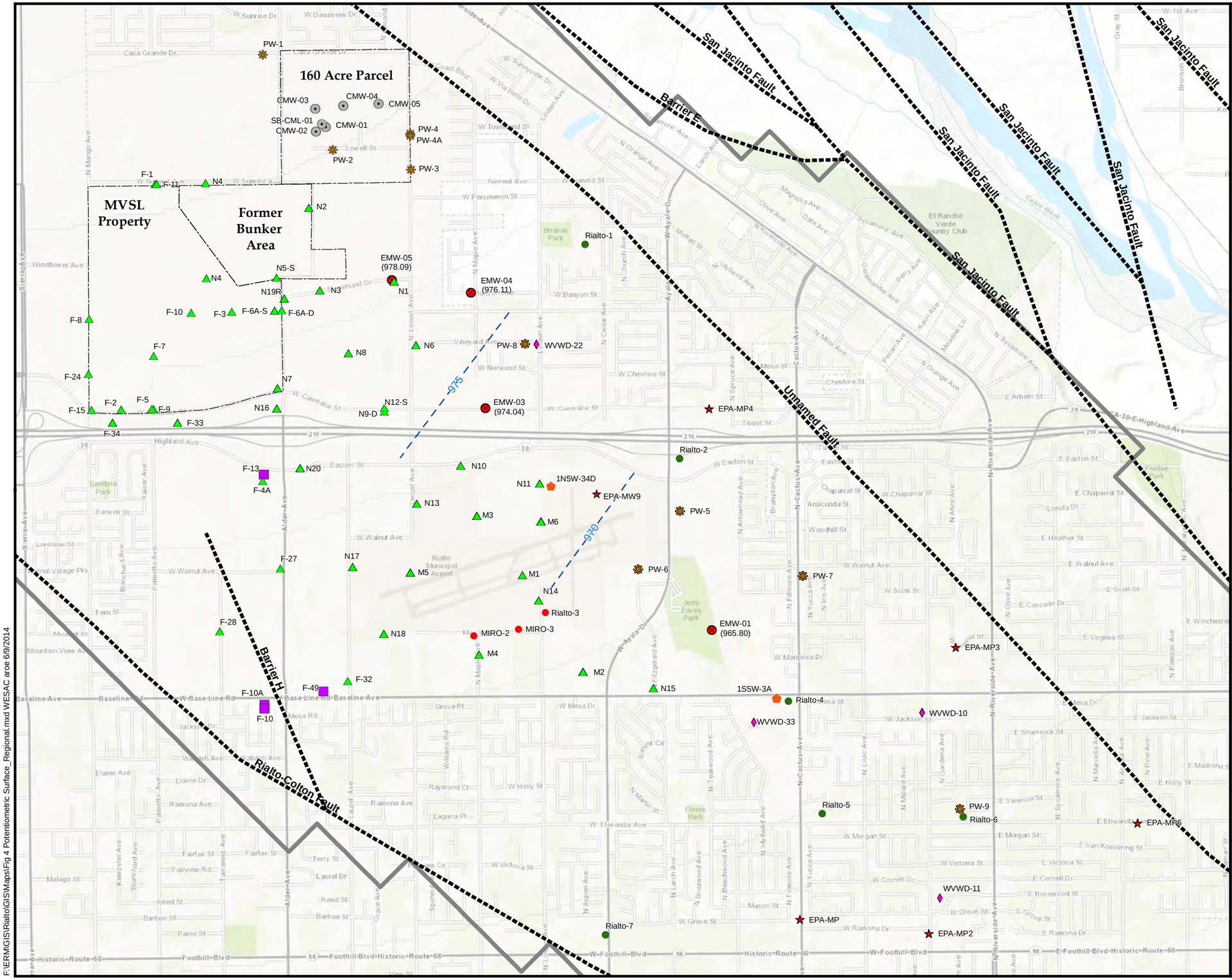
FIGURE 3

POTENTIOMETRIC SURFACE
INTERMEDIATE AQUIFER

ERM

PREPARED BY:
RK (ERM)

JOB NO. 0179962.03.A
FILE: Fig 3 Potentiometric Surface_Intermediate.mxd



Legend

- Newly Installed Emhart Well
- County Remedy Well
- 160 Acre Area - Upgradient or Downgradient Monitoring Well
- 160 Acre Area Monitoring Well
- City of Rialto Production Well
- EPA Monitoring Well
- San Bernardino County Well
- USGS Cluster Well
- Fontana Water Company Production Well
- West Valley Water District Production Well
- Groundwater Contour (Dashed where inferred)
- Faults
- Model Boundary
- Site Boundary

Note:
1. Average water table elevation posted for wells with multiple screening levels within the zone
2. Average Horizontal Hydraulic Gradient = 0.0011
3. Groundwater elevation in feet

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

N

0 2,000

Feet

SOURCE AREA OPERABLE UNIT
ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE

FIGURE 4

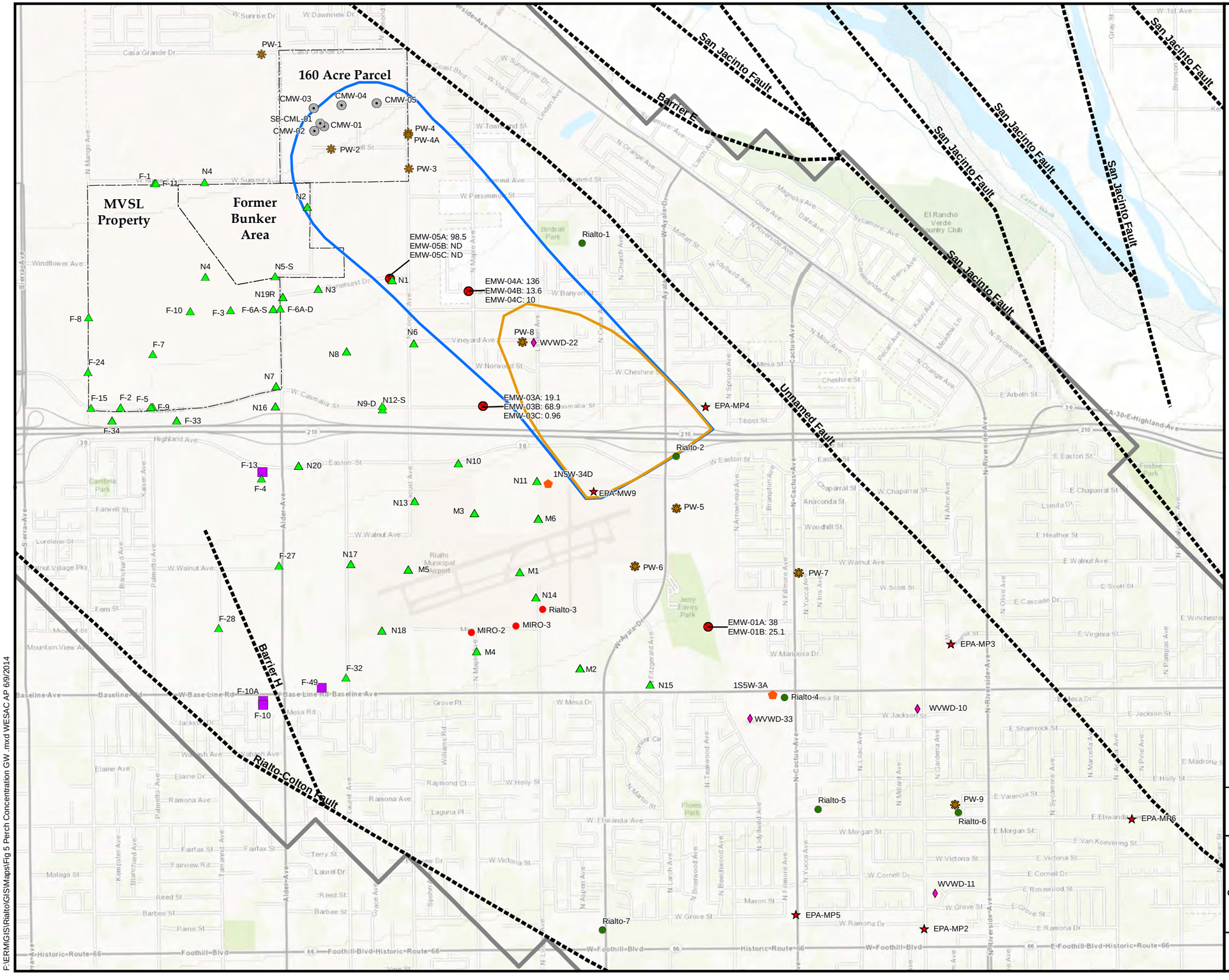
POTENTIOMETRIC SURFACE
REGIONAL AQUIFER

ERM

PREPARED BY: aroe (ERM)

JOB NO. 0179962.03.A
FILE: Fig 4 Potentiometric Surface_Regional.mxd

F:\ERM\GIS\Rialto\GIS\Maps\Fig 4 Potentiometric Surface_Regional.mxd WESAC aroe 6/9/2014



F:\ERM\GIS\Rialto\GIS\Maps\Fig 5 Perch Concentration GW .mxd WESAC AP 6/9/2014

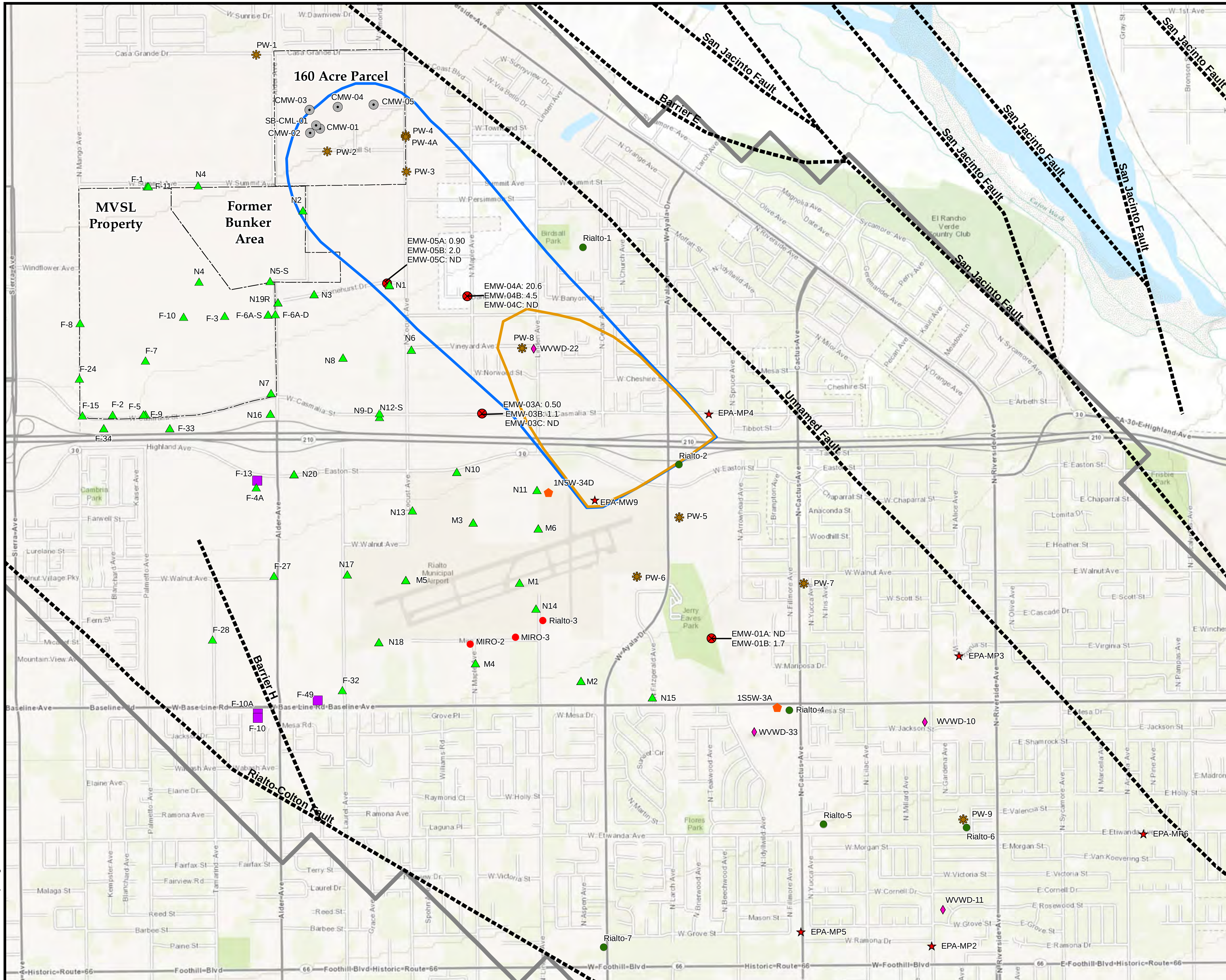
SOURCE AREA OPERABLE UNIT
ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE

FIGURE 5

PERCHLORATE CONCENTRATION IN GROUNDWATER AND SAOU TARGET AREA

ERM

PREPARED BY:	JOB NO. 0179962.03.A
AP (ERM)	FILE: Fig 5 Perch Concentration GW .mxd



F:\ERM\GIS\Rialto\GIS\Maps\Fig 6 TCE Concentration GW.mxd WESAC 6/9/2014

Legend

- Newly Installed Emhart Well
- County Remedy Well
- 160 Acre Area - Upgradient or Downgradient Monitoring Well
- 160 Acre Area Monitoring Well
- City of Rialto Production Well
- EPA Monitoring Well
- San Bernardino County Well
- USGS Cluster Well
- Fontana Water Company Production Well
- West Valley Water District Production Well
- Faults
- IROD/Emhart Model Regional Target Capture Zone
- IROD/Emhart Model Intermediate Target Capture Zone
- Model Boundary
- Site Boundary

Note:
1. Trichloroethene (TCE) concentrations in micrograms per liter
2. ND = Not Detected

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User

N

0 2,000

Feet

SOURCE AREA OPERABLE UNIT
ROCKETS, FIREWORKS, AND FLARES SUPERFUND SITE

FIGURE 6

TCE CONCENTRATION IN GROUNDWATER AND SAOU TARGET AREA

ERM

PREPARED BY: (ERM)

JOB NO. 0179962.03.A
FILE: Fig 6 TCE Concentration GW.mxd

Tables

Table 1 *Well Construction*

Source Area Operable Unit - Rockets, Fireworks, and Flares Superfund Site

Well ID	Aquifer	Top of Casing Elevation (ft MSL)	Screen Depth (ft bgs)		Screen Elevation (ft MSL)	
			Top	Bottom	Top	Bottom
EMW-01A	Regional	1386.48	460	480	926.48	906.48
EMW-01B	Regional	1386.48	546	566	840.48	820.48
EMW-03A	Intermediate	1500.66	408	428	1092.66	1072.66
EMW-03B	Regional	1500.61	549	569	951.61	931.61
EMW-03C	Regional	1500.51	630	650	870.51	850.51
EMW-04A	Intermediate	1549.42	430	460	1119.42	1089.42
EMW-04B	Regional	1549.32	590	615	959.32	934.32
EMW-04C	Regional	1549.23	680	700	869.23	849.23
EMW-05A	Intermediate	1573.56	440	460	1133.56	1113.56
EMW-05B	Regional	1573.42	600	625	973.42	948.42
EMW-05C	Regional	1573.33	710	730	863.33	843.33

Abbreviations:

bgs = Below ground surface

ft = Feet

MSL = Mean sea level

Table 2 Sample Analysis Matrix
Source Area Operable Unit - Rockets, Fireworks, and Flares Superfund Site

Analyte	Method	Reporting Limit (µg/L)	Method Detection Limit (µg/L)	Units
Volatile Organic Compounds				
Acetone	USEPA 8260B	20	4.0	µg/L
Benzene	USEPA 8260B	1.0	0.2	µg/L
Bromobenzene	USEPA 8260B	1.0	0.2	µg/L
Bromochloromethane	USEPA 8260B	1.0	0.2	µg/L
Bromodichloromethane	USEPA 8260B	1.0	0.2	µg/L
Bromoform	USEPA 8260B	1.0	0.22	µg/L
n-Butylbenzene	USEPA 8260B	2.0	0.2	µg/L
sec-Butylbenzene	USEPA 8260B	2.0	0.2	µg/L
tert-Butylbenzene	USEPA 8260B	2.0	0.28	µg/L
Chlorobenzene	USEPA 8260B	1.0	0.2	µg/L
Chloroethane	USEPA 8260B	1.0	0.2	µg/L
Chloroform	USEPA 8260B	1.0	0.2	µg/L
o-Chlorotoluene	USEPA 8260B	2.0	0.2	µg/L
p-Chlorotoluene	USEPA 8260B	2.0	0.26	µg/L
Carbon tetrachloride	USEPA 8260B	1.0	0.2	µg/L
1,1-Dichloroethane	USEPA 8260B	1.0	0.2	µg/L
1,1-Dichloroethene	USEPA 8260B	1.0	0.2	µg/L
1,1-Dichloropropene	USEPA 8260B	1.0	0.2	µg/L
1,2-Dibromo-3-chloropropane	USEPA 8260B	2.0	0.4	µg/L
1,2-Dibromoethane	USEPA 8260B	1.0	0.2	µg/L
1,2-Dichloroethane	USEPA 8260B	1.0	0.2	µg/L
1,2-Dichloropropane	USEPA 8260B	1.0	0.2	µg/L
1,3-Dichloropropane	USEPA 8260B	1.0	0.2	µg/L
Di-Isopropyl ether	USEPA 8260B	2.0	0.22	µg/L
2,2-Dichloropropane	USEPA 8260B	1.0	0.2	µg/L
Dibromochloromethane	USEPA 8260B	1.0	0.2	µg/L
Dichlorodifluoromethane	USEPA 8260B	1.0	0.2	µg/L
cis-1,2-Dichloroethene	USEPA 8260B	1.0	0.2	µg/L
cis-1,3-Dichloropropene	USEPA 8260B	1.0	0.2	µg/L
m-Dichlorobenzene	USEPA 8260B	1.0	0.2	µg/L
o-Dichlorobenzene	USEPA 8260B	1.0	0.2	µg/L
p-Dichlorobenzene	USEPA 8260B	1.0	0.2	µg/L
trans-1,2-Dichloroethene	USEPA 8260B	1.0	0.2	µg/L
trans-1,3-Dichloropropene	USEPA 8260B	1.0	0.3	µg/L
Ethylbenzene	USEPA 8260B	1.0	0.2	µg/L
Ethyl Tert Butyl Ether	USEPA 8260B	2.0	0.22	µg/L
2-Hexanone	USEPA 8260B	10	2.0	µg/L
Hexachlorobutadiene	USEPA 8260B	2.0	0.2	µg/L
Isopropylbenzene	USEPA 8260B	1.0	0.2	µg/L
p-Isopropyltoluene	USEPA 8260B	2.0	0.2	µg/L
4-Methyl-2-pentanone	USEPA 8260B	10	1.0	µg/L
Methyl bromide	USEPA 8260B	2.0	0.2	µg/L
Methyl chloride	USEPA 8260B	1.0	0.3	µg/L
Methylene bromide	USEPA 8260B	1.0	0.2	µg/L
Methylene chloride	USEPA 8260B	10	2.0	µg/L
Methyl ethyl ketone	USEPA 8260B	10	2.0	µg/L
Methyl Tert Butyl Ether	USEPA 8260B	1.0	0.2	µg/L
Naphthalene	USEPA 8260B	5.0	0.5	µg/L
n-Propylbenzene	USEPA 8260B	2.0	0.2	µg/L
Styrene	USEPA 8260B	1.0	0.2	µg/L
Tert-Amyl Methyl Ether	USEPA 8260B	2.0	0.4	µg/L

Table 2 Sample Analysis Matrix
Source Area Operable Unit - Rockets, Fireworks, and Flares Superfund Site

Analyte	Method	Reporting Limit (µg/L)	Method Detection Limit (µg/L)	Units
Volatile Organic Compounds				
Tert-Butyl Alcohol	USEPA 8260B	10	2.4	µg/L
1,1,1,2-Tetrachloroethane	USEPA 8260B	1.0	0.3	µg/L
1,1,1-Trichloroethane	USEPA 8260B	1.0	0.2	µg/L
1,1,2,2-Tetrachloroethane	USEPA 8260B	1.0	0.2	µg/L
1,1,2-Trichloroethane	USEPA 8260B	1.0	0.22	µg/L
1,2,3-Trichlorobenzene	USEPA 8260B	2.0	0.2	µg/L
1,2,3-Trichloropropane	USEPA 8260B	2.0	0.2	µg/L
1,2,4-Trichlorobenzene	USEPA 8260B	2.0	0.2	µg/L
1,2,4-Trimethylbenzene	USEPA 8260B	2.0	0.2	µg/L
1,3,5-Trimethylbenzene	USEPA 8260B	2.0	0.2	µg/L
Tetrachloroethene	USEPA 8260B	1.0	0.3	µg/L
Toluene	USEPA 8260B	1.0	0.2	µg/L
Trichloroethene	USEPA 8260B	1.0	0.2	µg/L
Trichlorofluoromethane	USEPA 8260B	1.0	0.2	µg/L
Vinyl chloride	USEPA 8260B	1.0	0.2	µg/L
Xylene (total)	USEPA 8260B	2.0	0.46	µg/L
General Chemistry				
Perchlorate	USEPA 314.0	3.0	0.3	µg/L
Specific Conductivity	USEPA 120.1	1.0		µmhos/cm

Abbreviations:
µg/L = Micrograms per liter
µmhos/cm = Micromhos per centimeter
USEPA = U.S. Environmental Protection Agency

Table 3 Well Groundwater Elevations
Source Area Operable Unit - Rockets, Fireworks, and Flares Superfund Site

Location Name	Well	Aquifer	Measurement Date	Top of Casing Elevation (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Comment
EMW-01	EMW-01A	Regional	5-May-14	1386.48	420.79	965.69	Average of the Regional Aquifer (965.80) was used for contouring.
	EMW-01B	Regional	5-May-14	1386.48	420.57	965.91	
EMW-03	EMW-03A	Intermediate	5-May-14	1500.66	395.58	1105.08	Average of the Regional Aquifer (974.04) was used for contouring.
	EMW-03B	Regional	5-May-14	1500.61	526.32	974.29	
	EMW-03C	Regional	5-May-14	1500.51	526.72	973.79	
EMW-04	EMW-04A	Intermediate	5-May-14	1549.42	415.14	1134.28	Average of the Regional Aquifer (976.11) was used for contouring.
	EMW-04B	Regional	5-May-14	1549.32	573.21	976.11	
	EMW-04C	Regional	5-May-14	1549.23	NM	NM	
EMW-05	EMW-05A	Intermediate	5-May-14	1573.56	422.93	1150.63	Average of the Regional Aquifer (978.09) was used for contouring.
	EMW-05B	Regional	5-May-14	1573.42	594.17	979.25	
	EMW-05C	Regional	5-May-14	1573.33	596.41	976.92	

Abbreviations:
BTOC = Below top of casing
ft = Feet
MSL = Mean sea level
NM = Not measured

Table 4 *Groundwater Summary Table*

Source Area Operable Unit - Rockets, Fireworks, and Flares Superfund Site

Well	Sample Date	Sample Type	1,1-DCE	1,2-DCA	Acetone	Carbon Tetrachloride	Ethyl-benzene	Perchlorate	Toluene	TCE	Xylenes
EMW-01A	09-May-14	N	**0.51 j**	< 2.5	**13.7 j**	< 2.5	**2.8**	**38.0 J-**	**190**	< 2.5	**2.8 j**
EMW-01B	09-May-14	N	< 1.0	**1.1**	**22**	< 1.0	**0.53 j**	**25.1 J-**	**59.3**	**1.7**	**0.62 j**
EMW-03A	09-May-14	N	< 1.0	**0.43 j**	< 20	< 1.0	< 1.0	**19.1 J-**	**71.1**	**0.50 j**	< 2.0
EMW-03B	09-May-14	N	< 2.0	**1.6 j**	< 40	< 2.0	< 2.0	**68.9 J-**	**149**	**1.1 j**	< 4.0
EMW-03C	09-May-14	N	< 2.5	**1.6 j**	**47.9 j**	< 2.5	< 2.5	**0.96 jJ-**	**190**	< 2.5	< 5.0
EMW-04A	09-May-14	N	< 1.0	< 1.0	< 20	**0.41 j**	< 1.0	**136 J-**	**4.9**	**20.6**	< 2.0
EMW-04B	09-May-14	N	< 1.0	**1.9**	< 20	< 1.0	< 1.0	**13.6 J-**	**45.2**	**4.5**	< 2.0
EMW-04C	09-May-14	N	< 5.0	**2.2 j**	< 100	< 5.0	< 5.0	**10.0 J-**	**246**	< 5.0	< 10
EMW-05A	09-May-14	N	< 1.0	**0.32 j**	< 20	< 1.0	**0.35 j**	**98.5 J-**	**14.3**	**0.90 j**	< 2.0
EMW-05A	09-May-14	FD	< 1.0	**0.64 j**	< 20	< 1.0	**0.62 j**	**98.8 J-**	**26.1**	**0.78 j**	**0.80 j**
EMW-05B	09-May-14	N	< 1.0	**0.89 j**	**4.0 j**	< 1.0	**0.28 j**	< 0.31	**15**	**2**	< 2.0
EMW-05C	09-May-14	N	< 1.0	**0.65 j**	< 20	< 1.0	**0.57 j**	< 0.31	**41.8**	< 1.0	**0.74 j**
		$MCL_{(1)}$	6.0	0.5	NS	0.5	300	6	150	**5**	1,750
	Rialto ROD Cleanup Standard		--	--	--	0.5	--	6	--	5	--

Notes:
Results in micrograms per liter.
< = Compound not detected. Reportable detection limit shown.
-- = Not a constituent of concern in 2010 ROD.
Bolded values indicate concentrations above the reportable detection limit.
Shaded values indicate concentrations above the MCLs.
(1) MCL lower of the federal and California MCL as referenced in the QAPP (ERM, 2013).

Laboratory Qualifiers
j = The associated numerical value is an estimated quantity.
Data Assessment Qualifiers
J- = Estimated result biased low.

Abbreviations:
DCA = Dichloroethane
DCE = Dichloroethene
FD = Field duplicate sample
MCL = Maximum contaminant level
N = Normal environmental sample
NS = No standard
QAPP = Quality Assurance Project Plan
ROD = Record of Decision
TCE = Trichloroethene

Appendix A
Lithology and Well Construction Logs

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-01

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce & N. Mikovich
Reviewed By:

Date Started: 3/11/2014
Date Completed: 3/24/2014
Total Depth: 582 feet
Borehole Diameter: 12.25
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
0			GW		GRAVEL (GW): dark brown, coarse grained sand, 1.5" diameter gravel pieces, well graded, no odor.	Well Box (0-1'), Concrete Apron (0-5')
20			GW		GRAVEL (GW): dark brown, fine-coarse grained sand, 1.5" diameter gravel pieces, well graded, no odor.	Grout - Portland cement Type II-V (0-448')
50					GRAVEL (GW): dark brown, coarse grained sand, well graded, no odor.	3" casing, Low Carbon Steel, Schedule 40

MW IRVINE - - 4/4/14 08:26 - F:\ERM FILES\GINT BORING LOGS\RIALTO - 0179962\EMHART-RIALTO.GPJ

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-01

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce & N. Mikovich
Reviewed By:

Date Started: 3/11/2014
Date Completed: 3/24/2014
Total Depth: 582 feet
Borehole Diameter: 12.25
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
105–120			GW		GRAVEL (GW): dark brown, fine-coarse grain sand, well graded, no odor.	Grout - Portland cement Type II-V (0-448')
120–130			SW		SAND (SW) with GRAVEL (GW): brown, coarse grained, poorly graded, no odor.	
130–140			SP		SILTY SAND (SP) with GRAVEL (GW): brown, fine-coarse grained, well graded, no odor.	
140–150			SM		SILTY SAND (SM) with GRAVEL (GW): brown, fine-coarse grained, lots of clays, no odor.	3" casing, Low Carbon Steel, Schedule 40
150–160			SM		SILTY SAND (SM) with GRAVEL (GW): brown, fine-coarse grained, no odor.	
160–180			SW		SAND (SW) with GRAVEL (GW): brown, fine-coarse grained, well graded, no odor.	
180–195			SM		SILTY SAND (SM) with GRAVEL (GW): brown, fine-coarse grained, well graded, no odor.	

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-01

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce & N. Mikovich
Reviewed By:

Date Started: 3/11/2014
Date Completed: 3/24/2014
Total Depth: 582 feet
Borehole Diameter: 12.25
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
205					SILTY SAND (SM): brown, fine-coarse grained, well graded, trace gravel, no odor.	
210			SM			
215						Grout - Portland cement Type II-V (0-448')
220					GRAVEL (GW): medium brown, fine to coarse grained sand, well graded.	
225			GW			
230					GRAVEL (GW): reddish brown, fine to coarse grained sand, well graded.	
235			GW			
240					SAND (SW): brown, fine to coarse grained, well graded.	
245			SW			3" casing, Low Carbon Steel, Schedule 40
250					SAND (SW): brown, fine to coarse grained, small gravel present, well graded.	
255						
260			SW			
265						
270					SILTY SAND (SM): brown, fine to coarse grained, trace small gravel, well graded.	
275						
280			SM			
285						
290					SILTY SAND (SM): brown, fine to coarse grained, trace coarse gravel, well graded.	
295			SM			

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-01

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce & N. Mikovich
Reviewed By:

Date Started: 3/11/2014
Date Completed: 3/24/2014
Total Depth: 582 feet
Borehole Diameter: 12.25
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
305			SM		SILTY SAND (SM): brown, fine to coarse grained, trace coarse gravel, well graded.	
310			SM		SILTY SAND (SM): brown, fine to coarse grained, trace small gravel, well graded.	Grout - Portland cement Type II-V (0-448')
315						
320						
325						
330			SM		SILTY SAND: brown, fine to medium grained, trace medium gravel, well graded.	
335						
340						3" casing, Low Carbon Steel, Schedule 40
345						
350			SM		SILTY SAND (SM): reddish brown, medium to coarse grained, medium gravel.	
355						
360						
365						
370			SW-SM		SAND to SILTY SAND (SW-SM): brown, fine to medium grained, trace small gravel, well graded.	
375						
380						
385						
390			SM		SILTY SAND (SM): brown, fine to medium grained, trace clay, well graded.	
395						

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-01

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce & N. Mikovich
Reviewed By:

Date Started: 3/11/2014
Date Completed: 3/24/2014
Total Depth: 582 feet
Borehole Diameter: 12.25
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
405			SM		SILTY SAND (SM): brown, fine to medium grained, trace clay, well graded.	
410						
415						
420						
425						
430						
435						
440						
445						
450			SM		SILTY SAND (SM): brown, fine to medium grained, trace small gravel.	Bentonite pellet seal (448-454.5')
455						
460						#3 Filter pack Monterey sand (454.5-460')
465						
470			SW		SAND (SW): brown, fine to medium grained, trace small gravel.	Shallow well screen, 3" stainless steel, 0.020 slot size (460-480')
475						
480			SW		SAND (SW): brown, fine to medium grained.	
485						
490						#12 Sand and bentonite medium chips mixed at 1:1 ratio (485-534')
495						

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

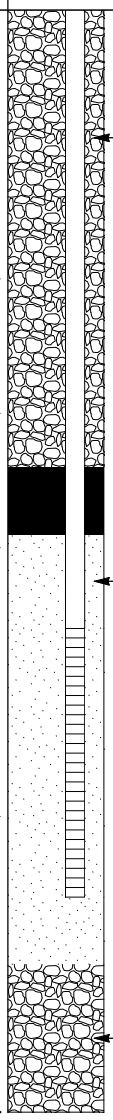
LOG OF MONITORING WELL: EMW-01

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce & N. Mikovich
Reviewed By:

Date Started: 3/11/2014
Date Completed: 3/24/2014
Total Depth: 582 feet
Borehole Diameter: 12.25
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations
505					SILTY SAND (SM): brown, fine to medium grained, trace small gravel.
510			SM		
515					
520					SAND (SW): brown, fine to coarse grained, trace small gravel, well graded.
525			SW		
530					SAND (SW): brown, fine to coarse grained, medium sized gravel, well graded.
535			SW		
540					SAND (SW): brown, fine to medium grained, trace medium gravel, well graded.
545					
550			SW		
555					
560					SAND (SW): brown, fine to coarse grained, trace small gravel, well graded.
565					
570			SW		
575					
580					
					Total Depth - 582 feet bgs
585					
590					
595					

WELL DIAGRAM



ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

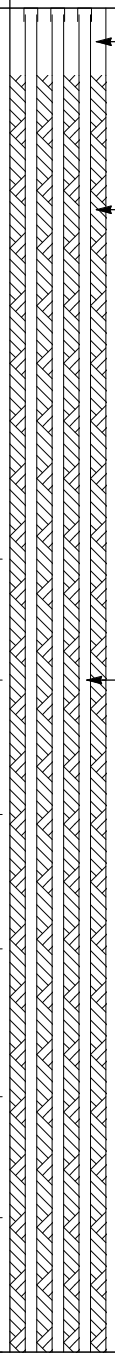
LOG OF MONITORING WELL: EMW-03

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary with Core Barrel
Sampling Method: N/A, No samples taken
Logged By: N. Milkovich
Reviewed By:

Date Started: 12/30/2013
Date Completed: 1/21/2014
Total Depth: 670 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 700 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations
0			GP		GRAVEL (GP): brown, some sand, poorly graded, small gravel pieces (0.5" in diameter), coarse grain, no odor.
40			GP		GRAVEL (GP): brown, with coarse-grain sand, poorly graded, no odor.
50			GW		GRAVEL (GW): brown, with medium-coarse grain sand, well graded, no odor.
60			GW		GRAVEL (GW): brown, with medium-coarse grain sand, well graded, gravel pieces are 0.75" in diameter, no odor.
70			GW		GRAVEL (GW): brown, with medium-coarse grain sand, well graded, no odor.
80			GW		GRAVEL (GW): brown, with sand, fine-coarse grain, well graded, no odor.
90			GW		GRAVEL (GW): dark brown, with sand, medium-coarse grain, well graded, no odor.

WELL DIAGRAM



ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-03

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary with Core Barrel
Sampling Method: N/A, No samples taken
Logged By: N. Milkovich
Reviewed By:

Date Started: 12/30/2013
Date Completed: 1/21/2014
Total Depth: 670 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 700 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
105–115			SP		SAND (SP): brown, coarse grain with gravel, poorly graded, no odor.	Grout - Portland cement Type II-V (0-387.5')
130–135			SW		SAND (SW): brown, fine-coarse grain, well graded, some gravel, no odor.	
140–145			SW		SAND (SW): brown, fine-coarse grain, well graded, no odor.	3" casing, Low Carbon Steel, Schedule 40
150–155			SW		SAND (SW): brown, fine-coarse grain, well graded, some gravel, no odor.	
160–170			SP		SAND (SP): brown, medium-coarse grain with gravel, poorly graded, no odor.	
180–185			SW		SAND (SW): brown, fine-coarse grain with gravel, well graded, no odor.	
190–195			SP		SAND (SP): brown, medium-coarse grain with gravel, poorly graded, no odor.	

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-03

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary with Core Barrel
Sampling Method: N/A, No samples taken
Logged By: N. Milkovich
Reviewed By:

Date Started: 12/30/2013
Date Completed: 1/21/2014
Total Depth: 670 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 700 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
205					SAND (SP): brown, medium-coarse grain with gravel, poorly graded, no odor.	
210			SP			
215						Grout - Portland cement Type II-V (0-387.5')
220					SAND (SW): brown, fine-coarse grain, trace gravel, well graded, no odor.	
225			SW			
230					SAND (SW): same as above, trace amounts of gravel.	
235			SW			
240					SAND (SW): brown, fine-coarse grain, well graded, trace amounts of gravel, no odor.	
245			SW			3" casing, Low Carbon Steel, Schedule 40
250					SILTY SAND (SM): light brown, fine grain, no odor.	
255			SM			
260					SILTY SAND (SM): brown, very fine-medium grained, well graded, no odor.	
265			SM			
270					SILTY SAND (SM): brown, fine-coarse grain, well graded, no odor.	
275						
280			SM			
285						
290					SILTY SAND (SM): brown, fine-medium grain, well graded, trace gravel, no odor.	
295			SM			

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-03

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary with Core Barrel
Sampling Method: N/A, No samples taken
Logged By: N. Milkovich
Reviewed By:

Date Started: 12/30/2013
Date Completed: 1/21/2014
Total Depth: 670 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 700 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
305			SM		SILTY SAND (SM): brown, fine-medium grain, well graded, trace gravel, no odor.	
310					SILTY SAND (SM): light brown, fine-medium grain, no gravel, very trace amount of clay, no odor.	
315						Grout - Portland cement Type II-V (0-387.5')
320			SM			
325						
330					SILTY SAND (SM): light brown, fine-medium grain, well graded, no odor.	
335			SM			
340					SILTY SAND (SM): same as above, trace amount of clay.	3" casing, Low Carbon Steel, Schedule 40
345			SM			
350					SAND (SW): brown, fine-coarse grain, well graded, trace gravel, no odor.	
355						
360			SW			
365						
370					SAND (SM): light brown, fine-coarse grain, well graded with silt, no odor.	
375			SM			
380					SILTY SAND (SM): brown, fine-medium grain, well graded, no odor.	
385			SM			
390					SILTY SAND (SM): light brown, fine-medium grain, well graded, no odor.	
395			SM			#12 Sand and bentonite medium chips mixed at 1:1 ratio (387.5-398')

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

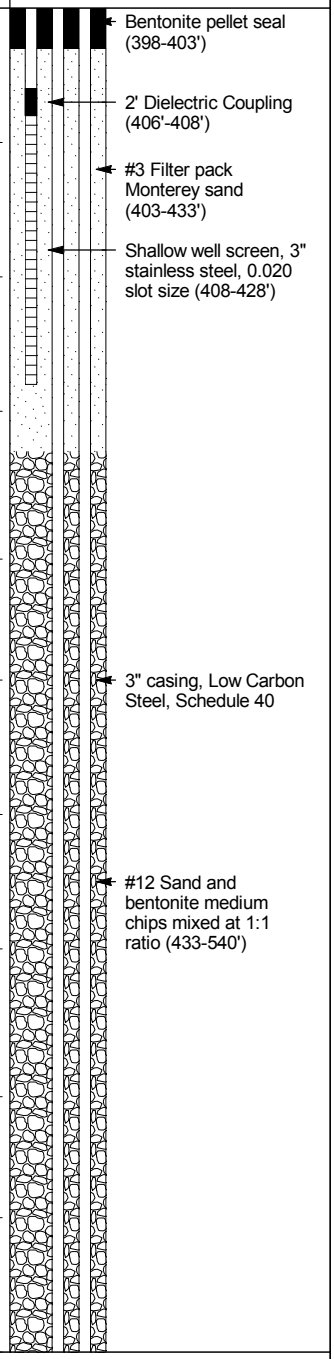
LOG OF MONITORING WELL: EMW-03

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary with Core Barrel
Sampling Method: N/A, No samples taken
Logged By: N. Milkovich
Reviewed By:

Date Started: 12/30/2013
Date Completed: 1/21/2014
Total Depth: 670 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 700 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations
405			SM		SILTY SAND (SM): light brown, fine-medium grain, well graded, no odor.
410			SM		SILTY SAND (SM): light brown, fine grain, poorly graded, no odor.
415			SM		
420			SM		SILTY SAND (SM): light brown, fine-medium grain, well graded, trace clays, no odor.
425			SM		
430			SM		SILTY SAND (SM): same as above, lots of clay.
435			SM		
440			SM		SILTY SAND (SM): same as above, trace clays.
445			SM		
450			SM		SILTY SAND (SM): light brown, fine grain, trace clays, no odor.
455			SM		
460			SM		SILTY SAND (SM): brown, fine-coarse grain, well graded, no odor.
465			SM		
470			SM		SILTY SAND (SM): brown, fine-medium grain, trace clays, no odor.
475			SM		
480			SW		SAND (SW): brown, fine-coarse grain, well graded, no odor.
485			SW		
490			SM		SILTY SAND (SM): light brown, fine-medium grain, well graded, no odor.
495			SM		

WELL DIAGRAM



ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

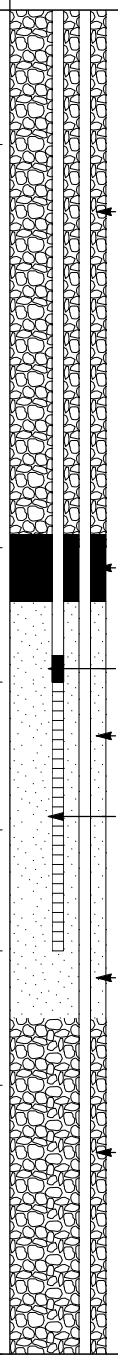
LOG OF MONITORING WELL: EMW-03

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary with Core Barrel
Sampling Method: N/A, No samples taken
Logged By: N. Milkovich
Reviewed By:

Date Started: 12/30/2013
Date Completed: 1/21/2014
Total Depth: 670 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 700 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations
505			SM		SAND (SM): brown, some silt, fine-coarse grain, well graded, no odor.
510					SILTY SAND (SM): brown, fine-coarse grain, well graded, trace clays, no odor.
515					
520					
525			SM		
530					
535					
540					SILTY SAND (SM): brown, fine-coarse grain, well graded, no odor.
545			SM		
550					SILTY SAND (SM): same as above, with trace clays.
555			SM		
560					SILTY SAND (SM): brown, fine-coarse grain, well graded, no odor.
565			SM		
570					SILTY SAND (SM): brown, fine-coarse grain, well graded, lots of trace clays, no odor.
575			SM		
580					SILTY SAND (SM): brown, fine-coarse grain, well graded, small amount of trace clays, no odor.
585					
590			SM		
595					

WELL DIAGRAM



ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

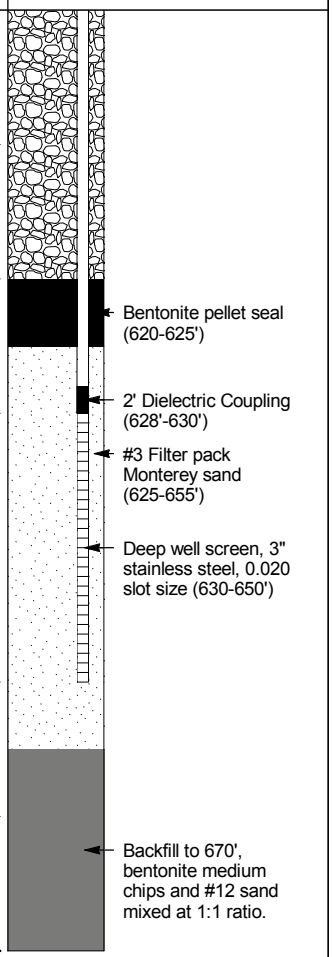
LOG OF MONITORING WELL: EMW-03

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary with Core Barrel
Sampling Method: N/A, No samples taken
Logged By: N. Milkovich
Reviewed By:

Date Started: 12/30/2013
Date Completed: 1/21/2014
Total Depth: 670 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 700 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations
605			SM		SILTY SAND (SM): brown, lots of reddish brown trace clays, fine-coarse grain, well graded, no odor.
610					
615			SM		SAND (SM): brown, fine-coarse grain, some silt, well graded, no odor.
620					
625			ML		CLAYEY SILT (ML): reddish brown, coarse grain sand, no odor.
630					
635			SM		SILTY SAND (SM): brown, fine-coarse grain, well graded, no odor.
640					
645					
650					
655			SM		SILTY SAND (SM): same as above, trace clays.
660					
665			SM		SILTY SAND (SM): light brown, fine-medium grain, trace clays, no odor.
670					Total Depth - 670 feet bgs
675					
680					
685					
690					
695					

WELL DIAGRAM



ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-04

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Air Knife/Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce
Reviewed By:

Date Started: 1/17/2014
Date Completed: 2/11/2014
Total Depth: 710 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 710 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
0					ASPHALT (~6 inches).	Well Box (0-1'), Concrete Apron (0-5')
5			GP		GRAVEL (GP): cobbles, small to large, large boulders present, medium grain sand in between, boulders 6" to 2' in diameter.	
10					SAME AS ABOVE (GP): looks like gravel after auger breaks it up.	
15			GP			
20					GRAVEL (GP): brown, trace sand, poorly graded, small gravel pieces 0.5" in diameter, coarse grain.	
25						Grout - Portland cement Type II-V (0-410')
30			GP			
35						
40					GRAVEL (GP): brown, trace sand, fine to coarse grain, small to large gravel (0.5" to 1.5").	
45						
50						3" casing, Low Carbon Steel, Schedule 40
55						
60			GP			
65						
70						
75						
80					GRAVEL (GP): brown, trace sand, poorly graded, small gravel pieces (0.5"), coarse grain.	
85			GP			
90					GRAVEL (GP): brown, trace coarse sand, poorly graded, large gravel (1" diameter).	
95			GP			

MW IRVINE - - 3/6/14 12:26 - F:\ERM FILES\GINT BORING LOGS\RIALTO - 0179962\EMHART-RIALTO.GPJ

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-04

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Air Knife/Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce
Reviewed By:

Date Started: 1/17/2014
Date Completed: 2/11/2014
Total Depth: 710 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 710 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
105			GP		GRAVEL (GP): brown, trace coarse sand, poorly graded, large gravel (1" diameter).	
110						
115						Grout - Portland cement Type II-V (0-410')
120						
125						
130			SW		SAND (SW): brown, fine to coarse grain, small gravel.	
135						
140						
145						
150						3" casing, Low Carbon Steel, Schedule 40
155						
160			SW		SAND (SW): brown, fine to coarse grain, with large gravel (~1" pieces).	
165						
170						
175						
180						
185						
190			SW		SAND (SW): brown, fine to coarse grain, small gravel pieces ~0.5" in diameter.	
195						

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-04

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Air Knife/Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce
Reviewed By:

Date Started: 1/17/2014
Date Completed: 2/11/2014
Total Depth: 710 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 710 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
205			SW		SAND (SW): brown, fine to coarse grain, small gravel pieces ~0.5" in diameter.	
210					SAND (SW): brown, fine to coarse grain, small gravel present.	
215						Grout - Portland cement Type II-V (0-410')
220						
225						
230			SW			
235						
240						
245						
250					SAND (SW): brown, fine to coarse grain, trace small gravel, some silt.	3" casing, Low Carbon Steel, Schedule 40
255						
260						
265						
270			SW			
275						
280						
285						
290					SAND (SW): brown, fine to coarse grain, small and large gravel present, trace silt.	
295			SW			

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-04

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Air Knife/Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce
Reviewed By:

Date Started: 1/17/2014
Date Completed: 2/11/2014
Total Depth: 710 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 710 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
305			SW		SAND (SW): brown, fine to coarse grain, small and large gravel present, trace silt.	
310			SM		SILTY SAND (SM): brown, fine grain, trace to coarse grain sand to small gravel.	
315						Grout - Portland cement Type II-V (0-410')
320						
325						
330			SW		SAND (SW): brown, fine to coarse grain, trace silt, small to medium gravel.	
335						
340						
345						
350			SM		SILTY SAND (SM): brown, fine to medium grain, trace small to medium gravel.	3" casing, Low Carbon Steel, Schedule 40
355						
360						
365						
370						
375						
380						
385						
390						
395						

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-04

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Air Knife/Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce
Reviewed By:

Date Started: 1/17/2014
Date Completed: 2/11/2014
Total Depth: 710 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 710 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations
405			SM		SILTY SAND (SM): light brown, fine to coarse grain, trace small gravel.
410					
415					
420					
425					
430					
435					
440					
445					
450					
455					
460			GP		GRAVELLY SAND (GP): brown, fine to coarse grain, small gravel.
465					
470			CL-ML		SILTY CLAY (CL-ML): light brown, trace fine grain sand.
475					
480			CL		CLAY (CL): brown, sand, fine to medium grain, trace silt.
485					
490					
495					

WELL DIAGRAM

- Grout - Portland cement Type II-V (0-410')
- #12 Sand and bentonite medium chips mixed at 1:1 ratio (410-430')
- Bentonite pellet seal (430-435')
- 2' Dielectric Coupling (438'-440')
- #3 Filter pack Monterey sand (435-465')
- Shallow well screen, 3" stainless steel, 0.020 slot size (440-460')
- 3" casing, Low Carbon Steel, Schedule 40
- #12 Sand and bentonite medium chips mixed at 1:1 ratio (465-585')

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-04

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Air Knife/Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce
Reviewed By:

Date Started: 1/17/2014
Date Completed: 2/11/2014
Total Depth: 710 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 710 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
505–520			CL-ML		SILTY CLAY (CL-ML): light brown, fine to medium grain sand, trace small gravel.	
520–540			SM		SILTY SAND (SM): light brown, fine to medium grain, clay present.	#12 Sand and bentonite medium chips mixed at 1:1 ratio (465-585')
540–570			SM		SILTY SAND (SM): light brown, fine to coarse grain, trace small gravel, trace clay.	3" casing, Low Carbon Steel, Schedule 40
570–580			SW-SC		SAND WITH CLAY (SW-SC): light brown, fine to medium grain, trace silt, trace small gravel.	
580–595			SM		SILTY SAND (SM): light brown fine to coarse grain, trace clay.	Bentonite pellet seal (585-590'); 2' Dielectric Coupling (593'-595')

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

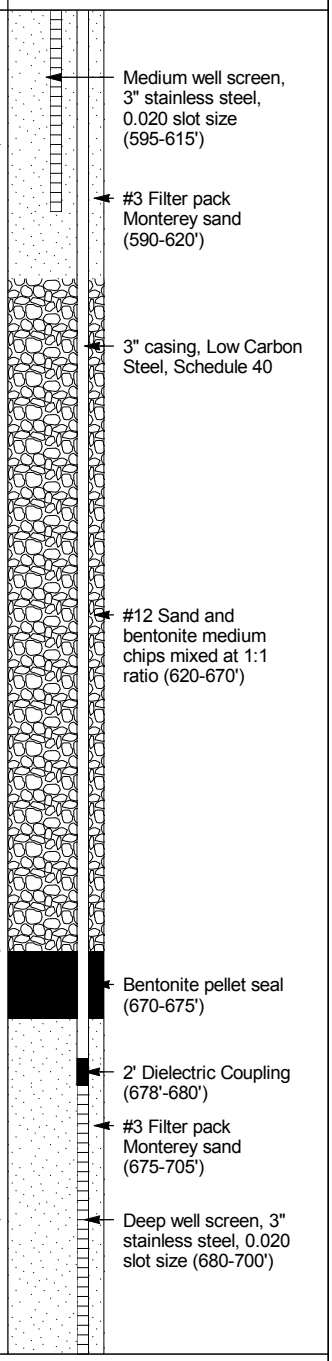
LOG OF MONITORING WELL: EMW-04

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Air Knife/Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce
Reviewed By:

Date Started: 1/17/2014
Date Completed: 2/11/2014
Total Depth: 710 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 710 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations
605			SW		SAND (SW): brown, fine to coarse grain, small gravel present, trace silts.
610					SANDY CLAY (SP-SC): light brown, fine to medium grain, trace silt.
615					
620					
625					
630					
635					
640			SP-SC		
645					
650					
655					
660					
665					
670					SANDY CLAY (SP-SC): light grown, fine grain, trace silt.
675					
680			SP-SC		
685					
690					SILTY CLAY (CL-ML): brown, fine to medium grain, trace sand.
695			CL-ML		

WELL DIAGRAM



ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-04

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Air Knife/Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: E. Peirce
Reviewed By:

Date Started: 1/17/2014
Date Completed: 2/11/2014
Total Depth: 710 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes: Large hole, 710 feet deep because using mud, PID readings not representative, not noted.

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
705			CL-ML		SILTY CLAY (CL-ML): brown, fine to medium grain, trace sand.	Backfill to 710', bentonite medium chips and #12 sand mixed at 1:1 ratio.
710					Total Depth - 710 feet bgs	
715						
720						
725						
730						
735						
740						
745						
750						
755						
760						
765						
770						
775						
780						
785						
790						
795						

MW IRVINE - - 3/6/14 12:26 - F:\ERM FILES\GINT BORING LOGS\RIALTO - 0179962\EMHART-RIALTO.GPJ

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

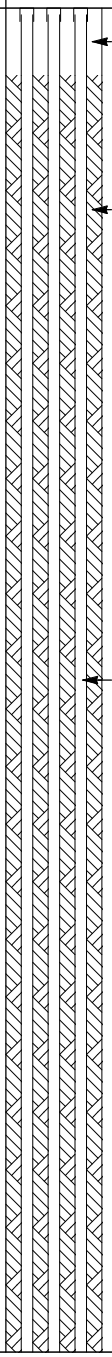
LOG OF MONITORING WELL: EMW-05

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: N. Mikovich
Reviewed By:

Date Started: 2/12/2014
Date Completed: 3/7/2014
Total Depth: 736 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations
0			GP		GRAVEL (GP): brown, coarse grained sand, 6- to 9" diameter boulders, poorly graded, no odor.
10			GP		GRAVEL (GP): brown, coarse grained sand, 1" diameter gravel, poorly graded, no odor.
20			GW		GRAVEL (GW): brown, coarse grained sand, 1" pieces of gravel, well graded, no odor.
40			GW		Gravel (GW): brown, coarse grained sand, 3/4 to 1" gravel pieces, well graded, no odor.
60			GW		GRAVEL (GW): brown, medium-coarse grained sand, well graded, no odor.
80			GW		GRAVEL (GW): brown, fine-coarse grained sand, well graded, no odor.

WELL DIAGRAM



ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-05

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: N. Mikovich
Reviewed By:

Date Started: 2/12/2014
Date Completed: 3/7/2014
Total Depth: 736 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
105			GW		GRAVEL (GW): brown, fine-coarse grained sand, well graded, no odor.	
110						
115						Grout - Portland cement Type II-V (0-430')
120			SM		SAND (SM): brown, fine-coarse grained, trace silts, trace gravel, well graded, no odor.	
125						
130			SM		SILTY SAND (SM): brown, trace gravels, fine-coarse grained, well graded, no odor.	
135						
140						
145						3" casing, Low Carbon Steel, Schedule 40
150			SW		SAND (SW): light brown, trace silts, trace clays (~155'), fine-coarse grained, well graded, no odor.	
155						
160			SM		SILTY SAND (SM): brown, fine-coarse grained, well graded, no odor.	
165						
170			SM		SILTY SAND (SM): brown, trace pieces of gravel, fine-coarse grained, no odor.	
175						
180			SM		SILTY SAND (SM): brown, trace amounts of clay, fine-coarse grained, no odor.	
185						
190			SM		SILTY SAND (SM): brown, trace clays, very trace gravel, fine-coarse grained, no odor.	
195						

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-05

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: N. Mikovich
Reviewed By:

Date Started: 2/12/2014
Date Completed: 3/7/2014
Total Depth: 736 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
205			SM		SAND (SM): brown, trace silts, fine-coarse grained, well graded, no odor.	
210			SM		SAND (SM): brown, trace silts, trace gravel, fine-coarse grained, well graded, no odor.	
215			SM			Grout - Portland cement Type II-V (0-430')
220			SM		SILTY SAND (SM): brown, trace clay, trace gravel, fine-coarse grained, well graded, no odor.	
225			SM			
230			SM		SILTY SAND (SM): brown, small trace clay, fine-coarse grained, well graded, no odor.	
235			SM			
240			SM		SILTY SAND (SM): brown, trace clays, fine-coarse grained, well graded, no odor.	
245			SM			3" casing, Low Carbon Steel, Schedule 40
250			SM			
255			SM			
260			SM		SILTY SAND (SM): brown, fine-medium grained, well graded, no odor.	
265			SM			
270			SM		SILTY SAND (SM): brown, fine-coarse grained, well graded, no odor.	
275			SM			
280			SM		SILTY SAND (SM): dark brown, trace clays, fine-coarse grained, well graded, no odor.	
285			SM			
290			SM			
295			SM			

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-05

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: N. Mikovich
Reviewed By:

Date Started: 2/12/2014
Date Completed: 3/7/2014
Total Depth: 736 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
305			SM		SILTY SAND (SM): brown, trace clays, well graded, no odor.	
310						
315						Grout - Portland cement Type II-V (0-430')
320						
325			SM		SILTY SAND (SM): brown, trace clays, fine-medium grained, well graded, no odor.	
330						
335						
340			SM		SILTY SAND (SM): light brown, fine-medium grained, well graded, no odor.	3" casing, Low Carbon Steel, Schedule 40
345						
350						
355						
360			SM		SILTY SAND (SM): dark brown, very small amounts of trace clays, fine-medium grained, well graded, no odor.	
365						
370						
375						
380			SW		SAND (SW): brown, trace silts, fine-coarse grained, well graded, no odor.	
385						
390			SM		SILTY SAND (SM): brown, trace clays, fine-medium grained, well graded, no odor.	
395						

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-05

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: N. Mikovich
Reviewed By:

Date Started: 2/12/2014
Date Completed: 3/7/2014
Total Depth: 736 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations
405			SM		SILTY SAND (SM): brown, trace clays, fine-medium grained, well graded, no odor.
410					
415			SM		SILTY SAND (SM): brown, trace clays, fine-coarse grained, well graded, no odor.
420					
425					
430			SM		SILTY SAND (SM): brown, very small amounts of clays, fine-coarse grained, well graded, no odor.
435					
440			SM		SILTY SAND (SM): brown, very trace amounts of clay, fine-coarse grained, well graded, no odor.
445					
450			SM		SILTY SAND (SM): brown, fine-coarse grained, well graded, no odor.
455					
460					
465					
470					
475					
480					
485					
490					
495					

WELL DIAGRAM

- Grout - Portland cement Type II-V (0-430')
- 3" casing, Low Carbon Steel, Schedule 40
- Bentonite pellet seal (430-435')
- #3 Filter pack Monterey sand (435-465')
- Shallow well screen, 3" stainless steel, 0.020 slot size (440-460')
- #12 Sand and bentonite medium chips mixed at 1:1 ratio (465-590')

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-05

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: N. Mikovich
Reviewed By:

Date Started: 2/12/2014
Date Completed: 3/7/2014
Total Depth: 736 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
505					SILTY SAND (SM): brown, some clay, fine-coarse grained, well graded, no odor.	
510			SM			
515						
520					CLAYEY SILT (ML): brown, sand, fine-medium grained, well graded, no odor.	
525			ML			
530					SILTY SAND (SM): brown, trace clays, fine-medium grained, well graded, no odor.	#12 Sand and bentonite medium chips mixed at 1:1 ratio (465-590')
535						
540						
545						
550			SM			
555						
560						
565						
570					SILTY SAND (SM): brown, trace clay, fine-medium grained, well graded, no odor.	
575			SM			
580					SILTY SAND (SM): brown, trace clay, trace black soil, fine-medium grained, well graded, strong odor.	
585						
590			SM			Bentonite pellet seal (590-595')
595						#3 Filter pack Monterey sand (595-630')

MW IRVINE - - 4/7/14 14:59 - F:\ERM FILES\GINT BORING LOGS\RIALTO - 0179962\EMHART-RIALTO.GPJ

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-05

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: N. Mikovich
Reviewed By:

Date Started: 2/12/2014
Date Completed: 3/7/2014
Total Depth: 736 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
605			SM		SILTY SAND (SM): brown, trace clay, trace black soil, fine-medium grained, well graded, strong odor.	#3 Filter pack Monterey sand (595-630')
610						
615						Medium well screen, 3" stainless steel, 0.020 slot size (600-625')
620						
625						
630						
635						
640						3" casing, Low Carbon Steel, Schedule 40
645						
650			SM		SILTY SAND (SM): brown, fine-medium grainded, well graded, no odor.	
655						
660			SM		SILTY SAND (SM): brown, trace clays, fine-medium grained, well graded, no odor.	
665						#12 Sand and bentonite medium chips mixed at 1:1 ratio (630-700')
670						
675						
680						
685						
690						
695						

ERM
2875 Michelle Drive, Suite 200
Irvine, CA 92606
Phone: (949) 623-4700
Fax: (949) 623-4711

LOG OF MONITORING WELL: EMW-05

Project Number: 0179962
Project Name: Emhart-Rialto
Location: Rialto, California
Contractor: National EWP
Drilling Method: Mud Rotary
Sampling Method: N/A, No samples taken
Logged By: N. Mikovich
Reviewed By:

Date Started: 2/12/2014
Date Completed: 3/7/2014
Total Depth: 736 feet
Borehole Diameter: 14.75"
Initial Water Level: NA
Notes:

Depth (ft)	Sample Interval	PID (ppm)	USCS Code	GRAPHIC LOG	Soil Descriptions and Observations	WELL DIAGRAM
705			SM		SILTY SAND (SM): brown, trace clays, fine-medium grained, well graded, no odor.	Bentonite pellet seal (700-705')
710					SILTY SAND (SM): brown, lots of trace clays, fine-medium grained, well graded, no odor.	#3 Filter pack Monterey sand (625-655')
715						
720			SM			Deep well screen, 3" stainless steel, 0.020 slot size (710-730')
725						
730						
735					Total Depth - 736 feet bgs	
740						
745						
750						
755						
760						
765						
770						
775						
780						
785						
790						
795						

MW IRVINE - - 4/7/14 14:59 - F:\ERM FILES\GINT BORING LOGS\RIALTO - 0179962\EMHART-RIALTO.GPJ

Appendix B
Geophysical Logs

PACIFIC SURVEYS

CALIPER BOREHOLE VOLUME

Job No. 18114	Company	ERM	
File No.	Well	EMW-01	
	Field	RIALTO	
	County	SAN BERNARDINO	State CA

Location: JERRY EAVES PARK
GPS: N34o 07.499' W117o 23.366'

Other Services: ELOG, GR/LL3, SONIC/VDL

Sec. | Twp. | Rge.

Permanent Datum	G.L.	Elevation		Elevation K.B.
Log Measured From	G.L.	0'	above perm. datum	D.F.
Drilling Measured From	G.L.			G.L.

Date	3-18-2014		
Run Number	ONE		
Depth Driller	583'		
Depth Logger	583'		
Bottom Logged Interval	583'		
Top Log Interval	0'		
Casing Driller	16" TO 20'		
Casing Logger	20'		
Bit Size	12.25"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	10.30 @ 71.9F		
Rmf @ Meas. Temp	10.28 @ 71.9F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	N/A		
Time Circulation Stopped	10:45		
Time Logger on Bottom	13:00		
Max. Recorded Temperature	N/A		
Equipment Number	PS-7		
Location	LA		
Recorded By	WATKINS	NELSON	
Witnessed By	E. PEIRCE		

<<< Fold Here >>>

Comments

Calibration Report

Database File 18114.db
Dataset Pathname CAL/CAL
Dataset Creation Tue Mar 18 14:48:59 2014

Temperature Calibration Report

Serial Number: GRPH_SHORT
Tool Model: GRPH_CAL
Performed: Fri Feb 21 15:23:00 2014

	Reference		Reading	
Low Reference:	2.88	degF	129.79	cps
High Reference:	6.25	degF	811.56	cps

Gain: 0.00
Offset: 2.23
Delta Spacing 1

XY Caliper Calibration Report

Serial Number/Model: PS4_Short-Comprobe
Performed: Fri Feb 21 15:10:12 2014

	Ring		X Caliper		Y Caliper	
1:	5.5	in	0.441692	cps	0.441692	cps
2:	5.75	in	129.795	cps	129.795	cps
3:	12.5	in	811.563	cps	811.563	cps
4:		in		cps		cps
5:		in		cps		cps
6:		in		cps		cps

Database File 18114.db
Dataset Pathname CAL/CAL
Presentation Format xyc_gph
Dataset Creation Tue Mar 18 14:48:59 2014
Charted by Depth in Feet scaled 1:240

CSG SCHEDULE	0 Caliper (in) 20
Pipe(s) proportional to Hole Size	0 Bit Size (in) 20
	Total BHV ft^3 (ft3) / Caliper (in)

CSG SCHEDULE	0 Caliper (in) 20
Pipe(s) proportional to Hole Size	0 Bit Size (in) 20
	Total BHV ft^3 (ft3) / Caliper (in)

PACIFIC SURVEYS

LATEROLOG 3
GAMMA-RAY

Job No. 18114	Company	ERM
	Well	EMW-01
	Field	RIALTO
File No.	County	SAN BERNARDINO State CA

Location:

JERRY EAVES PARK
GPS: N34o 07.499' W117o 23.366'

Sec. Twp. Rge.

Other Services:
ELOG
SONIC/VDL
CALIPER

Permanent Datum	G.L.		Elevation	Elevation
Log Measured From	G.L.	0'	above perm. datum	K.B.
Drilling Measured From	G.L.			D.F.
				G.L.

Date	3-18-2014		
Run Number	ONE		
Depth Driller	583'		
Depth Logger	583'		
Bottom Logged Interval	583'		
Top Log Interval	0'		
Casing Driller	16" TO 20'		
Casing Logger	20'		
Bit Size	12.25"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	10.30 @ 71.9F		
Rmf @ Meas. Temp	10.28 @ 71.9F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	N/A		
Time Circulation Stopped	10:45		
Time Logger on Bottom	13:00		
Max. Recorded Temperature	N/A		
Equipment Number	PS-7		
Location	LA		
Recorded By	WATKINS	NELSON	
Witnessed By	E. PEIRCE		

<<< Fold Here >>>

Comments

Calibration Report

Database File 18114.db
Dataset Pathname LL3
Dataset Creation Tue Mar 18 13:46:04 2014

Gamma Ray Calibration Report

Serial Number: 12
Tool Model: GROH
Performed: Wed Jan 02 12:20:51 2013

Calibrator Value: 162.0 GAPI

Background Reading: 54.1
Calibrator Reading: 193.3

Sensitivity: 1.1641 GAPI/

RLL3 (Resistivity Laterolog 3) Calibration Report:

Serial Number: 81
Tool Model: M&W
Performed: Mon Feb 17 12:30:31 2014

System Reading	Calibration Reference	
0.022	2.500	Ohm-m
0.038	5.000	
0.367	50.000	
1.788	250.000	
3.478	500.000	

Database File 18114.db
Dataset Pathname LL3
Presentation Format guard
Dataset Creation Tue Mar 18 13:46:04 2014
Charted by Depth in Feet scaled 1:240

30	Gamma-Ray (GAPI)	130
0	RSN (Ohm-m)	200
0	RLN (Ohm-m)	200
0	RMF (Ohm-m)	200
0	RLL3 (Ohm-m)	200
200	RLL3 x 10 (Ohm-m)	2000
200	RSN x 10 (Ohm-m)	2000
200	RLN x 10 (Ohm-m)	2000

30	Gamma-Ray (GAPI)	130
0	RSN (Ohm-m)	200
0	RLN (Ohm-m)	200
0	RMF (Ohm-m)	200
0	RLL3 (Ohm-m)	200
200	RLL3 x 10 (Ohm-m)	2000
200	RSN x 10 (Ohm-m)	2000
200	RLN x 10 (Ohm-m)	2000

PACIFIC SURVEYS

SONIC VELOCITY VARIABLE DENSITY

Job No. 18114	Company	ERM	
	Well	EMW-01	
	Field	RIALTO	
File No.	County	SAN BERNARDINO	State CA

Location:
JERRY EAVES PARK
GPS: N34o 07.499' W117o 23.366'

Other Services:
ELOG
GR/LL3
CALIPER

Sec. Twp. Rge.

				Elevation
Permanent Datum	G.L.		Elevation above perm. datum	K.B.
Log Measured From	G.L.	0'		D.F.
Drilling Measured From	G.L.			G.L.

Date	3-18-2014	
Run Number	ONE	
Depth Driller	583'	
Depth Logger	583'	
Bottom Logged Interval	583'	
Top Log Interval	0'	
Casing Driller	16" TO 20'	
Casing Logger	20'	
Bit Size	12.25"	
Type Fluid in Hole	BENTONITE	
Density / Viscosity	N/A	
pH / Fluid Loss	N/A	
Source of Sample	PIT	
Rm @ Meas. Temp	10.30 @ 71.9F	
Rmf @ Meas. Temp	10.28 @ 71.9F	
Rmc @ Meas. Temp	N/A	
Source of Rmf / Rmc	MEASURED	
Rm @ BHT	N/A	
Time Circulation Stopped	10:45	
Time Logger on Bottom	13:00	
Max. Recorded Temperature	N/A	
Equipment Number	PS-7	
Location	LA	
Recorded By	WATKINS	NELSON
Witnessed By	E. PEIRCE	

<<< Fold Here >>>

Comments

Database File	18114.db
Dataset Pathname	SNC1
Presentation Format	slt
Dataset Creation	Tue Mar 18 14:16:21 2014
Charted by	Depth in Feet scaled 1:240

280	Delta Time (usec/ft)	80	ITT	600	Variable Density 5 ft	1600	600	Variable Density 5 ft 1600
30	Gamma-Ray (GAPI)	130	5 (msec) 0	0	RLL3 (Ohm-m)	200		
				200	RLL3 back-up (Ohm-m)	2000		

280	Delta Time (usec/ft)	80	ITT	600	Variable Density 5 ft	1600	600	Variable Density 5 ft 1600
30	Gamma-Ray (GAPI)	130	5 (msec) 0	0	RLL3 (Ohm-m)	200		
				200	RLL3 back-up (Ohm-m)	2000		

PACIFIC SURVEYS

CALIPER BOREHOLE VOLUME

Job No. 17940	Company	ERM	
File No.	Well	EMW-03	
	Field	RIALTO	
	County	SAN BERNARDINO	State CA

Location: NEAR INTERSECTION OF LOCUST AVE & CASMALIA ST
GPS: N34o 08.260' W117o 24.277'

Other Services: ELOG, GR/LL3, CALIPER

Sec. Twp. Rge.

Permanent Datum	G.L.		Elevation	Elevation K.B.
Log Measured From	G.L.	0' above perm. datum		D.F.
Drilling Measured From	G.L.			G.L.

Date	1-8-2014		
Run Number	ONE		
Depth Driller	670'		
Depth Logger	671'		
Bottom Logged Interval	671'		
Top Log Interval	0'		
Casing Driller	16" TO 20'		
Casing Logger	20'		
Bit Size	9.875"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	10.87 @ 77F		
Rmf @ Meas. Temp	10.88 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	N/A		
Time Circulation Stopped	11:30		
Time Logger on Bottom	13:30		
Max. Recorded Temperature	N/A		
Equipment Number	PS-5		
Location	LA		
Recorded By	WATKINS		
Witnessed By	N. MILKOVICH		

<<< Fold Here >>>

Comments

Calibration Report

Database File 17940.db
Dataset Pathname cal/cal
Dataset Creation Wed Jan 08 16:02:13 2014

Temperature Calibration Report

Serial Number: PS-1_Short
Tool Model: Short_GPH
Performed: Wed Jan 08 12:22:42 2014

	Reference		Reading
Low Reference:	3.00	degF	1609.48cps
High Reference:	8.00	degF	5700.00cps

Gain: 0.00
Offset: 1.03
Delta Spacing 1

XY Caliper Calibration Report

Serial Number/Model: Short-Comprobe
Performed: Wed Jan 08 12:20:01 2014

Ring			X Caliper		Y Caliper	
1:	4	in	1000.32	cps	1000.32	cps
2:	6	in	1609.48	cps	1609.48	cps
3:	8	in	2417.53	cps	2417.53	cps
4:	10	in	3266.45	cps	3266.45	cps
5:	16	in	5700	cps	5700	cps
6:	24	in	9014.71	cps	9014.71	cps

Database File 17940.db
Dataset Pathname cal/cal
Presentation Format xyc_gph
Dataset Creation Wed Jan 08 16:02:13 2014
Charted by Depth in Feet scaled 1:240

CSG SCHEDULE			
Pipe(s) proportional to Hole Size	0	Caliper (in)	20
	0	Bit Size (in)	20
	20	Caliper back-up (in)	40
	Total BHV ft^3		Caliper (in)

CSG SCHEDULE			
Pipe(s) proportional to Hole Size	0	Caliper (in)	20
	0	Bit Size (in)	20
	20	Caliper back-up (in)	40
	Total BHV ft^3 (ft3)		Caliper (in)

PACIFIC SURVEYS

ELECTRIC LOG LATEROLOG 3 GAMMA-RAY

Job No. 17940	Company	ERM	
File No.	Well	EMW-03	
	Field	RIALTO	
	County	SAN BERNARDINO	State CA

Location: NEAR INTERSECTION OF LOCUST AVE & CASMALIA ST
GPS: N34o 08.260' W117o 24.277'

Other Services: GR/LL3, SONIC/VDL, CALIPER

Sec. Twp. Rge.

Permanent Datum	G.L.	Elevation	
Log Measured From	G.L.	0' above perm. datum	
Drilling Measured From	G.L.		

Elevation: K.B. D.F. G.L.

Date	1-8-2014
Run Number	ONE
Depth Driller	670'
Depth Logger	671'
Bottom Logged Interval	671'
Top Log Interval	0'
Casing Driller	16" TO 20'
Casing Logger	20'
Bit Size	9.875"
Type Fluid in Hole	BENTONITE
Density / Viscosity	N/A
pH / Fluid Loss	N/A
Source of Sample	PIT
Rm @ Meas. Temp	10.87 @ 77F
Rmf @ Meas. Temp	10.88 @ 77F
Rmc @ Meas. Temp	N/A
Source of Rmf / Rmc	MEASURED
Rm @ BHT	N/A
Time Circulation Stopped	11:30
Time Logger on Bottom	13:30
Max. Recorded Temperature	N/A
Equipment Number	PS-5
Location	LA
Recorded By	WATKINS
Witnessed By	N. MILKOVICH

<<< Fold Here >>>

Comments

Calibration Report

Database File 17940.db
Dataset Pathname elog
Dataset Creation Wed Jan 08 13:50:14 2014

ELOG Calibration Report

Serial: D4
Model: DTQ

Shop Calibration Performed: Wed Jan 08 11:28:33 2014
Before Survey Verification Performed: Sat Sep 14 11:11:53 2013
After Survey Verification Performed: Sat Sep 14 11:11:58 2013

Shop Calibration

	Readings Zero	Readings Cal		References Zero	References Cal		Results Gain	Results Offset
Short	9.126	100.630		10.200	102.200	Ohm-m	1.005	1.025
Long	9.266	99.064		10.200	102.200	Ohm-m	1.025	-17.500
IEE	29190.000	29190.000	counts	31.946	31.946	A		
VSN	1567.000	1567.000	counts	29.889	29.889	V		
VLN	8050.000	8050.000	counts	153.544	153.544	V		

Before Survey Verification

	Readings Zero	Readings Cal		References Zero	References Cal		Results Gain	Results Offset
Short	178.827	100.801		295.888	100.783	Ohm-m	2.501	-151.272
Long	934.011	103.172		103.094	103.094	Ohm-m	0.483	53.212
IEE	74.460	6115.720	counts	0.081	6.693	A		
VSN	149.600	6926.100	counts	2.853	132.107	V		
VLN	195.340	1772.260	counts	3.726	33.804	V		

After Survey Verification

	Readings Zero	Readings Cal		References Zero	References Cal		Results Gain	Results Offset
Short	40.270	101.200		40.249	101.201	Ohm-m	1.000	-0.035
Long	142.491	102.843		102.842	102.842	Ohm-m	1.004	-0.383
IEE	213.380	7077.580	counts	0.234	7.746	A		
VSN	96.540	8047.160	counts	1.841	153.490	V		
VLN	85.400	2044.440	counts	1.629	38.995	V		

After Survey Verification compared to Before Survey Calibration

	Zero Before	Zero After		Cal Before	Cal After	
Short	295.888	40.249	Ohm-m	100.783	101.201	Ohm-m
Long	504.790	142.638	Ohm-m	103.094	102.842	Ohm-m

Gamma Ray Calibration Report

Serial Number: D4
Tool Model: ELOG
Performed: Sat Sep 14 11:12:05 2013

Calibrator Value: 162.0 GAPI

Background Reading: 173.2 cps
Calibrator Reading: 678.3 cps

Sensitivity: 0.3207 GAPI/cps

Database File 17940.db
Dataset Pathname elog
Presentation Format elog
Dataset Creation Wed Jan 08 13:50:14 2014
Charted by Depth in Feet scaled 1:240

-100 SP (mV) 50	0 RSN (Ohm-m) 200	0 RLL3 (Ohm-m) 200
0 Line Speed (ft/min) -100	0 RLN (Ohm-m) 200	RLL3 Back-up
30 Gamma-Ray (GAPI) 130	0 RMF (Ohm-m) 200	200 (Ohm-m) 2000
	200 RSN x 10 (Ohm-m) 2000	
	200 RLN x 10 (Ohm-m) 2000	

-100 SP (mV) 50	0 RSN (Ohm-m) 200	0 RLL3 (Ohm-m) 200
0 Line Speed (ft/min) -100	0 RLN (Ohm-m) 200	RLL3 Back-up
30 Gamma-Ray (GAPI) 130	0 RMF (Ohm-m) 200	200 (Ohm-m) 2000
	200 RSN x 10 (Ohm-m) 2000	
	200 RLN x 10 (Ohm-m) 2000	

PACIFIC SURVEYS

LATEROLOG 3
GAMMA-RAY

Job No. 17940	Company	ERM	
	Well	EMW-03	
	Field	RIALTO	
File No.	County	SAN BERNARDINO	State CA

Location:

NEAR INTERSECTION OF LOCUST AVE & CASMALIA ST
GPS: N34o 08.260' W117o 24.277'

Sec. Twp. Rge.

Other Services:
ELOG
SONIC/VDL
CALIPER

				Elevation
Permanent Datum	G.L.		Elevation above perm. datum	K.B.
Log Measured From	G.L.	0'		D.F.
Drilling Measured From	G.L.			G.L.

Date	1-8-2014		
Run Number	ONE		
Depth Driller	670'		
Depth Logger	671'		
Bottom Logged Interval	671'		
Top Log Interval	0'		
Casing Driller	16" TO 20'		
Casing Logger	20'		
Bit Size	9.875"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	10.87 @ 77F		
Rmf @ Meas. Temp	10.88 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	N/A		
Time Circulation Stopped	11:30		
Time Logger on Bottom	13:30		
Max. Recorded Temperature	N/A		
Equipment Number	PS-5		
Location	LA		
Recorded By	WATKINS		
Witnessed By	N. MILKOVICH		

<<< Fold Here >>>

Comments

Calibration Report

Database File 17940.db
Dataset Pathname LL3
Dataset Creation Wed Jan 08 14:31:27 2014

Gamma Ray Calibration Report

Serial Number: 12
Tool Model: GROH
Performed: Wed Jan 08 11:42:43 2014

Calibrator Value: 162.0 GAPI

Background Reading: 54.1
Calibrator Reading: 193.3

Sensitivity: 1.1641 GAPI/

RLL3 (Resistivity Laterolog 3) Calibration Report:

Serial Number: 130
Tool Model: M&W
Performed: Wed Jan 08 11:42:18 2014

System Reading	Calibration Reference	
0.003	2.500	Ohm-m
0.007	5.000	
0.068	50.000	
0.358	250.000	
0.707	500.000	

Database File 17940.db
Dataset Pathname LL3
Presentation Format guard
Dataset Creation Wed Jan 08 14:31:27 2014
Charted by Depth in Feet scaled 1:240

PACIFIC SURVEYS

SONIC VELOCITY
VARIABLE DENSITY

Job No.	17940
File No.	
Company	ERM
Well	EMW-03
Field	RIALTO
County	SAN BERNARDINO
State	CA

Location:
NEAR INTERSECTION OF LOCUST AVE & CASMALIA ST
GPS: N34o 08.260' W117o 24.277'

Other Services:
ELOG
GR/LL3
CALIPER

Sec. Twp. Rge.

Permanent Datum	G.L.		Elevation	Elevation
Log Measured From	G.L.	0'	above perm. datum	K.B.
Drilling Measured From	G.L.			D.F. / G.L.

Date	1-8-2014
Run Number	ONE
Depth Driller	670'
Depth Logger	671'
Bottom Logged Interval	671'
Top Log Interval	0'
Casing Driller	16" TO 20'
Casing Logger	20'
Bit Size	9.875"
Type Fluid in Hole	BENTONITE
Density / Viscosity	N/A
pH / Fluid Loss	N/A
Source of Sample	PIT
Rm @ Meas. Temp	10.87 @ 77F
Rmf @ Meas. Temp	10.88 @ 77F
Rmc @ Meas. Temp	N/A
Source of Rmf / Rmc	MEASURED
Rm @ BHT	N/A
Time Circulation Stopped	11:30
Time Logger on Bottom	13:30
Max. Recorded Temperature	N/A
Equipment Number	PS-5
Location	LA
Recorded By	WATKINS
Witnessed By	N. MILKOVICH

<<< Fold Here >>>

Comments

Database File	17940.db
Dataset Pathname	snc
Presentation Format	sonic_ps
Dataset Creation	Wed Jan 08 15:07:11 2014
Charted by	Depth in Feet scaled 1:240

PACIFIC SURVEYS

CALIPER BOREHOLE VOLUMES

Job No. 17997	Company	ERM	
File No.	Well	EMW-04	
	Field	RIALTO	
	County	SAN BERNARDINO	State CA

Location: 2500 N. MAPLE AVE.
GPS: N34o 08.642' W117o 24.347'

Other Services: ELOG, GR/LL3, SONIC/VDL

Sec. | Twp. | Rge.

Permanent Datum	G.L.	Elevation	K.B.
Log Measured From	G.L. 0' above perm. datum		D.F.
Drilling Measured From	G.L.		G.L.

Date	01-30-2014
Run Number	ONE
Depth Driller	712'
Depth Logger	710'
Bottom Logged Interval	710'
Top Log Interval	0'
Casing Driller	16" @ 10'
Casing Logger	NOT REACHED
Bit Size	9.875"
Type Fluid in Hole	BENTONITE
Density / Viscosity	N/A
pH / Fluid Loss	N/A
Source of Sample	PIT
Rm @ Meas. Temp	15.4 @ 77.6F
Rmf @ Meas. Temp	16.6 @ 77.6F
Rmc @ Meas. Temp	N/A
Source of Rmf / Rmc	MEAS
Rm @ BHT	N/A
Time Circulation Stopped	2 HRS
Time Logger on Bottom	13:45
Max. Recorded Temperature	N/A
Equipment Number	PS-7
Location	L.A.
Recorded By	RIDDER
Witnessed By	E.PEIRCE

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Calibration Report

Database File 17997.db
Dataset Pathname CAL.1
Dataset Creation Thu Jan 30 16:13:09 2014

Temperature Calibration Report

Serial Number: GRPH_SHORT
Tool Model: GRPH_CAL
Performed: Mon Nov 04 15:11:31 2013

	Reference		Reading
Low Reference:	4.00	degF	353.96 cps
High Reference:	10.00	degF	1558.06cps

Gain: 0.00
Offset: 2.24
Delta Spacing 1

XY Caliper Calibration Report

Serial Number/Model: Short-Comprobe
Performed: Tue Jan 07 15:04:29 2014

Ring			X Caliper		Y Caliper	
1:	6	in	233.374	cps	233.374	cps
2:	8	in	353.958	cps	353.958	cps
3:	14	in	953.914	cps	953.914	cps
4:	20	in	1558.06	cps	1558.06	cps
5:	26	in	2214.88	cps	2214.88	cps
6:		in		cps		cps

Database File 17997.db
Dataset Pathname CAL.1
Presentation Format xyc_gph
Dataset Creation Thu Jan 30 16:13:09 2014
Charted by Depth in Feet scaled 1:240

CSG SCHEDULE		
Pipe(s) proportional to Hole Size	0 — Caliper (in) — 20	
	0 — Bit Size (in) — 20	
	Total BHV ft^3 (ft3)	Caliper (in)

CSG SCHEDULE		
Pipe(s) proportional to Hole Size	0 — Caliper (in) — 20	
	0 — Bit Size (in) — 20	
	Total BHV ft^3 (ft3)	Caliper (in)

PACIFIC SURVEYS

ELECTRIC LOG
LATEROLOG 3
GAMMA-RAY

Job No.	17997
File No.	
Company	ERM
Well	EMW-04
Field	RIALTO
County	SAN BERNARDINO
State	CA

Location:
2500 N. MAPLE AVE.
GPS: N34o 08.642' W117o 24.347'

Other Services:
GR/LL3
SONIC/VDL
CALIPER

Sec. Twp. Rge.

Permanent Datum	G.L.	Elevation	Elevation
Log Measured From	G.L.	0' above perm. datum	K.B.
Drilling Measured From	G.L.		D.F.
			G.L.

Date	01-30-2014
Run Number	ONE
Depth Driller	712'
Depth Logger	710'
Bottom Logged Interval	710'
Top Log Interval	0'
Casing Driller	16" @ 10'
Casing Logger	NOT REACHED
Bit Size	9.875"
Type Fluid in Hole	BENTONITE
Density / Viscosity	N/A
pH / Fluid Loss	N/A
Source of Sample	PIT
Rm @ Meas. Temp	15.4 @ 77.6F
Rmf @ Meas. Temp	16.6 @ 77.6F
Rmc @ Meas. Temp	N/A
Source of Rmf / Rmc	MEAS
Rm @ BHT	N/A
Time Circulation Stopped	2 HRS
Time Logger on Bottom	13:45
Max. Recorded Temperature	N/A
Equipment Number	PS-7
Location	L.A.
Recorded By	RIDDER
Witnessed By	E.PEIRCE

<<< Fold Here >>>

Comments

Calibration Report

Database File 17997.db
Dataset Pathname elog1
Dataset Creation Thu Jan 30 13:43:46 2014

ELOG Calibration Report

Serial: D4
Model: DTQ

Shop Calibration Performed: Mon Nov 18 10:10:45 2013
Before Survey Verification Performed: Sat Sep 14 11:11:53 2013
After Survey Verification Performed: Sat Sep 14 11:11:58 2013

Shop Calibration

	Readings Zero	Readings Cal		References Zero	References Cal		Results Gain	Results Offset
Short	8.833	100.593		10.200	102.200	Ohm-m	1.003	1.344
Long	7.433	96.597		10.200	102.200	Ohm-m	1.032	-17.000
IEE	30376.461	30395.320	counts	33.244	33.265	A		
VSN	3018.280	3020.300	counts	57.570	57.609	V		
VLN	105.300	75.040	counts	2.008	1.431	V		

Before Survey Verification

	Readings Zero	Readings Cal		References Zero	References Cal		Results Gain	Results Offset
Short	178.827	100.801		295.888	100.783	Ohm-m	2.501	-151.272
Long	934.011	103.172		103.094	103.094	Ohm-m	0.483	53.212
IEE	74.460	6115.720	counts	0.081	6.693	A		
VSN	149.600	6926.100	counts	2.853	132.107	V		
VLN	195.340	1772.260	counts	3.726	33.804	V		

After Survey Verification

	Readings Zero	Readings Cal		References Zero	References Cal		Results Gain	Results Offset
Short	40.270	101.200		40.249	101.201	Ohm-m	1.000	-0.035
Long	142.491	102.843		102.842	102.842	Ohm-m	1.004	-0.383
IEE	213.380	7077.580	counts	0.234	7.746	A		
VSN	96.540	8047.160	counts	1.841	153.490	V		
VLN	85.400	2044.440	counts	1.629	38.995	V		

After Survey Verification compared to Before Survey Calibration

	Zero Before	Zero After		Cal Before	Cal After	
Short	295.888	40.249	Ohm-m	100.783	101.201	Ohm-m
Long	504.790	142.638	Ohm-m	103.094	102.842	Ohm-m

Gamma Ray Calibration Report

Serial Number: D4
Tool Model: ELOG
Performed: Sat Sep 14 11:12:05 2013

Calibrator Value: 162.0 GAPI

Background Reading: 173.2 cps
Calibrator Reading: 678.3 cps

Sensitivity: 0.3207 GAPI/cps

Database File 17997.db
Dataset Pathname elog1
Presentation Format elog
Dataset Creation Thu Jan 30 13:43:46 2014
Charted by Depth in Feet scaled 1:240

-50 SP (mV) 150	0 RSN (Ohm-m) 200	0 RLL3 (Ohm-m) 200
30 Gamma-Ray (GAPI) 130	0 RLN (Ohm-m) 200	RLL3 Back-up
	0 RMF (Ohm-m) 200	200 (Ohm-m) 2000
	200 RSN x 10 (Ohm-m) 2000	
	200 RLN x 10 (Ohm-m) 2000	

-50 SP (mV) 150
30 Gamma-Ray (GAPI) 130
0 RSN (Ohm-m) 200
0 RLN (Ohm-m) 200
0 RMF (Ohm-m) 200
200 RSN x 10 (Ohm-m) 2000
200 RLN x 10 (Ohm-m) 2000
0 RLL3 (Ohm-m) 200
RLL3 Back-up
200 (Ohm-m) 2000

PACIFIC SURVEYS

LATEROLOG 3 GAMMA-RAY

Job No.	17997
File No.	
Company	ERM
Well	EMW-04
Field	RIALTO
County	SAN BERNARDINO
State	CA

Location:
2500 N. MAPLE AVE.
GPS: N34o 08.642' W117o 24.347'

Other Services:
ELOG
SONIC/VDL
CALIPER

Sec.	Twp.	Rge.	
Permanent Datum	G.L.	Elevation	
Log Measured From	G.L.	0' above perm. datum	
Drilling Measured From	G.L.		

Elevation: K.B. / D.F. / G.L.

Date	01-30-2014		
Run Number	ONE		
Depth Driller	712'		
Depth Logger	710'		
Bottom Logged Interval	710'		
Top Log Interval	0'		
Casing Driller	16" @ 10'		
Casing Logger	NOT REACHED		
Bit Size	9.875"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	15.4 @ 77.6F		
Rmf @ Meas. Temp	16.6 @ 77.6F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEAS		
Rm @ BHT	N/A		
Time Circulation Stopped	2 HRS		
Time Logger on Bottom	13:45		
Max. Recorded Temperature	N/A		
Equipment Number	PS-7		
Location	L.A.		
Recorded By	RIDDER		
Witnessed By	E.PEIRCE		

<<< Fold Here >>>

Comments

Calibration Report

Database File 17997.db
Dataset Pathname LL3
Dataset Creation Thu Jan 30 14:19:16 2014

Gamma Ray Calibration Report

Serial Number:	12	
Tool Model:	GROH	
Performed:	Wed Jan 02 12:20:51 2013	
Calibrator Value:	162.0	GAPI
Background Reading:	54.1	
Calibrator Reading:	193.3	
Sensitivity:	1.1641	GAPI/

RLL3 (Resistivity Laterolog 3) Calibration Report:

Serial Number: 81
Tool Model: M&W
Performed: Mon Nov 18 10:24:19 2013

System Reading	Calibration Reference	
0.019	2.500	Ohm-m
0.038	5.000	
0.373	50.000	
1.811	250.000	
3.499	500.000	

Database File 17997.db
Dataset Pathname LL3
Presentation Format guard
Dataset Creation Thu Jan 30 14:19:16 2014
Charted by Depth in Feet scaled 1:240

30 Gamma-Ray (GAPI) 130

0 RSN (Ohm-m) 200
0 RLN (Ohm-m) 200
0 RMF (Ohm-m) 200
0 RLL3 (Ohm-m) 200
200 RLL3 x 10 (Ohm-m) 2000
200 RSN x 10 (Ohm-m) 2000
200 RLN x 10 (Ohm-m) 2000

30 Gamma-Ray (GAPI) 130

0 RSN (Ohm-m) 200
0 RLN (Ohm-m) 200
0 RMF (Ohm-m) 200
0 RLL3 (Ohm-m) 200
200 RLL3 x 10 (Ohm-m) 2000
200 RSN x 10 (Ohm-m) 2000
200 RLN x 10 (Ohm-m) 2000

PACIFIC SURVEYS

SONIC VELOCITY VARIABLE DENSITY

Job No.	17997
File No.	
Company	ERM
Well	EMW-04
Field	RIALTO
County	SAN BERNARDINO
State	CA
Location:	2500 N. MAPLE AVE. GPS: N34o 08.642' W117o 24.347'
Other Services:	ELOG GR/LL3 CALIPER
Sec.	
Twp.	
Rge.	
Permanent Datum	G.L.
Elevation	
Log Measured From	G.L. 0' above perm. datum
Drilling Measured From	G.L.
Elevation K.B.	
Elevation D.F.	
Elevation G.L.	

Date	01-30-2014
Run Number	ONE
Depth Driller	712'
Depth Logger	710'
Bottom Logged Interval	710'
Top Log Interval	0'
Casing Driller	16" @ 10'
Casing Logger	NOT REACHED
Bit Size	9.875"
Type Fluid in Hole	BENTONITE
Density / Viscosity	N/A
pH / Fluid Loss	N/A
Source of Sample	PIT
Rm @ Meas. Temp	15.4 @ 77.6F
Rmf @ Meas. Temp	16.6 @ 77.6F
Rmc @ Meas. Temp	N/A
Source of Rmf / Rmc	MEAS
Rm @ BHT	N/A
Time Circulation Stopped	2 HRS
Time Logger on Bottom	13:45
Max. Recorded Temperature	N/A
Equipment Number	PS-7
Location	L.A.
Recorded By	RIDDER
Witnessed By	E.PEIRCE

<<< Fold Here >>>

Comments

Database File	17997.db
Dataset Pathname	SONIC
Presentation Format	slt
Dataset Creation	Thu Jan 30 14:46:39 2014
Charted by	Depth in Feet scaled 1:240

PACIFIC SURVEYS

CALIPER BOREHOLE VOLUME

Job No. 18057	Company	ERM	
File No.	Well	EMW-05	
	Field	RIALTO	
	County	SAN BERNARDINO	State CA

Location: STONEHURST DR & LOCUST AVE
GPS: N34o 08.697' W117o24.657'

Other Services: ELOG, GR/LL3, CALIPER

Sec. Twp. Rge.

			Elevation
Permanent Datum	G.L.	Elevation	K.B.
Log Measured From	G.L. 0'	above perm. datum	D.F.
Drilling Measured From	G.L.		G.L.

Date	2-25-2014		
Run Number	ONE		
Depth Driller	737'		
Depth Logger	738'		
Bottom Logged Interval	738'		
Top Log Interval	0'		
Casing Driller	16" TO 10'		
Casing Logger	10'		
Bit Size	9.875"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.46 @ 77F		
Rmf @ Meas. Temp	7.28 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURE		
Rm @ BHT	N/A		
Time Circulation Stopped	11:30		
Time Logger on Bottom	13:20		
Max. Recorded Temperature	N/A		
Equipment Number	PS-3		
Location	LA		
Recorded By	WATKINS	AFOH	
Witnessed By	N. MILKOVICH		

<<< Fold Here >>>

Comments

Calibration Report

Database File 18057.db
Dataset Pathname CAL/CAL.1
Dataset Creation Tue Feb 25 15:36:15 2014

Temperature Calibration Report

Serial Number: PS-3_Short
Tool Model: Short_GPH
Performed: Fri Sep 06 12:00:22 2013

	Reference	Reading
Low Reference:	2.94 degF	356.86 cps
High Reference:	10.00 degF	927.35 cps

Gain: 0.01
Offset: -1.48
Delta Spacing 1

XY Caliper Calibration Report

Serial Number/Model: Short-Comprobe
Performed: Thu Sep 05 11:00:41 2013

Ring			X Caliper		Y Caliper	
1:	3.625	in	270.623	cps	270.623	cps
2:	5.875	in	356.875	cps	356.875	cps
3:	8	in	435.057	cps	435.057	cps
4:	14	in	659.849	cps	659.849	cps
5:	20	in	927.346	cps	927.346	cps
6:		in		cps		cps

Database File 18057.db
Dataset Pathname CAL/CAL.1
Presentation Format xyc_gph
Dataset Creation Tue Feb 25 15:36:15 2014
Charted by Depth in Feet scaled 1:240

CSG SCHEDULE		
Pipe(s) proportional to Hole Size	0 Caliper (in) 20	
	0 Bit Size (in) 20	
	20 Caliper back-up (in) 40	
	Total BHV ft^3 (ft3)	Caliper (in)

CSG SCHEDULE		
Pipe(s) proportional to Hole Size	0 Caliper (in) 20	
	0 Bit Size (in) 20	
	20 Caliper back-up (in) 40	
	Total BHV ft^3 (ft3)	Caliper (in)

PACIFIC SURVEYS

ELECTRIC LOG
LATEROLOG 3
GAMMA-RAY

Job No. 18057
File No.

Company	ERM
Well	EMW-05
Field	RIALTO
County	SAN BERNARDINO
State	CA

Location:
STONEHURST DR & LOCUST AVE
GPS: N34o 08.697' W117o24.657'

Other Services:
GR/LL3
SONIC/VDL
CALIPER

Sec. Twp. Rge.

Permanent Datum	G.L.	Elevation	Elevation
Log Measured From	G.L.	0' above perm. datum	K.B.
Drilling Measured From	G.L.		D.F.
			G.L.

Date	2-25-2014		
Run Number	ONE		
Depth Driller	737'		
Depth Logger	738'		
Bottom Logged Interval	738'		
Top Log Interval	0'		
Casing Driller	16" TO 10'		
Casing Logger	10'		
Bit Size	9.875"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.46 @ 77F		
Rmf @ Meas. Temp	7.28 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURE		
Rm @ BHT	N/A		
Time Circulation Stopped	11:30		
Time Logger on Bottom	13:20		
Max. Recorded Temperature	N/A		
Equipment Number	PS-3		
Location	LA		
Recorded By	WATKINS	AFOH	
Witnessed By	N. MILKOVICH		

<<< Fold Here >>>

Comments

Calibration Report

Database File 18057.db
Dataset Pathname elog
Dataset Creation Tue Feb 25 13:15:04 2014

ELOG Calibration Report

Serial: D4
Model: DTQ

Shop Calibration Performed: Tue Oct 01 15:44:01 2013
Before Survey Verification Performed: Sat Sep 14 11:11:53 2013
After Survey Verification Performed: Sat Sep 14 11:11:58 2013

Shop Calibration

	Readings Zero	Readings Cal		References Zero	References Cal		Results Gain	Results Offset
Short	9.048	101.700		10.200	102.200	Ohm-m	0.993	1.216
Long	10.074	99.007		10.200	102.200	Ohm-m	1.034	-17.500
IEE	29190.000	29190.000	counts	31.946	31.946	A		
VSN	1567.000	1567.000	counts	29.889	29.889	V		
VLN	8050.000	8050.000	counts	153.544	153.544	V		

Before Survey Verification

	Readings Zero	Readings Cal		References Zero	References Cal		Results Gain	Results Offset
Short	178.827	100.801		295.888	100.783	Ohm-m	2.501	-151.272
Long	934.011	103.172		103.094	103.094	Ohm-m	0.483	53.212
IEE	74.460	6115.720	counts	0.081	6.693	A		
VSN	149.600	6926.100	counts	2.853	132.107	V		
VLN	195.340	1772.260	counts	3.726	33.804	V		

After Survey Verification

	Readings Zero	Readings Cal		References Zero	References Cal		Results Gain	Results Offset
Short	40.270	101.200		40.249	101.201	Ohm-m	1.000	-0.035
Long	142.491	102.843		102.842	102.842	Ohm-m	1.004	-0.383
IEE	213.380	7077.580	counts	0.234	7.746	A		
VSN	96.540	8047.160	counts	1.841	153.490	V		
VLN	85.400	2044.440	counts	1.629	38.995	V		

After Survey Verification compared to Before Survey Calibration

	Zero Before	Zero After		Cal Before	Cal After	
Short	295.888	40.249	Ohm-m	100.783	101.201	Ohm-m
Long	504.790	142.638	Ohm-m	103.094	102.842	Ohm-m

Gamma Ray Calibration Report

Serial Number: D4
Tool Model: ELOG
Performed: Sat Sep 14 11:12:05 2013

Calibrator Value: 162.0 GAPI

Background Reading: 173.2 cps
Calibrator Reading: 678.3 cps

Sensitivity: 0.3207 GAPI/cps

Database File 18057.db
Dataset Pathname elog
Presentation Format elog
Dataset Creation Tue Feb 25 13:15:04 2014
Charted by Depth in Feet scaled 1:240

PACIFIC SURVEYS

LATEROLOG 3
GAMMA-RAY

Job No. 18057	Company	ERM
	Well	EMW-05
	Field	RIALTO
File No.	County	SAN BERNARDINO State CA

Location:

STONEHURST DR & LOCUST AVE
GPS: N34o 08.697' W117o24.657'

Sec. Twp. Rge.

Other Services:
ELOG
SONIC/VDL
CALIPER

Permanent Datum	G.L.		Elevation above perm. datum	Elevation K.B. D.F. G.L.
Log Measured From	G.L.	0'		
Drilling Measured From	G.L.			

Date	2-25-2014		
Run Number	ONE		
Depth Driller	737'		
Depth Logger	738'		
Bottom Logged Interval	738'		
Top Log Interval	0'		
Casing Driller	16" TO 10'		
Casing Logger	10'		
Bit Size	9.875"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.46 @ 77F		
Rmf @ Meas. Temp	7.28 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURE		
Rm @ BHT	N/A		
Time Circulation Stopped	11:30		
Time Logger on Bottom	13:20		
Max. Recorded Temperature	N/A		
Equipment Number	PS-3		
Location	LA		
Recorded By	WATKINS	AFOH	
Witnessed By	N. MILKOVICH		

<<< Fold Here >>>

Comments

Calibration Report

Database File 18057.db
Dataset Pathname LL3
Dataset Creation Tue Feb 25 13:46:51 2014

Gamma Ray Calibration Report

Serial Number: 12
Tool Model: GROH
Performed: Wed Jan 02 12:20:51 2013

Calibrator Value: 162.0 GAPI

Background Reading: 54.1
Calibrator Reading: 193.3

Sensitivity: 1.1641 GAPI/

RLL3 (Resistivity Laterolog 3) Calibration Report:

Serial Number: 231
Tool Model: M&W
Performed: Wed Jan 02 12:02:04 2013

System Reading	Calibration Reference	
0.005	2.500	Ohm-m
0.010	5.000	
0.100	50.000	
0.492	250.000	
0.955	500.000	

Database File 18057.db
Dataset Pathname LL3
Presentation Format guard
Dataset Creation Tue Feb 25 13:46:51 2014
Charted by Depth in Feet scaled 1:240

30	Gamma-Ray (GAPI)	130
0	RSN (Ohm-m)	200
0	RLN (Ohm-m)	200
0	RMF (Ohm-m)	200
0	RLL3 (Ohm-m)	200
200	RLL3 x 10 (Ohm-m)	2000
200	RSN x 10 (Ohm-m)	2000
200	RLN x 10 (Ohm-m)	2000

30	Gamma-Ray (GAPI)	130
0	RSN (Ohm-m)	200
0	RLN (Ohm-m)	200
0	RMF (Ohm-m)	200
0	RLL3 (Ohm-m)	200
200	RLL3 x 10 (Ohm-m)	2000
200	RSN x 10 (Ohm-m)	2000
200	RLN x 10 (Ohm-m)	2000

PACIFIC SURVEYS

SONIC VELOCITY
VARIABLE DENSITY

Job No. 18057	Company	ERM
	Well	EMW-05
	Field	RIALTO
File No.	County	SAN BERNARDINO State CA

Location:

STONEHURST DR & LOCUST AVE
GPS: N34o 08.697' W117o24.657'

Sec. Twp. Rge.

Other Services:
ELOG
GR/LL3
CALIPER

Permanent Datum	G.L.		Elevation above perm. datum	Elevation K.B. D.F. G.L.
Log Measured From	G.L.	0'		
Drilling Measured From	G.L.			

Date	2-25-2014		
Run Number	ONE		
Depth Driller	737'		
Depth Logger	738'		
Bottom Logged Interval	738'		
Top Log Interval	0'		
Casing Driller	16" TO 10'		
Casing Logger	10'		
Bit Size	9.875"		
Type Fluid in Hole	BENTONITE		
Density / Viscosity	N/A		
pH / Fluid Loss	N/A		
Source of Sample	PIT		
Rm @ Meas. Temp	7.46 @ 77F		
Rmf @ Meas. Temp	7.28 @ 77F		
Rmc @ Meas. Temp	N/A		
Source of Rmf / Rmc	MEASURE		
Rm @ BHT	N/A		
Time Circulation Stopped	11:30		
Time Logger on Bottom	13:20		
Max. Recorded Temperature	N/A		
Equipment Number	PS-3		
Location	LA		
Recorded By	WATKINS	AFOH	
Witnessed By	N. MILKOVICH		

<<< Fold Here >>>

Comments

Database File	18057.db
Dataset Pathname	SNC
Presentation Format	slt
Dataset Creation	Tue Feb 25 14:23:23 2014
Charted by	Depth in Feet scaled 1:240

Appendix C
Survey Maps and Data

J. B. Koenig & Associates, Inc.

3150 E. La Palma Ave., Suite E
Anaheim, California 92806
(714) 237-0931
(714) 237-0987 (Fax)

June 6, 2014

Environmental Resources Management
Mr. Darren Burgett
2875 Michelle Dr., Suite 200
Irvine, CA 92606

Re: **SOURCE AREA OPERABLE UNIT B.F. GOODRICH SUPERFUND SITE**
Rialto, CA

Dear Mr. Burgett:

Locations and elevations of Monitoring Wells **EMW-01 and EMW-03 thru EMW-05** at the subject location have been determined by field survey on May 30, 2014.

Elevations are based on: National Geodetic Survey bench mark AB8218, being a 3-1/4 MWDSC brass disk stamped UF205 1994; located north of 4th street along Milliken Avenue, at the A.T.S.F. (Metrolink) passenger boarding platform, 20 feet north of north curb of parking lot, 73 feet northeast of power pole number 1377470E, 7 feet east of the west side of platform flush in the top of a concrete retaining wall for the platform, approximately 10 feet higher than the parking lot surface, elevation being 1128.97 (NAVD 88).

Horizontal coordinates are based on: Zone 5, California State Plane Coordinates (Feet, NAD83), set relative to NGS Stations AB8218 and AH5238, epoch date 2010.00.

Monitoring Well	Northing	Easting	NAD83 Latitude	NAD83 Longitude	Elevation Top of Casing	Elevation Top of Rim
EMW-01A	1868445.18	6746445.83	34.1250328	-117.3894560	1386.48	1386.89
EMW-01B	1868445.08	6746445.44	34.1250325	-117.3894574	1386.48	1386.89
EMW-03A	1873009.60	6741792.68	34.1376517	-117.4047412	1500.66	1500.89
EMW-03B	1873009.03	6741792.74	34.1376501	-117.4047410	1500.61	1500.89
EMW-03C	1873009.28	6741793.19	34.1376508	-117.4047395	1500.51	1500.89
EMW-04A	1875387.04	6741491.55	34.1441894	-117.4056899	1549.42	1549.78
EMW-04B	1875387.22	6741490.93	34.1441899	-117.4056919	1549.32	1549.78
EMW-04C	1875386.63	6741491.04	34.1441882	-117.4056916	1549.23	1549.78
EMW-05A	1875649.21	6739864.44	34.1449361	-117.4110622	1573.56	1573.97
EMW-05B	1875648.94	6739864.85	34.1449353	-117.4110608	1573.42	1573.97
EMW-05C	1875649.52	6739864.87	34.1449369	-117.4110607	1573.33	1573.97

Elevations shown for Top of Casings are on notches on the north edge of casing walls, and elevations for Top of Rims are on the north edge of well rims. Please call if you have any questions.

Very truly yours,

William A. Teipe, P.E.

6/7/14

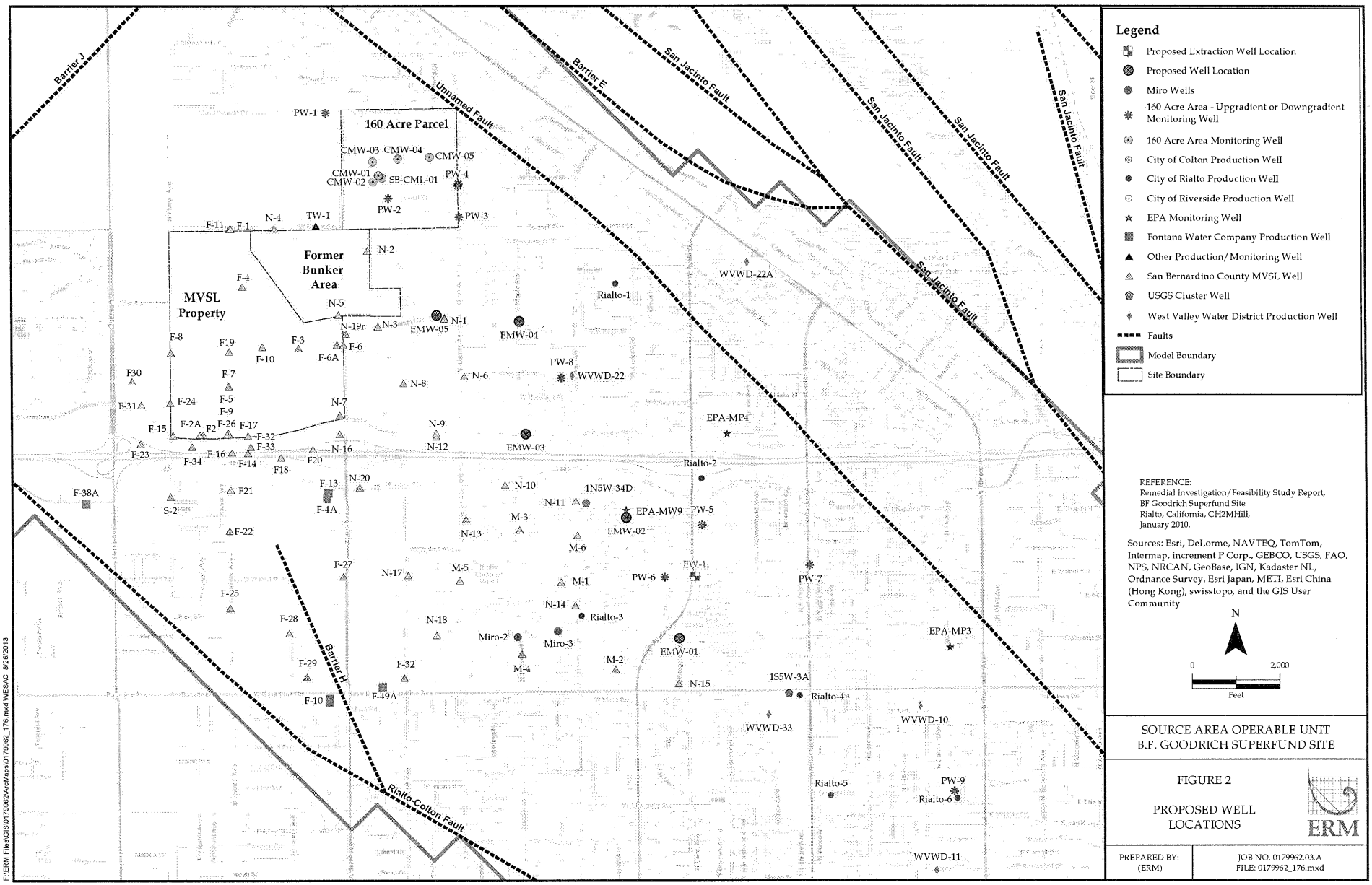
File: 1417C

Global ID	Point Name	Point Class	Date	Latitude	Longitude	Method	Datum	Accuracy Value (cm)	Survey Org.	GPS Equip
REQUIRED	EMW-01A	MW	5/30/2014	34.1250328	-117.3894560	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-01B	MW	5/30/2014	34.1250325	-117.3894574	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-03A	MW	5/30/2014	34.1376517	-117.4047412	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-03B	MW	5/30/2014	34.1376501	-117.4047410	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-03C	MW	5/30/2014	34.1376508	-117.4047395	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-04A	MW	5/30/2014	34.1441894	-117.4056899	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-04B	MW	5/30/2014	34.1441899	-117.4056919	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-04C	MW	5/30/2014	34.1441882	-117.4056916	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-05A	MW	5/30/2014	34.1449361	-117.4110622	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-05B	MW	5/30/2014	34.1449353	-117.4110608	RTK	NAD83	3.00	J.B.K.	LIROV
REQUIRED	EMW-05C	MW	5/30/2014	34.1449369	-117.4110607	RTK	NAD83	3.00	J.B.K.	LIROV

1417C xy B.F GOODRICH SUPER FUND SITE

Global ID	Point Name	Date	Elevation (ft)	Elev Method	Elev Datum	Elev Accuracy	Survey Org.	Riser Height	Description
REQUIRED	EMW-01A	5/30/2014	1386.48	TRIG	88	0.3	J.B.K.	-0.41	NGS BM AB8218
REQUIRED	EMW-01B	5/30/2014	1386.48	TRIG	88	0.3	J.B.K.	-0.41	NGS BM AB8218
REQUIRED	EMW-03A	5/30/2014	1500.66	TRIG	88	0.3	J.B.K.	-0.23	NGS BM AB8218
REQUIRED	EMW-03B	5/30/2014	1500.61	TRIG	88	0.3	J.B.K.	-0.28	NGS BM AB8218
REQUIRED	EMW-03C	5/30/2014	1500.51	TRIG	88	0.3	J.B.K.	-0.38	NGS BM AB8218
REQUIRED	EMW-04A	5/30/2014	1549.42	TRIG	88	0.3	J.B.K.	-0.36	NGS BM AB8218
REQUIRED	EMW-04B	5/30/2014	1549.32	TRIG	88	0.3	J.B.K.	-0.46	NGS BM AB8218
REQUIRED	EMW-04C	5/30/2014	1549.23	TRIG	88	0.3	J.B.K.	-0.55	NGS BM AB8218
REQUIRED	EMW-05A	5/30/2014	1573.56	TRIG	88	0.3	J.B.K.	-0.41	NGS BM AB8218
REQUIRED	EMW-05B	5/30/2014	1573.42	TRIG	88	0.3	J.B.K.	-0.55	NGS BM AB8218
REQUIRED	EMW-05C	5/30/2014	1573.33	TRIG	88	0.3	J.B.K.	-0.64	NGS BM AB8218

1417C z B.F. GOODRICH SUPERFUND SITE



Legend

- Proposed Extraction Well Location
- Proposed Well Location
- Miro Wells
- 160 Acre Area - Upgradient or Downgradient Monitoring Well
- 160 Acre Area Monitoring Well
- City of Colton Production Well
- City of Rialto Production Well
- City of Riverside Production Well
- EPA Monitoring Well
- Fontana Water Company Production Well
- Other Production/Monitoring Well
- San Bernardino County MVSL Well
- USGS Cluster Well
- West Valley Water District Production Well
- Faults
- Model Boundary
- Site Boundary

REFERENCE:
Remedial Investigation/Feasibility Study Report, BF Goodrich Superfund Site
Rialto, California, CH2MHill, January 2010.

Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

N

0 2,000
Feet

SOURCE AREA OPERABLE UNIT
B.F. GOODRICH SUPERFUND SITE

FIGURE 2

PROPOSED WELL LOCATIONS

ERM

PREPARED BY: (ERM)	JOB NO. 0179962.03.A FILE: 0179962_176.mxd

F:\ERM Files\GIS\0179962\ArcMaps\0179962_176.mxd WESAC 8/26/2013

Appendix D
Well Development Records

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-1 SHALLOW

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 3/27/14

Field Conditions: OVERCAST - COOL
Development Company: National EWP
Initial Depth to Water: _____ feet
Final Depth to Water: _____ feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: _____ feet
Total Depth After Development: _____ feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters 4 GPM

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
0905							
0915	SHUT DOWN PUMP TO						
0920		437	20.2	7.81		530	CLOUDY
0945	PUMP HAS SHUT ON A COUPLE OF OCCASION						
	ATTEMPTING TO INSTALL WATER LEVEL METER						
	TO MONITOR DRAW DOWN - PROBE TAPE HUNG UP AT 100'						
1011	RESTARTED PUMP - REDUCED FLOW TO MINIMIZE DRAW DOWN 1.5 GPM						
1015	120	432	22.1	7.89		350	CLOUDY
1020	~~130~~ 128	433	21.3	7.83		909	MUDDY
1030	143	433	21.3	7.74		205	CLOUDY
1100	188	431	22.4	7.67		145	CLOUDY
1116	212	432	23.2	7.66		127	
1146	257	429	23.2	7.66		125	LT BROWN
1216	302	426	22.1	7.67		141	LT BROWN
1246	347	428	22.7	7.65		158	LT BROWN INCREASED FLOW 4 GPM
1302	411	424	20.7	7.67		26.85	
1317	471	421	20.5	7.60		16.48	
1332	531	421	20.4	7.66		13.61	
1347	591	420	20.2	7.66		7.83	
1402	651	418	20.3	7.66		7.06	
1417	711	420	20.4	7.64		5.61	
1422	731	419	20.2	7.64		4.87	
1430	763	420	20.2	7.66		4.58	
1435	783	419	20.1	7.63		4.65	

Total Gallons Purged: _____
Drums Used: _____
Recharge Rate: _____

Additional Notes: _____

1 OF 2

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-1 SHALLOW

Project Name: Rialto - BF Goodrich
Field Personel: DAN GENTILS

Date: 3/27/14

Field Conditions:
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
1435	783	CONTINUED FROM PREVIOUS PAGE					
1440	803	419	20.2	7.69		4.56	
1445	823	418	20.2	7.67		4.23	
1449	839						SHUT DOWN

Total Gallons Purged: 839
Drums Used:
Recharge Rate:

Additional Notes: COMPLETE

2 OF 2

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-1 DEEP

Project Name: Rialto - BF Goodrich
Field Personel: DAN GENTILE / CHRISTY

Date: 3/28/14

Field Conditions: SUNNY - COOL
Development Company: National EWP
Initial Depth to Water: — feet
Final Depth to Water: — feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: — feet
Total Depth After Development: — feet

Height of Water Column:	Conversion Factor	Volume		Purge Factor (Borehole Volumes)	Volume to Purge
0.00 feet	X 8.88	= 0.00 gal	x	10	= 0.00 gal

Purging Parameters (46PM)

Start: Time	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
1045	INITIAL	390	21.0	7.91		190	
1050	—						PUMP SHUT DOWN
1100	RESTARTED						
1106	44	389	20.9	7.86		65	
1230		380	20.8	7.55		28.33	clear
1300		379	20.7	7.78		15.47	clear
1330		374	20.7	7.69		11.68	clear
1345		377	20.7	7.72		11.29	
1400		371	20.9	7.64		45.28	moved/lowered pump @ 56'
1415		366	20.9	7.71		53.	
1430		369	21.1	7.70		40	
1500		345	21.0	7.69		18.70	
1530		362	21.2	7.78		20.14	
1600		355	20.7	7.65		17.88	
1630		362	20.9	7.72		16.64	
1645		355	20.8	7.74		16.43	

Total Gallons Purged: ~1500
Drums Used: —
Recharge Rate: —

Additional Notes: Calibrate Horiba turbidity meter with 0/10/500 NTU @ 1345

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: ETMW-1 Deep
Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE
Date: 3/29/14

Field Conditions: SUNNY - COOL
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")
Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

4GPM

Start: Time	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
0710							
0714	INITIAL	367	19.0	8.06		4.62	
0724	40	372	19.3	7.82		66.0	CLOUDY
0729	100	372	19.2	7.82		51.0	
0744	160	374	19.1	7.78		45.51	
0804	240	374	19.5	7.82		33.17	
0814	280	373	19.6	7.79		29.39	
0829	340	373	19.9	7.83		24.14	
0849	420	374	20.0	7.81		22.06	
0909	500	374	19.7	7.77		12.17	CLEAR
0924	560	374	19.7	7.78		6.67	
0939	620	373	19.6	7.82		4.11	
0946	648	373	19.6	7.81		3.02	
0953	676	373	19.8	7.78		1.62	
1000	704	373	19.8	7.78		0.20	
1007	732	373	19.8	7.78		0.00	
1009	740	SHUT	DOWN				

Total Gallons Purged: 740
Drums Used:
Recharge Rate:
Additional Notes:

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-03 Shallow

Project Name: Rialto - BF Goodrich
Field Personel: GL

Date: 3/3/14

Field Conditions: Sunny
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters 3 gpm

Start: Time		Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	~~Emhoff~~ (~~ml/1000ml~~)	Turbidity (NTu)	Notes:
123	0	88832	455	21.2	7.76	228	670	time 0
129	6	88850	456	19.9	7.70	228	967	
135	12	88868	467	20.2	7.70	233	>1000	
141	18	88886	454	20,4	7.70	227	612	clearing up fast
147	24	88894	450	20.3	7.67	226	358	
153	30	88923	450	20.2	7.66	225	246	
159	36	88941	448	20.4	7.67	224	206	
205	42	88960	448	20.4	7.63	224	171	
211	48	88978	448	20.4	7.63	224	140	
217	54	88997	446	20.3	7.64	223	128	
223	60	89017	447	20.2	7.65	224	131	check zero cal = 0.90
229	66	89035	449	20.3	7.59	225	109	
235	72	89054	445	20.1	7.62	222	111	
241	78	89073	443	20.3	7.64	222	87	
247	84	89092	444	20.3	7.63	222	81	
253	90	89110	445	20.2	7.65	221	64	
259	96	89130	443	20.1	7.65	221	64	
305	102	89149	446	20.3	7.64	222	57	
311	108	89169	447	20.1	7.61	222	57	
317	114	89188	445	20.1	7.61	220	48.52	
323	120	89217	442	20.1	7.59	221	46.78	check zero cal = 0.00
329	126	89236	440	20.1	7.62	220	42.60	
335	132	89246	441	20.1	7.61	221	35.79	
341	138	89265	440	19.9	7.60	219	32.03	gpm just 53

Total Gallons Purged: 433 +?
Drums Used:
Recharge Rate:

Additional Notes: See page 2

89265
88832
433
pumped this page only

1 OF 3

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW - 03 shallow

Project Name: Rialto - BF Goodrich
Field Personel: GL

Date: 3/3/14

Field Conditions: Sunny
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:	Conversion Factor	Volume		Purge Factor (Borehole Volumes)	Volume to Purge
0.00 feet	X 8.88	= 0.00 gal	x	10	= 0.00 gal

Purging Parameters

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	~~Emhoff~~ (~~ml/1000ml~~)	Turbidity (NTu)	Notes:
347 144	89285	439	19.9	7.62	220	27.35	
353 160	89305	438	20.0	7.63	219	30.48	
359 163	89324	438	19.9	7.60	219	27.48	
405 169	89342	438	20.0	7.61	219	19.28	
411 175	89362	437	20.0	7.61	218	26.47	
417 181	89382	438	19.8	7.59	219	25.79	
423 187	89403	439	19.8	7.60	220	27.84	
429 193	89422	440	19.9	7.61	219	28.63	
435 199	89441	441	19.9	7.61	220	19.39	
441 205	89461	440	19.9	7.62	221	27.89	
stop pump at		444					

Total Gallons Purged: 629
Drums Used:
Recharge Rate:

Additional Notes: not complete could not get below ~~10~~ 5 NTU

2 OF 3

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: ENW-3 SHALLOW

Project Name: Rialto - BF Goodrich
Field Personel:

Date: 3/4/14

Field Conditions: SUNNY - COOL
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

5 GPM

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
0755							ALLOW 3 MINUTES TO CLEAR
0758	15	441	18.4	7.72		27.65	PIPE
0805	—	—	—	—	—	—	@ POWER LOSS TO PUMP 2/SEC
0810	75	438	18.2	7.63		OR	LT BROWN
0820	125	439	18.5	7.62		161	
0830	175	437	18.9	7.61		117	
0845	250	439	18.7	7.62		83	
0855	~~250~~ 300	437	18.6	7.61		50	
0915	400	439	18.6	7.60		37.57	PUMP SLOWED DOWN TO ~~2GPM~~ 4 GPM
0925	440	436	18.8	7.63		29.97	AIR BUBBLES IN
0940	500	437	18.6	7.61		24.99	SAMPLE JARS
1000	580	435	18.5	7.62		16.02	
1015	640	435	18.7	7.61		16.08	
1030	700	433	18.9	7.63		13.62	
1045	760	435	19.0	7.61		14.51	
1100	820	434	19.1	7.59		11.80	LOWERED FLOW - 2.5 GPM
1110	845	433	19.4	7.60		35.00	MILKY
1120	870	431	19.7	7.59		2.59	
~~1126~~ 1126	885	434	19.9	7.60		11.50	
1141	923	435	20.1	7.61		.95	
1147	938	433	20.3	7.61		0.00	
1153	953	435	20.1	7.61		0.10	
1159	948	436	20.1	7.62		0.19	
1205	983	435	20.2	7.61		0.00	
1207							STOPPED PUMP

Total Gallons Purged: 988
Drums Used:
Recharge Rate:

Additional Notes:

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-43 INTERMEDIATE

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTLO

Date: 3/3/14

Field Conditions: OVERCAST - COOL
Development Company: National EWP
Initial Depth to Water: _____ feet
Final Depth to Water: _____ feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: _____ feet
Total Depth After Development: _____ feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

4GPM

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100) µS	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
0830							
0835	20	415	18.0	8.14		24.20	
0840 0845	60	482	18.5	7.85		69.00	
0855	100	463	18.6	7.84		31.75	
0905	140	435	18.7	7.84		21.80	
0915	180	422	18.7	7.83		13.20	WATER TRAILER 1/2 FULL -
0920	200	418	18.9	7.82		10.44	LOWER FLOW TO 2 GPM
0930	220	411	19.1	7.82		9.18	
0940	240	409	19.5	7.81		8.67	
0950	260	407	20.4	7.83		6.93	
1000	280	406	20.4	7.80		4.84	
1010	320	403	20.3	7.82		4.22	
1020	340	401	20.2	7.80		3.43	
1030	360	401	20.2	7.81		3.38	
1040	380	403	20.1	7.80		2.67	
1042	384						SHUT DOWN

Total Gallons Purged: 384
Drums Used: _____
Recharge Rate: _____

Additional Notes: _____

COMPLETE

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EHW-3 DEEP

Project Name: Rialto - BF Goodrich
Field Personel: ~~DON~~ GENTILE

Date: ~~4~~ 2-7-14

Field Conditions: OVERCAST, COOL OCCASIONAL SHOWERS
Development Company: National EWP
Initial Depth to Water: 548.00 feet
Final Depth to Water: 650.00 feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: _____ feet
Total Depth After Development: _____ feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal
102			905.76					9058

88040 ~~to~~ 1.3 uS C

Purging Parameters

2 GPM

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp ~~(F)~~	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
1435	INITIAL	233	21.4	7.60		1100	
1445	20	241	19.3	7.98		110	
1455	40	248	19.5	8.03		150	
1510	70	247	19.9	7.97		OR	
1520	90	248	19.9	7.97		450	
1530	110	247	19.9	7.98		310	
1540	130	247	19.8	7.97		220	
1550	150	247	19.8	7.97		170	
1600	170	247	19.6	7.98		120	
1610	190	247	19.6	7.97		100	
1620	210	247	19.4	7.97		60	
1630	230	247	19.3	7.98		55	
1640	250	247	19.2	7.97		59	
1645	260	248	19.3	7.98		60	
1650	270	248	19.3	7.97		63	
1652	274						STOPPED PUMP

Total Gallons Purged: 274
Drums Used: ROLL OFFS
Recharge Rate:

Additional Notes: OR = OVER RANGE

NOT COMPLETE 1 OF 2

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08 Project Name: Rialto - BF Goodrich Date: 2/10/14

Well No.: EWM-03c (deep) Field Personel: GL

Field Conditions: cloudy cold

Development Company: National EWP

Initial Depth to Water: _____ feet Total Depth Before Development: _____ feet

Final Depth to Water: _____ feet Total Depth After Development: _____ feet

Bore Hole Diamter: 14.75 inches

Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

Time Start: 800	Volume Purged (gallons)	Conductivity ~~(Mho, x100)~~	Temp (°F)	pH 8.08	~~Emhoff~~ (ml/1000ml)	Turbidity (NTu)	Notes:
800	88300	166	19.0	~~7.98~~	243	19.9	initial inside discharge
815	88331	163	17.4	8.21	241	28.3	initia inside discharge
831	88349	160	18.0	8.34	234	57.1	
845	88370	156	18.5	8.10	241	70.9	
859	88385	164	19.2	8.05	239	29.5	
915	88405	164	19.4	7.98	239	19.1	
931	88424	161	19.6	8.01	239	14.6	
945	88440	161	20.3	8.03	235	11.5	
1000	88459	161	20.4	7.99	236	9.30	
1015	88483	162	20.8	8.02	239	7.35	
1030	88498	158	20.8	8.01	239	6.34	
1045	88518	165	21.4	8.04	241	5.04	
1100	88536	167	21.4	8.03	246	4.26	
1115	88556	166	21.6	8.03	243	4.49	
1130	88574	165	21.9	8.02	245	3.60	
1145	88595	166	22.1	8.03	244	3.43	
1200	88613	167	22.3	8.03	245	2.87	

88300 totalizer reading ppm

uS Conductivity

Total Gallons Purged: 213

Drums Used: n/a

Recharge Rate:

Additional Notes: Hanna HI 991306

all readings stabilize ~ 2 to 3 %

COMPLETE 2OF2

Field Log

ERM

Site Address: EMW-03	Personnel: AL
Date: 2/10/14	Pages: 1 of 1

Scope of Work: EMW-03 well development

645	arrive on site, met with national well developer
700	calliboaricade shows up, puts up traffic control
	departs to EMW-04
	National situates at EMW-03
730	EMW-03b (medium) DTW = 525.90
800	begin purging well EMW-03c (deep)
1045	call Don update status discuss plans if EMW-3c stabilizes in readings
1200	reading stabillze at EMW-03c, complete
1300	begin air lifting EMW-03b
	remove trimmy from EMW-03c
	take 30 min lunch while EMW-03b is being air lifted
1330	air compressor and air lift stopped for EMW-03b not producing
	talk to Don, Tuesday plan to mob to EMW-04 to surge & bail well
1500	EMW-03c trimmy pipe taken out
	call Eric at EMW-04 for status
	well box to be set in tomorrow Tuesday around noon
	called Don, gave status update, plans to surge and bail at EMW-03 Tuesday
1600	begin clean up,
	remove EMW-3b trimmy pipe
1700	National depart site
	I check area, and depart site

Field Log

ERM

Site Address: EMW-03 Rialto	Personnel: GL
Date: 2/11/14	Pages: 1 of 1
Scope of Work: Well Development	

645	arrive on site meet, National well developer
700	traffic control arrive and setup
	begin mob onto and setup on well
720	receive a call from Don, update, plans
	begin bailing ~~medium~~ shallow well EMW-03
830	pulled 55 gals from well, water is slightly clearing up however still be out of range for turbidity
945	pulled 55 gals from well
	takes about 10 minutes for sediment to settle to light brackish water ~ Turbidity of about ~ 500, maybe
1100	pulled 55 gals from well
	takes about 17 minutes for the heavy sediment to settle out, to see brackish cloudy water, 28 minutes to have light brackish water
1200	pulled 55 gals from well
1240	Haz mat trans arrive on site check on containers
	5 containers, 3 containers ready for transport
	2 containers need to be raced out of liquids
	Allow 1 hour to settle out sediment, Turbidity could read in ~ 100 NTUs
	Decon equipment for next well
1255	begin bailing medium well EMW-03B
	water looks light milky brown, like starbuck frappicino
	after 15 minutes water is still the same, light brown milky
	after 30 minutes water remains the same
	bailed water is getting darker to gray color
150	bailed 55 gals out of well
	15 minutes, water is dark gray, does not settle out
245	bailed 55 gals out of well
330	bailed 55 gals out of well
	clean up to demob
400	National well developer depart site
415	I secure and depart site

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-4 SHALLOW

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 2/26/14

Field Conditions: OVERCAST, COOL
Development Company: National EWP
Initial Depth to Water: 414.21 feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

5GPM

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
1200							
1203	INITIAL	434	20.9	7.55		OR	VERY MURKY
1209	30	432	19.2	7.46		400	
1215	60	432	19.3	7.50		216	
1221	90	435	19.4	7.54		206	
1227	120	434	19.5	7.46		163	
1238	150	431	19.4	7.50		165	
1245	210	433	19.1	7.50		118	
1257	270	432	19.2	7.49		121	
1309	330	433	19.2	7.52		112	
1321	390	431	19.1	7.52		73	
1333	450	433	19.2	7.49		46.3	
1345	510	433	19.1	7.50		24.6	
1357	570	432	19.0	7.53		3401	
1409	630	433	19.1	7.51		29.47	
1421	690	432	19.1	7.54		21.68	
1433	750	432	19.1	7.54		16.51	
1445	820	433	19.1	7.55		14.78	
1457	880	433	19.1	7.54		12.88	
1509	940	433	19.2	7.51		10.53	
1515	970	433	19.0	7.50		8.65	
1521	1000	433	19.1	7.50		7.31	
1527	1030	433	19.1	7.50		6.07	
1533	1060	433	19.0	7.53		5.18	

Total Gallons Purged:
Drums Used:
Recharge Rate:

Additional Notes:

COMPLETE

1 OF 2

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-4 SHALLOW

Project Name: Rialto - BF Goodrich
Field Personel:

Date: 2/26/14

Field Conditions:
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

Start: Time	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
~~CONT.~~	1060						
~~1634~~ 1539	1090	433	~~19.1~~ 19.0	7.52		3.76	
~~1645~~ 1545	1120	433	19.1	7.53		3.25	
1551	1150	433	19.1	7.51		3.68	
1557	1180	433	19.0	7.54		2.91	
1603	1210	433	19.0	7.53		2.72	
1606	SHUT DOWN						
	1225						

Total Gallons Purged: 1225
Drums Used:
Recharge Rate:

Additional Notes:

COMPLETE

2 of 2

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-04 INTERMEDIATE

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 2/25/14

Field Conditions: SUNNY - WARM
Development Company: National EWP
Initial Depth to Water: _____ feet
Final Depth to Water: _____ feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: _____ feet
Total Depth After Development: _____ feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

3 GPM

Purging Parameters

µS

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
1200	~~INITIAL~~						START UP
1205	INITIAL	410	22.9	8.14		CR	FIRST DISCHARGE
1215	30	390	20.5	7.82		108	
1225	60	387	20.6	7.78		35.5	
1235	90	385	20.7	7.74		14.55	
1245	120	386	20.7	7.75		9.52	
1255	150	385	20.8	7.74		6.47	
1305	180	384	21.0	7.72		4.53	
1315	210	384	21.0	7.73		3.44	
1325	240	386	20.9	7.76		3.34	
1335	270	384	21.0	7.75		1.63	
1345	300	384	21.2	7.73		1.13	
1355	330	383	21.0	7.69		0.46	
1405	360	384	20.9	7.69		0.13	
1415	390	383	21.0	7.69		0.00	
1416	STOPPED PUMPING						

Total Gallons Purged: ~~390~~ 390
Drums Used: _____
Recharge Rate: _____

Additional Notes: _____

COMPLETE 1 OF 1

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-04 DEEP

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 2-19-14

Field Conditions:
Development Company: National EWP
Initial Depth to Water: 573.25 feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: 700 feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

1.5 GPM

μS

Start: Time	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
0839	INITIAL	257	20.5	7.90		OR	
0849	15	269	18.9	7.94		OR	
0909	45	270	19.1	7.89		190	
0929	75	273	19.8	7.93		180	
0949	105	270	20.1	7.97		220	
1009	135	270	20.6	7.92		250	
1039	180	270	20.5	7.91		230	
1100	201	268	20.9	7.89		160	
1119	220	267	20.6	7.90		360	
1200	261	265	20.7	7.86		380	
1230	291	267	20.8	7.87		500	
1310	331	266	21.1	7.87		550	
1340	361	266	21.1	7.89		600	
1345							INCREASE FLOW TO 3GPM
1415	451	265	20.8	7.80		320	
1445	541	264	20.6	7.82		300	
1515	631	264	20.6	7.87		190	
1545	721	262	20.4	7.87		100	
1615	811	262	20.4	7.88		82.1	
1645	901	261	20.4	7.87		64.1	
1700	946	261	20.3	7.88		67.8	
1701							STOPPED PUMPING

Total Gallons Purged: 950
Drums Used:
Recharge Rate:

Additional Notes:

1 OF 4

2/20/14 Glo6 See Back.

NATIONAL EWP			PROJECT NAME:	WELL NUMBER: EMW-4C
WELL DEVELOPMENT LOG		JOB NUMBER:	SITE:	PREPARED BY:

METHOD: PUMP X; BAILER ___; OTHER ___

DEVELOPMENT CRITERIA:

REPMARKS: 2.5 to 3 gpm totalizer

DEVELOPMENT LOG					TOTAL	WATER QUALITY					COMMENTS
DATE	TIME	FLOW RATE (gpm)	DEPTH TO WATER (ft-btoc)	WATER REMOVAL (gal)	WATER REMOVAL (gal)	pH	SPECIFIC Conductivity (mS/cm)	TURBIDITY (NTU)	Temparture (Degrees C)	other	
2/20/14	0	735		92501	—	—	—	—	—		
water in pipe	145			92501	0	7.95	257	29.7	20.1	175	start
water from well	800			92548	47	8.07	266	114	18.4	181	
	45	815		92593	45	8.01	252	31.0	19.5	172	was swabbing EMW-4a
	60	830		92650	57	7.95	259	17.9	19.6	176	was swabbing EMW-4a
	75	845		92682	42	7.93	258	202	19.9	176	boiling EMW-4B
	90	900		92718	36	7.94	256	278	19.5	175	
	105	915		92759	41	7.88	258	211	20.1	176	
~~120~~	~~115~~	930		92792	33	7.89	258	152	20.2	176	
~~145~~	~~130~~	945		92843	51	7.89	258	95.8	20.1	175	
~~160~~	~~145~~	1000		92887	44	7.88	257	78.4	20.1	175	
175	~~160~~	1015		92912	25	7.88	258	67.4	20.2	175	
~~190~~	~~175~~	1030		92954	42	7.89	259	55.8	20.5	176	
~~205~~	~~190~~	1045		92998	44	7.90	258	52.3	20.5	175	
~~220~~	~~205~~	1100		93035	37	7.90	257	45.9	20.4	175	
	~~205~~	1115		93085	50	7.88	257	34.7	20.3	175	
		1130		93126	41	7.90	257	28.7	20.5	176	
		1145		93170	44	7.88	258	23.9	20.4	176	
		1200		93203	33	7.87	255	18.8	20.6	174	
		1215		93254	51	7.87	257	17.1	20.6	176	
		1230		93294	40	7.86	259	16.3	20.6	176	
		1245		93336	34	7.86	260	16.7	20.7	177	
		1300		93380	44	7.87	258	17.1	20.6	176	
		1315		93429	49	7.89	260	19.2	20.8	177	
		1330		93462	33	7.88	259	17.1	20.9	176	
		~~1345~~		93531	79	7.87	260	18.6	21.0	177	
		1400		93550	29	7.87	258	19.1	21.0	176	throttle to 1gpm
		1415		93571	19	7.85	259	18.8	21.2	175	reading change here
		1430		93589	12	7.84	258	11.7	21.1	174	
		1445		93609	20	7.87	260	38.2	21.2	176	odd went back up
		1500		93624	15	7.86	261	39.4	21.3	177	last reading

Verified Zero with drinking water = 0.08

Zero using Nationds Zero = 1.08

~~1515~~
~~1530~~

2054

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-04 DEEP

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 2/21/14

Field Conditions:
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

1GPM

Time Start: 0803	Volume Purged (gallons)	Conductivity (Mho, x100) uS	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
	—						ALLOW 30 MINUTES
	—						TO CLEAR LINES
0843	40	261	19.5	8.03		10.94	
0903	60	261	20.2	7.93		7.4	
0923	80	260	20.5	7.93		6.2	
0943	120	260	20.7	7.92		14	
1013	150	260	21.3	7.95		90	INCREASE FLOW TO 3GPM
1028	195	259	21.5	7.90		85	CLOUDY
1043	240	259	20.7	7.90		70	
1058	285	259	20.7	7.86		50	
1113	330	258	20.7	7.88		45	
1128	375	259	20.6	7.89		35	
1143	420	258	20.7	7.86		30	
1158	465	258	20.7	7.86		18	
1213	510	258	20.7	7.86		18	
1228	555	257	20.7	7.86		18	
1243	600	257	20.8	7.87		20	
1258	645	258	20.7	7.83		24	
1338	765	257	20.7	7.87		14	
1358	825	256	20.7	7.82		10	
1413	870	256	20.8	7.86		9.4	
1428	915	257	20.6	7.85		6.6	
1443	960	257	20.7	7.86		6.3	
1458	1005	257	20.7	7.81		5.9	

Total Gallons Purged: 1236
Drums Used:
Recharge Rate:

Additional Notes: LAMOTTE 2020 S/N 4600-4003
HANNA 99130 S/N 08553421

3 OF 4
COMPLETE

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-4 DEEP

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 2/21/14

Field Conditions:
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

Start: Time	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
1513	1050	257	20.6	7.79		4.0	
1528	1095	256	20.7	7.82		3.6	
1543	1140	257	20.7	7.84		3.4	
1558	1185	257	20.6	7.86		4.2	
1613	1230	256	20.5	7.84		3.9	
1615	1236						STOPPED PUMPING

Total Gallons Purged:
Drums Used:
Recharge Rate:

Additional Notes:

4 OF 4 COMPLETE 2 OF 2

ERM

WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-5 SHALLOW

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 3-13-14

Field Conditions: OVERCAST, COOL
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

2.5 GPM

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
0947							
0950	INITIAL	320	18.9	7.72		448	
1002	30	304	19.0	7.82		OR	VERY MURKY (MUDDY)
1020	75	324	20.1	7.43		991	
1040	125	321	20.6	7.40		248	MILKY (CLOUDY)
1100	175	318	21.0	7.37		157	
1110	200	315	20.2	7.38		124	
1130	250	314	20.8	7.40		114	
1150	300	314	20.9	7.34		82.7	
1210	350	313	20.5	7.30		55.2	
1240	425	311	20.6	7.35		39.7	
1310	500	314	21.7	7.28		38.2	
1340	575	312	21.5	7.24		24.8	
1400	625	312	21.8	7.28		24.8	
1410	650	312	21.7	7.29		34.8	
1430	700	313	21.8	7.30		31.9	INCREASE FLOW-
1500	775	312	21.9	7.35		50.1	
1530	850	311	22.2	7.40		30.2	
1600	925	314	21.8	7.42		389	LOWERED LEVEL 1'
1630	1000	313	21.6	7.44		304	
~~1632~~	~~1005~~						~~SHUT DOWN~~
1700	1075	315	~~21.6~~	~~7.30~~		57	SHUT DOWN

Total Gallons Purged: ~~1005~~ 1075
Drums Used:
Recharge Rate:

Additional Notes: 1430 - UNSTABLE DISCHARGE FLOW - RESET FLOW TO 2.5 GPM

1 OF 4

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-5 SHALLOW

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 3-14-14

Field Conditions: SUNNY - COOL
Development Company: National EWP
Initial Depth to Water: _____ feet
Final Depth to Water: _____ feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: _____ feet
Total Depth After Development: _____ feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

5GPM → 2.5GPM

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
0725							
0758	INITIAL	298	18.5	7.50		OR	
0803	25						PUMP QUIT WORKING
0808	25						PUMP RESTARTED
0818	50	309	17.7	7.56		326	PUMP RATE DECREASED
0828	75	314	18.1	7.54		521	TO 2.5GPM MAX
0900	130	312	17.7	7.39		168	
0920	180	308	17.6	7.43		123	MILKY / CLOUDY
0940	230	315	18.6	7.37		83.7	
1010	305	318	18.6	7.31		60.1	
1040	380	312	19.0	7.32		65.1	
1110	455	312	19.2	7.32		39.2	
1130	505	312	19.4	7.32		55.3	
1150	555	313	19.5	7.33		54.9	
1210	605	312	19.8	7.30		47.2	
1250	705	311	20.1	7.29		44.7	
1320	780	309	20.1	7.28		27.9	
1340	830	309	21.1	7.34		34.4	
1400 ~~1500~~	880	311	20.5	7.34		57.2	
1430 ~~1530~~	955	309	21.2	7.32		38.3	
1500 ~~1600~~	1030	310	20.9	7.28		51.6	
1530 ~~1630~~	1105	308	21.0	7.34		27.3	
1550	1155	309	20.8	7.29		26.0	
1610	1205	309	20.7	7.34		32.6	

Total Gallons Purged: _____
Drums Used: _____
Recharge Rate: _____

Additional Notes: _____

PAGE 2 OF 4

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: BMW-5 SHALLOW

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 3-14-14

Field Conditions: SUNNY - COOL
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

Start: Time	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
1630	1255	308	21.0	7.29		45.1	
1635	1265						SHUT DOWN PUMP

Total Gallons Purged: 1265
Drums Used:
Recharge Rate:

Additional Notes:

2 of 2
3 OF 4

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: ENW-5 SHALLOW

Project Name: Rialto - BF Goodrich
Field Personel:

Date: 3-17-14

Field Conditions: SUNNY - WARM
Development Company: National EWP
Initial Depth to Water: feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
0930	INITIAL	430	21.1	7.84		338	5 GPM
							DW > 450
							LOWERED FLOW TO 2 GPM
0936	30	384	18.9	7.83		77	
0952	68	423	19.5	7.69		146	DW 433.65
1004	98	424	20.3	7.70		17.7	DW 434.52
1024	128	423	20.5	7.66		9.05	
1034	153	424	20.5	7.65		8.10	DW 435.00
1044	183	424	20.6	7.67		7.66	DW 435.33
1054	213	424	20.8	7.65		6.60	
1104	243	424	20.9	7.66		9.34	DW 435.33
1114	273	424	20.7	7.67		7.13	
1124	303	424	20.8	7.70		6.29	
1204	403	424	21.0	7.65		4.87	DW 435.33
1210	418	422	21.1	7.65		4.92	
1216	433	422	21.1	7.66		3.68	
1222	448	423	21.0	7.68		3.05	
1228	463	423	21.0	7.65		4.80	DW 435.33
1231	470						SHUT DOWN

Total Gallons Purged: 470
Drums Used:
Recharge Rate:

Additional Notes:

COMPLETE 4 OF 4

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-05 (intermediate)
Project Name: Rialto - BF Goodrich
Field Personel: SUE KORM
Date: 3/24/14

Field Conditions: OVERCAST - AM ; SUNNY @ 11am
Development Company: National EWP
Initial Depth to Water: NA feet
Final Depth to Water: NA feet
Bore Hole Diamter: 14.75 inches
Total Depth Before Development: NA feet
Total Depth After Development: NA feet
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

23451 Flow Cell
2.1 gpm @ 1015 3 gpm @ 1130 2.5 gpm

Purging Parameters

Time Start: 0920	Volume Purged (gallons)	Conductivity ~~mS~~ (mmho, x100)	Temp (~~F~~) C	pH	Emhoff (~~ml~~/1000ml)	Turbidity (NTu)	Notes:
0925		606	19.0	8.15		480	BROWN, CLOUDY
0940		420	19.1	8.04		115	CLOUDY
0942		344	19.8	7.78		75	LIGHTLY CLOUDY
0955		355	20.2	7.66		56	CLEAR
							LOWERED PUMP TO 10 FT
1015		354	20.5	7.63		21	CLEAR ; 21 NTU
1030		349	19.5	7.62		82	LIGHTLY CLOUDY
1045		342	19.9	7.47		73	LIGHLY CLOUDY
1100		349	20.1	7.39		89	LIGHTLY CLOUDY
~~1115~~ 1115		353	21.2	7.63		39	"
~~1130~~ 1130		360	21.7	7.81		234	CLOUDY
~~1145~~ 1145		361	22.2	7.79		586	CLOUDY
~~1200~~ 1200		358	22.5	7.65		326	CLOUDY
~~1215~~ 1215		355	22.8	7.49		198	~~CLEARED~~ CLOUDY
1230		342	22.3	7.63		150	CLOUDY
1245		320	22.9	7.68		173	CLOUDY
1300		352	22.8	7.68		208	Cloudy
1315		355	22.9	7.69		229	Cloudy
1330		359	22.9	7.32		233	Cloudy
1345		357	22.9	7.58		247	CLOUDY
1400	~600	355	23.2	7.62		253	CLOUDY
~~1415~~							STOPPED PUMPING
~~1430~~							
~~1445~~							

Total Gallons Purged:
Drums Used: NA
Recharge Rate: NA

Additional Notes: TURBIDITY METER HANNA HI 93703 - CALIBRATED 10/ OK
PH/EC/TDS METER HANNA HI 991300
CALIBRATED W/ DRINKING WATER,
pH 6.54
T-C 19.3
Cond mS 2.3
TDS 11 ppm

1 OF 2

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08 Project Name: Rialto - BF Goodrich Date: 3/25/14
Well No.: ERMW-05C (Intermediate) Field Personel: Church

Field Conditions: Overcast
Development Company: National EWP
Initial Depth to Water: ___ feet Total Depth Before Development: ___ feet
Final Depth to Water: ___ feet Total Depth After Development: ___ feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Flow cell - 25680
~1.5 gpm

Purging Parameters

Time Start: 750	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
800		337	18.9	7.41		47.0	clear
815		329	19.0	7.80		32.0	
830		327	19.6	7.85		1.13	
835		360	20.0	7.73		1.27	
840		345	20.0	7.80		1.34	
845		334	20.4	7.73		1.64	
850		330	20.7	7.80		0.60	
855	100	328	20.2	7.83		0.48	
							@ 9:00 am stop pumping

Total Gallons Purged: ~ 100 gallons Additional Notes:
Drums Used:
Recharge Rate:

2 OF 2 COMPLETE

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-5 DEEP

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 3-18-14

Field Conditions: HAZY - COOL - HIGH (GUSTY) WINDS
Development Company: National EWP
Initial Depth to Water: 597.05 feet
Final Depth to Water: feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: feet
Total Depth After Development: feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

2.5GPM

Purging Parameters

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
1000	INITIAL						PUMP TRIPPED OFF
RESTART 1043							REMOVED 31' OF PIPE
							HEAVY VISCOCITY W/ FINES
							DARK BROWN
1103	50	415	20.6	8.29		OR	MED. BROWN (MUDDY)
1203	200	370	20.6	7.89		OR	
1303	350	355	20.6	7.83		589	
1333	425	350	20.8	7.81		423	
1403	500	346	21.0	7.84		420	LOWERED PUMP 20'
1414	510	352	21.7	7.88		591	RESTART 1410
1430	575	344	21.0	7.84		325	
1500	650	338	21.1	7.81		578	
1530	725	338	21.4	7.81		404	
1600	800	333	21.5	7.80		225	
1616	840	331	21.4	7.78		182	
1630	875	333	220	7.80		187	
1646	910	330	21.8	7.79		168	
1700 500	945	329	21.9	7.78		170	
1702	950						SHUT DOWN PUMP

Total Gallons Purged: 950
Drums Used:
Recharge Rate:

Additional Notes:

1 OF 7

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-5 Deep

Project Name: Rialto - BF Goodrich
Field Personel: DON GENTILE

Date: 3-19-14

Field Conditions: SUNNY - COOL - GUSTY BREEZE
Development Company: National EWP
Initial Depth to Water: _____ feet
Final Depth to Water: _____ feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: _____ feet
Total Depth After Development: _____ feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

~~2.5 GPM~~ 3.0 GPM

uS

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
0730							
0738	INITIAL	336	20.3	7.90		52	
0740	6						PUMP SHUT DOWN
0800	6	346	18.9	8.39		OR	RESTART - MED BROWN
0815	51	338	19.7	7.91		173	
0830	96	337	19.9	7.94		516	
0915	231	332	20.6	7.89		472	
0930	276	329	20.3	7.82		145	
0945	321	330	21.0	7.80		200	CLOUDY (MILKY)
0958	360	328	21.6	7.82		164	
1018	420	327	21.9	7.82		119	
1038	~~480~~ 510	326	22.0	7.78		98	
1108	570	326	22.1	7.80		100	
1128	630	326	22.3	7.83		87	
1148	690	324	22.0	7.83		83	
1208	750	322	22.3	7.75		75	
1228	810	321	22.5	7.72		75	
1248	900	321	22.4	7.71		71	
1328	990	326	21.7	7.82		62	
1358	1080	324	21.7	7.78		49.47	
1413	1125	326	21.5	7.80		47.85	
1428	1170	327	21.5	7.79		51.00	
1443	1215	326	21.5	7.80		46.64	
1458	1260	326	21.5	7.80		48.73	

Total Gallons Purged: 1260
Drums Used: _____
Recharge Rate: _____

Additional Notes: _____

NOTE 2 OF 7

ERM

WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-5 Deep

Project Name: Rialto - BF Goodrich
Field Personel: Don Gentilo

Date: 3-19-14

Field Conditions: SUNNY - COOL - GUSTY WINDS
Development Company: National EWP
Initial Depth to Water: _____ feet
Final Depth to Water: _____ feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: _____ feet
Total Depth After Development: _____ feet

Height of Water Column:		Conversion Factor		Volume		Purge Factor (Borehole Volumes)		Volume to Purge
0.00 feet	X	8.88	=	0.00 gal	x	10	=	0.00 gal

Purging Parameters

3 GPM

Start: Time	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
CONT 1458	1260						
1520	1326	327	21.6	7.80		68	
1530	1356	327	21.9	7.79		57	
1545	1401	327	21.5	7.79		33.13	
1600	1446	327	21.2	7.80		43.51	
1615	1491	326	21.3	7.82		48.42	
1630	1536	327	21.1	7.83		45.93	
1645	1581	326	21.0	7.83		36.83	
1700	1626	327	21.0	7.83		35.31	HAZY
1702	1632						SHUT DOWN

Total Gallons Purged: 1632
Drums Used: _____
Recharge Rate: _____

Additional Notes: _____

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-05 DEEP

Project Name: Rialto - BF Goodrich
Field Personel: Nick Mikovsky / National

Date: 3-20-14

Field Conditions: sunny
Development Company: National EWP
Initial Depth to Water: ___ feet
Final Depth to Water: ___ feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: ___ feet
Total Depth After Development: ___ feet

Height of Water Column:	Conversion Factor	Volume		Purge Factor (Borehole Volumes)	Volume to Purge
0.00 feet	X 8.88	= 0.00 gal	x	10	= 0.00 gal

25 gpm = 25 gal in 1 min

Purging Parameters

Time Start:	Volume Purged (gallons)	Conductivity (Mho, x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
9am	0	326	19.0	7.33		152	cloudy
815	37.5	321	19.8	7.79		80	
830	75	315	14.7	7.70		64	
845	112.5	313	20.0	7.75		63	
9:00	150	306	19.7	7.53		44.70	
9:15	187.5	311	21.2	7.71		44.60	
930	225	312	21.1	7.68		44.66	
945	262.5	314	21.1	7.69		50.0	
10.00	300	316	21.2	7.71		45.01	pump surge
1030	375	323	21.9	7.82		73	
1100	450	317	22.1	7.85		29.29	
1130	525	326	22.0	7.75		51	
1200	600	322	22.3	7.75		34.56	
1230	675	315	21.6	7.77		28.77	
1300	750	315	21.3	7.73		25.03	
1330	825	317	21.1	7.71		22.09	
1400	900	323	23.09	7.76		20.9	
1430	975	322	25.09	7.84		21.4	
1500	1050	320	24.00	7.84		21.5	
1530	1125	323	17.82	7.80		21.1	
1600	1200	324	21.79	7.83		20.8	
1630	1275	308	19.96	7.79		20.7	
1645	13125	323	22.45	7.83		20.6	
1700	1350	323	19.17	7.77		20.1	

Total Gallons Purged: ___
Drums Used: ___
Recharge Rate: ___

Additional Notes: ___

4 OF 7

ERM
WELL DEVELOPMENT LOG

Date: 3/28/14

Job No.: 0179962/08
Well No.: EMW-05 (Deep Zone)
Project Name: Rialto - BF Goodrich
Field Personel: Chyrayu

Field Conditions: Sunny
Development Company: National EWP
Initial Depth to Water: — feet
Final Depth to Water: — feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: — feet
Total Depth After Development: — feet

Height of Water Column:	Conversion Factor	Volume		Purge Factor (Borehole Volumes)	Volume to Purge
0.00 feet	X 8.88	= 0.00 gal	x	10	= 0.00 gal

2345T flow cell (625 gpm) us

Purging Parameters

Time Start: 7:35	Volume Purged (gallons)	Conductivity (Mho; x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
7:45		2980	18.2	7.55		469	Broan
8:00		314	19.1	7.80		59	cloudy - very light
8:15		307	19.3	7.84		70	cloudy - very light
8:30		306	18.8	7.76		65	lightly (cloudy)
8:45		305	18.3	8.23		37	clear
9:00		310	18.9	7.78		25	clear
9:15		2.14	19.0	7.16		22	clear
9:30		312	19.3	7.79		18	clear
9:45		303	17.6	7.44		17	clear
10 Am		321	19.6	7.77		14	" "
10:15		314	19.9	7.81		15	" "
10:30		311	19.9	7.75		14	" "
10:45		318	19.5	7.68		15	" "
11:15		317	20.3	7.79		12	" "
11:45		320	20.6	7.89		16	" "
12:15		317	20.6	7.72		15	" "
12:45		302	19.6	7.70		11	" "
1315		323	20.8	7.87		23	" "
1400		316	20.6	7.81		12	" "
1430		312	20.7	7.74		18	" "
1500		313	20.2	7.73		45	slightly cloudy
1530		300	20.2	7.73		31	clear
1600	↓	304	20.1	7.82		31	clear
1630	~1400	303	20.0	7.80		31	clear

Total Gallons Purged: ~1400 gallons
Drums Used: —
Recharge Rate: —

Additional Notes: Turbidity meter HANNA-93703 calibrated 01/10/500 NTU result OK

5 of 7

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-05 (DEEP) ~~INTERMEDIATE~~

Project Name: Rialto - BF Goodrich
Field Personel: SUE KORM

Date: 3/24/14

Field Conditions: OVERCAST - AM; SUNNY @ 11am
Development Company: National EWP
Initial Depth to Water: NA feet
Final Depth to Water: NA feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: NA feet
Total Depth After Development: NA feet

Height of Water Column:	Conversion Factor	Volume		Purge Factor (Borehole Volumes)	Volume to Purge
0.00 feet	X 8.88	= 0.00 gal	x	10	= 0.00 gal

2345 I Flow cell
~1.25 GPM @ 1420 Purging Parameters ~3 GPM @ 1530

Time Start: 1415	Volume Purged (gallons)	Conductivity ~~(Mho, x100)~~ MS	Temp ~~(F)~~ °C	pH	Emhoff ~~(ml/1000ml)~~	Turbidity (NTu)	Notes:
1420		320	21.3	8.09		>1000	BROWN CLOUDY
1435		326	21.3	8.01		361	CLOUDY
1445		328	21.4	7.90		34.23	CLEAR
1500		319	21.5	7.76		29.86	CLEAR
1515		320	22.1	7.74		64	CLEAR
1530		320	22.2	7.78		100	CLEAR
1545		320	23.2	~~7.68~~ 7.68		64	CLEAR
1600		320	23.1	7.71		20.66	CLEAR
1615		321	22.8	7.34		17.55	CLEAR
1630		317	22.8	7.75		13.73	CLEAR
1645		322	21.5	7.91		7.71	CLEAR
1700		315	21.7	7.52		7.47	CLEAR
1715		321	21.6	7.90		6.85	CLEAR

Total Gallons Purged:
Drums Used: NA
Recharge Rate: NA

Additional Notes: SEE PAGE 1

ERM
WELL DEVELOPMENT LOG

Job No.: 0179962/08
Well No.: EMW-05 (Deep)

Project Name: Rialto - BF Goodrich
Field Personel: Chircop

Date: 3/25/14

Field Conditions: overcast -
Development Company: National EWP
Initial Depth to Water: — feet
Final Depth to Water: — feet
Bore Hole Diamter: 14.75 inches
Well Construction: 3" Low Carbon Steel; 3" Stainless Steel Slotted - Screen (0.020")

Total Depth Before Development: — feet
Total Depth After Development: — feet

Height of Water Column:	Conversion Factor	Volume		Purge Factor (Borehole Volumes)	Volume to Purge
0.00 feet	X 8.88	= 0.00 gal	x	10	= 0.00 gal

~2.5 gpm Tot on

Purging Parameters

Time Start: 750	Volume Purged (gallons)	Conductivity (~~Mho~~ x100)	Temp (°F)	pH	Emhoff (ml/1000ml)	Turbidity (NTu)	Notes:
800		277	18.5	7.42	—	107	Cloudy
815		304	19.1	7.86	—	10	Clear
830		315	19.4	7.74	—	8	
845		305	19.2	7.68	—	26	check turb calibration = 0.13
900		310	19.6	7.81	—	33	
915		287	19.3	7.71	—	28	
930		294	19.5	7.74	—	19	
945		302	19.6	7.72	—	16	
1000		285	19.6	7.80	—	15	
1015		302	19.8	7.71	—	21	
1045		308	19.8	7.58	—	21	
1100		314	20.2	7.69	—	18	
1115		296	20.2	7.67	—	13	check 10 calibration = 10.1
1130		319	20.4	7.74	—	9	
1145		320	20.4	7.77	—	5	
1200		300	20.2	7.86	—	3.88	
1210		321	20.3	7.76	—	3.17	
1220	700	315	20.5	7.76	—	2.48	
							Stop pumping @ 12:22

Total Gallons Purged: ~700 gallons
Drums Used: —
Recharge Rate: —

Additional Notes: Turbidity meter — Hanna HI 93703 recalibrated 0/10/500 NTU (OK)

7 OF 7 COMPLETE

Appendix E
Monitoring Field Notes

WELL MONITORING DATA SHEET

Project #: 140505-tw1	Client: ERM
Sampler: tw	Date: 5-5-14
Well I.D.: ~~EMW-05D~~ EMW-05C DB	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; ~~Peristaltic~~; ~~Extraction Pump~~; Other_____

Sampling Method: Disposable Bailer; Extraction Port; Dedicated Tubing; Other: Hydrasleeve

Flow Rate=_____

Start Purge Time=_____

_____(Gals.) X _____ = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
-	Set	hydrasleeve	to 720'	@ 11:59		

Did well dewater? Yes No		Gallons actually evacuated:	
Sampling Date:	Sampling Time:	Depth to Water:	
Sample I.D.:		Laboratory:	
Analyzed for:		Other:	
EB I.D. (if applicable):	@ Time	Duplicate I.D. (if applicable):	
Analyzed for:		Other:	
D.O. (if req'd): Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd): Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140506-BM1	Client: ERM
Sampler: BM	Date: 5.9.14
Well I.D.: ~~EMW-05C~~ EMW-05C DB	Well Diameter: 2 3 (4) 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 596.41
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other ___

Sampling Method: Disposable Bailer; Extraction Port; Dedicated Tubing; Other: Hydrasleeve

Flow Rate= -

Start Purge Time= -

- (Gals.) X	-	= - Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1040	72	8.77	389.4	757	-	

Did well dewater? Yes No Gallons actually evacuated: -

Sampling Date: 5.9.14 Sampling Time: 1040 Depth to Water: -

Sample I.D.: ~~EMW-05C-720-GW-20140509~~ EMW-05C-720-GW-09052014 Laboratory:

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-AW1	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: ~~EMW-05-M~~ EMW-05B DB	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: ~~Bailer~~ ~~Waterra~~
Disposable Bailer ~~Peristaltic~~
Positive Air Displacement ~~Extraction Pump~~
Electric Submersible Other_____

Sampling Method: Bailer
Disposable Bailer
Extraction Port
Dedicated Tubing
(Other:) Hydrasleeve

_____(Gals.) X _____ = _____ Gals.
1 Case Volume Specified Volumes Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
-	Set	hydrasleeve	to 612'	@ 1144		

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140509.13N1	Client: E&M
Sampler: BN	Date: 5.9.14
Well I.D.: ~~EMW-05-I DB~~ EMW-05B	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 594.17
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra ~ / Peristaltic / Extraction Pump / Other ___

Sampling Method: Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Hydrasleeve

Flow Rate= ___

Start Purge Time= ~

~ (Gals.) X ~ = ~ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1100	78.3	9.04	591.6	>1000	~	

Did well dewater? Yes No Gallons actually evacuated: —

Sampling Date: 5.9.14 Sampling Time: 1100 Depth to Water: ~

Sample I.D.: ~~EMW-05-I-610-GW-05052014 DB~~ EMW-05B-610-GW-0905 2014 Laboratory:

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-AW1	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: ~~EMW-05S~~ EMW-05A	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 422.93
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: ~~Bailer~~ / Disposable Bailer / Positive Air Displacement / Electric Submersible / ~~Waterra~~ / Peristaltic / ~~Extraction Pump~~ / Other_____

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Hydrasleeve

_____(Gals.) X _____ = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
- Set hydrasleeve to 450' @ 1131						

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140509, BM1	Client: ERM
Sampler: BM	Date: 5.9.14
Well I.D.: ~~EMW-05S~~ DB EMW-05A	Well Diameter: 2 (3) 4 6 8 ____
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other ____

Sampling Method: Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Nylon sleeve

Flow Rate= ____

Start Purge Time= ____

____ (Gals.) X ____ = ____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1115	74.8	8.64	494.7	386	-	

Did well dewater? Yes No Gallons actually evacuated: -

Sampling Date: 5.9.14 Sampling Time: 1115 Depth to Water: -

Sample I.D.: ~~EMW-05S-450-GW-05/05/2014~~ DB EMW-05A-450-GW-05052014 Laboratory:

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable): ~~DD05201409 @ 1125~~ DB EMW-05A-450-GW-05052014-D

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-AW1	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: ~~EMW-04S~~ EMW-04A DB	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 415.14
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, Electric Submersible, ~~Waterra, Peristaltic, Extraction Pump~~, Other_____

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, (Other): Hydrasleeve

_____(Gals.) X _____ = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
-	Set Hydrasleeve to 450' @ 1012					

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140509.B-01	Client: ERM
Sampler: BN	Date: 5.9.14
Well I.D.: ~~EMW-04B~~ EMW-04A	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer / Peristaltic / Positive Air Displacement / Extraction Pump / Electric Submersible / Other ___ / Waterra

Sampling Method: Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Hydrosleeve

Flow Rate= ~

Start Purge Time= ~

~ (Gals.) X ~ = ~ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1015	84.18	8.86	399.6	71000	~	

Did well dewater? Yes No Gallons actually evacuated: ~

Sampling Date: 5.9.14 Sampling Time: 1015 Depth to Water: ~

Sample I.D.: ~~EMW-04B-450-GW-09052014~~ EMW-04A-450-GW-09052014 Laboratory:

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-AW1	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: ~~EMW-04-M-DB~~ EMW-04B	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: ~~Bailer~~ / ~~Disposable Bailer~~ / ~~Positive Air Displacement~~ / ~~Electric Submersible~~ / ~~Waterra~~ / ~~Peristaltic~~ / ~~Extraction Pump~~ / ~~Other~~

Sampling Method: Bailer / Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Hydrasleeve

___(Gals.) X ___ = ___ Gals.
1 Case Volume / Specified Volumes / Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
-	Set	hydrasleeve	to 605'	@ 1022		

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other___

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140509.13~1	Client: ERM
Sampler: B~	Date: 5.9.14
Well I.D.: ~~EMW-04-I~~ EMW-04B DB	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 57321
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer / Peristaltic / Sampling Method: Disposable Bailer
Positive Air Displacement / Extraction Pump / Extraction Port
Electric Submersible / Other ___ / Dedicated Tubing
Waterra / Other: Hydrasleeve

Flow Rate= -

Start Purge Time= -

___ (Gals.) X ___ = ___ Gals.		
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0950	61.9	9.08	444.2	>1000	-	

Did well dewater? Yes No Gallons actually evacuated: -

Sampling Date: 5.9.14 Sampling Time: 0950 Depth to Water: -

Sample I.D.: ~~EMW-04-E-605-GW-050514 DB~~ Laboratory:
EMW-04B-605-GW-050514

Analyzed for: Other: -

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-A21	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: ~~EMW-04-D~~ EMW-04C	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: ___	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other ___

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: Hydrasleeve

___ (Gals.) X ___ = ___ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
- Set hydrasleeve to 690' @ 1034						

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other ___

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140509.BW	Client: ERM
Sampler: BW	Date: 5.9.14
Well I.D.: ~~EMW-04D~~ EMW-04C DB	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other ____

Sampling Method: Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Hydrasleeve

Flow Rate= ~

Start Purge Time= ~

~ (Gals.) X ~ = ~ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0900	64.4	8.97	293.2	57.5	-	

Did well dewater? Yes No Gallons actually evacuated: -

Sampling Date: 5.9.14 Sampling Time: 0900 Depth to Water: -

Sample I.D.: ~~EMW-04D-090-GW-09052014~~ EMW-04C-090-GW-09052014 DB Laboratory:

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-AW1	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: EMW-03-S ~~EMW-03A~~ DB	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 395.58
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: ~~Bailer~~ ~~Waterra~~ Sampling Method: Bailer
Disposable Bailer Peristaltic Disposable Bailer
Positive Air Displacement Extraction Pump Extraction Port
~~Electric Submersible~~ Other_____ Dedicated Tubing
Other: Hydrasleeve

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

_____(Gals.) X _____ = _____ Gals.
1 Case Volume Specified Volumes Calculated Volume

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
-	Set Hydrasleeve to 418' @ 0849					

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140509-BN1	Client: ERM
Sampler: BN	Date: 5.9.14
Well I.D.: ~~EMW-03S DR~~ EMW-03A	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other ___

Sampling Method: Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Hydrasleeve

Flow Rate= -

Start Purge Time= -

- (Gals.) X	-	=	- Gals.
1 Case Volume	Specified Volumes	Calculated Volume	

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0845	65.0	8.74	483.1	282	-	

Did well dewater? Yes (No) Gallons actually evacuated: -

Sampling Date: 5.9.14 Sampling Time: 0845 Depth to Water: -

Sample I.D.: ~~EMW-05S-418-GW-09151201 4 DR~~ EMW-03A-418-GW-0905 2014 Laboratory:

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-AW1	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: EMW-03-M (EMW-03B)	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: ~~~	

Purge Method: ~~Bailer~~ Waterra
Disposable Bailer Peristaltic
Positive Air Displacement Extraction Pump
Electric Submersible Other_____

Sampling Method: Bailer
Disposable Bailer
Extraction Port
Dedicated Tubing
(Other) Hydrasleeve

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

_____(Gals.) X _____ = _____ Gals.
1 Case Volume Specified Volumes Calculated Volume

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
~	Set hydrasleeve			@ 0924 to 560'		

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140509.13 N1	Client: ERM
Sampler: BN	Date: 5-9-14
Well I.D.: ~~EMW-03I~~ EMW-03B ~~BR~~	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 526.32
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer; Positive Air Displacement; Electric Submersible; Waterra; Peristaltic; Extraction Pump; Other ____

Sampling Method: Disposable Bailer; Extraction Port; Dedicated Tubing; Other: Hydrosleeve

Flow Rate= –

Start Purge Time= –

– (Gals.) X	___	= ___ Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0825	63.4	9.40	582.6	>1000	–	

Did well dewater? Yes (No) Gallons actually evacuated: –

Sampling Date: 5-9-14 Sampling Time: 0825 Depth to Water: –

Sample I.D.: ~~EMW-03I-560-GW-05052014~~ EMW-03B-560-GW-09052014 ~~BR~~ Laboratory:

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-AW1	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: ~~EMW-03D~~ EMW-03C DB	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other_____

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: Hydrasleeve

_____(Gals.) X _____ = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
-	Set hydrasleeve to 640' @ 0936					

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140509.13N	Client: ERM
Sampler: BN	Date: 5-9-14
Well I.D.: ~~EMW-03C~~ EMW-03C DS	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 52.72
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other ___

Sampling Method: Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Hydrasleeve

Flow Rate= ___

Start Purge Time= ___

___ (Gals.) X ___ = ___ Gals.		
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0805	61.7	9.68	685.3	714	—	

Did well dewater? Yes (No) Gallons actually evacuated: —

Sampling Date: 5-9-14 Sampling Time: 0805 Depth to Water: —

Sample I.D.: ~~EMW-03C-640-GW-09/05/2014~~ EMW-03C-640-GW-0905 2014 DS Laboratory:

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-4W1	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: ~~EMW-01-S DB~~ EMW-01A	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 420.79
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: ———	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other_____

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: Hydrasleeve

_____(Gals.) X _____ = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
- Set hydrasleeve to 470' @ 0758						

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140509-13-N1	Client: ERM
Sampler: BN	Date: 5-9-14
Well I.D.: ~~EMW-01S~~ EMW-01A DB	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD): -	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: —	

Purge Method: Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other ___

Sampling Method: Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Hydrasleeve

Flow Rate= —

Start Purge Time= —

— (Gals.) X — = — Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0735	61.7	9.57	908.7	611	—	

Did well dewater? Yes (No) Gallons actually evacuated: —

Sampling Date: 5.9.14 Sampling Time: 0735 Depth to Water: —

Sample I.D.: EMW-01A-470-GW-05052014 Laboratory:

~~EMW-01S-470-GW-05052014~~

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 140505-AW1	Client: ERM
Sampler: AW	Date: 5-5-14
Well I.D.: ~~EMW-01-D~~ EMW-01B	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW): 420.57
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Bailer, Disposable Bailer, Positive Air Displacement, Electric Submersible, Waterra, Peristaltic, Extraction Pump, Other_____

Sampling Method: Bailer, Disposable Bailer, Extraction Port, Dedicated Tubing, Other: Hydrasleeve

_____(Gals.) X _____ = _____ Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
-	Set	hydrasleeve	to 556'	@ 0813		

Did well dewater? Yes No Gallons actually evacuated:

Sampling Date: Sampling Time: Depth to Water:

Sample I.D.: Laboratory: Kiff CalScience Other_____

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: TPH-G BTEX MTBE TPH-D Oxygenates (5) Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

WELL MONITORING DATA SHEET

Project #: 150509.13.01	Client: ERM
Sampler: BN	Date: 5.9.14
Well I.D.: ~~EMW-01D~~ EMW-01B	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth (TD):	Depth to Water (DTW):
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]:	

Purge Method: Disposable Bailer / Positive Air Displacement / Electric Submersible / Waterra / Peristaltic / Extraction Pump / Other ____

Sampling Method: Disposable Bailer / Extraction Port / Dedicated Tubing / Other: Hydrasleeve

Flow Rate= —

Start Purge Time= —

— (Gals.) X — = — Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F or °C)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
0720	62.9	9.17	1299	813	—	

Did well dewater? Yes (No) Gallons actually evacuated: —

Sampling Date: 5.09.14 Sampling Time: 0720 Depth to Water: —

Sample I.D.: ~~EMW-01D-556-GW-09052014~~ EMW-01B-556-GW-09052014 Laboratory:

Analyzed for: Other:

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

Analyzed for: Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

Appendix F
Chain-of-Custody Forms and
Laboratory Analytical Reports

Northern California ACCUTEST LABORATORIES

Reissue #1
05/27/14

Technical Report for

ERM-Irvine

BF Goodrich Superfund Sampling,Rialto

0179962.04.C

Accutest Job Number: C33952

Sampling Date: 05/09/14

Report to:

ERM-Irvine
2875 Michelle Drive, #200
Irvine, CA 92606
Heather.Balfour@erm.com; darren.burgett@erm.com

ATTN: Christopher Berg

Total number of pages in report: **84**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

James J. Rhudy
Lab Director

Client Service contact: Nutan Kabir 408-588-0200

Certifications: OR (CA300006) CA (08258CA) AZ (AZ0762) DoD ELAP (L-A-B L2242)

May 27, 2014

Christopher Berg
ERM-Irvine
2875 Michelle Drive, #200
Irvine, CA 92606

Re: Accutest Job # C33952 Reissue

Dear Mr. Berg,

The final report for Accutest Job # **C33952**, original report dated 5/20/2014, has been edited to reflect requested corrections.

The data has been revised to report to the MDL for all analyses as per your request. Revised result pages have been incorporated into this revised report.

Please contact us at 408-588-0200 if we can be of further assistance in this matter, or if you have any questions regarding this data report.

Sincerely,

Accutest Laboratories

Sections: 1 2 3 4 5 6

Table of Contents

Section 1: Sample Summary **4**
Section 2: Summary of Hits **6**
Section 3: Sample Results **9**
3.1: C33952-1: 09052014TB-1 10
3.2: C33952-2: EMW-01B-556-GW-09052014 13
3.3: C33952-3: EMW-01A-470-GW-09052014 17
3.4: C33952-4: EMW-03C-640-GW-09052014 21
3.5: C33952-5: EMW-03B-560-GW-09052014 25
3.6: C33952-6: EMW-03A-418-GW-09052014 29
3.7: C33952-7: EMW-04C-690-GW-09052014 33
3.8: C33952-8: EMW-04B-605-GW-09052014 37
3.9: C33952-9: EMW-04A-450-GW-09052014 41
3.10: C33952-10: GW-09052014-FB 45
3.11: C33952-11: EMW-05C-720-GW-09052014 49
3.12: C33952-12: EMW-05B-610-GW-09052014 53
3.13: C33952-13: EMW-05A-450-GW-09052014 57
3.14: C33952-14: EMW-05A-450-GW-09052014-D 61
Section 4: Misc. Forms **65**
4.1: Chain of Custody 66
Section 5: GC/MS Volatiles - QC Data Summaries **69**
5.1: Method Blank Summary 70
5.2: Blank Spike/Blank Spike Duplicate Summary 73
5.3: Matrix Spike/Matrix Spike Duplicate Summary 76
Section 6: General Chemistry - QC Data Summaries **79**
6.1: Method Blank and Spike Results Summary 80
6.2: Blank Spike Duplicate Results Summary 81
6.3: Duplicate Results Summary 82
6.4: Matrix Spike Results Summary 83
6.5: Matrix Spike Duplicate Results Summary 84

Accutest Laboratories

Sample Summary

ERM-Irvine

Job No: C33952

BF Goodrich Superfund Sampling,Rialto
Project No: 0179962.04.C

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
C33952-1	05/09/14	07:00	BS	05/10/14	AQ	Trip Blank Water	09052014TB-1
C33952-2	05/09/14	07:20	BS	05/10/14	AQ	Ground Water	EMW-01B-556-GW-09052014
C33952-3	05/09/14	07:35	BS	05/10/14	AQ	Ground Water	EMW-01A-470-GW-09052014
C33952-4	05/09/14	08:05	BS	05/10/14	AQ	Ground Water	EMW-03C-640-GW-09052014
C33952-5	05/09/14	08:25	BS	05/10/14	AQ	Ground Water	EMW-03B-560-GW-09052014
C33952-6	05/09/14	08:45	BS	05/10/14	AQ	Ground Water	EMW-03A-418-GW-09052014
C33952-7	05/09/14	09:00	BS	05/10/14	AQ	Ground Water	EMW-04C-690-GW-09052014
C33952-8	05/09/14	09:50	BS	05/10/14	AQ	Ground Water	EMW-04B-605-GW-09052014
C33952-9	05/09/14	10:15	BS	05/10/14	AQ	Ground Water	EMW-04A-450-GW-09052014
C33952-10	05/09/14	10:25	BS	05/10/14	AQ	Field Blank Water	GW-09052014-FB
C33952-11	05/09/14	10:40	BS	05/10/14	AQ	Ground Water	EMW-05C-720-GW-09052014
C33952-12	05/09/14	11:00	BS	05/10/14	AQ	Ground Water	EMW-05B-610-GW-09052014
C33952-13	05/09/14	11:15	BS	05/10/14	AQ	Ground Water	EMW-05A-450-GW-09052014

Sample Summary
(continued)

ERM-Irvine

Job No: C33952

BF Goodrich Superfund Sampling,Rialto
Project No: 0179962.04.C

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
C33952-14	05/09/14	11:25	BS	05/10/14	AQ	Ground Water	EMW-05A-450-GW-09052014-D

Summary of Hits

Job Number: C33952
Account: ERM-Irvine
Project: BF Goodrich Superfund Sampling, Rialto
Collected: 05/09/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C33952-1	**09052014TB-1**					
No hits reported in this sample.						
C33952-2	**EMW-01B-556-GW-09052014**					
Acetone		22.0	20	4.0	ug/l	SW846 8260B
1,2-Dichloroethane		1.1	1.0	0.20	ug/l	SW846 8260B
Ethylbenzene		0.53 J	1.0	0.20	ug/l	SW846 8260B
Toluene		59.3	1.0	0.20	ug/l	SW846 8260B
Trichloroethylene		1.7	1.0	0.20	ug/l	SW846 8260B
Xylene (total)		0.62 J	2.0	0.46	ug/l	SW846 8260B
Perchlorate		25.1	3.0	0.31	ug/l	EPA 314
Specific Conductivity		269	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-3	**EMW-01A-470-GW-09052014**					
Acetone		13.7 J	50	10	ug/l	SW846 8260B
1,1-Dichloroethylene		0.51 J	2.5	0.50	ug/l	SW846 8260B
Ethylbenzene		2.8	2.5	0.50	ug/l	SW846 8260B
Toluene		190	2.5	0.50	ug/l	SW846 8260B
Xylene (total)		2.8 J	5.0	1.2	ug/l	SW846 8260B
Perchlorate		38.0	3.0	0.31	ug/l	EPA 314
Specific Conductivity		253	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-4	**EMW-03C-640-GW-09052014**					
Acetone		47.9 J	50	10	ug/l	SW846 8260B
1,2-Dichloroethane		1.6 J	2.5	0.50	ug/l	SW846 8260B
Toluene		190	2.5	0.50	ug/l	SW846 8260B
Perchlorate		0.96 J	3.0	0.31	ug/l	EPA 314
Specific Conductivity		415	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-5	**EMW-03B-560-GW-09052014**					
1,2-Dichloroethane		1.6 J	2.0	0.40	ug/l	SW846 8260B
Toluene		149	2.0	0.40	ug/l	SW846 8260B
Trichloroethylene		1.1 J	2.0	0.40	ug/l	SW846 8260B
Perchlorate		68.9	6.0	0.63	ug/l	EPA 314
Specific Conductivity		459	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-6	**EMW-03A-418-GW-09052014**					
1,2-Dichloroethane		0.43 J	1.0	0.20	ug/l	SW846 8260B
Toluene		71.1	1.0	0.20	ug/l	SW846 8260B

Summary of Hits

Job Number: C33952
Account: ERM-Irvine
Project: BF Goodrich Superfund Sampling, Rialto
Collected: 05/09/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Trichloroethylene		0.50 J	1.0	0.20	ug/l	SW846 8260B
Perchlorate		19.1	3.0	0.31	ug/l	EPA 314
Specific Conductivity		405	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-7	**EMW-04C-690-GW-09052014**					
1,2-Dichloroethane		2.2 J	5.0	1.0	ug/l	SW846 8260B
Toluene		246	5.0	1.0	ug/l	SW846 8260B
Perchlorate		10.0	3.0	0.31	ug/l	EPA 314
Specific Conductivity		265	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-8	**EMW-04B-605-GW-09052014**					
1,2-Dichloroethane		1.9	1.0	0.20	ug/l	SW846 8260B
Toluene		45.2	1.0	0.20	ug/l	SW846 8260B
Trichloroethylene		4.5	1.0	0.20	ug/l	SW846 8260B
Perchlorate		13.6	3.0	0.31	ug/l	EPA 314
Specific Conductivity		445	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-9	**EMW-04A-450-GW-09052014**					
Carbon tetrachloride		0.41 J	1.0	0.20	ug/l	SW846 8260B
Toluene		4.9	1.0	0.20	ug/l	SW846 8260B
Trichloroethylene		20.6	1.0	0.20	ug/l	SW846 8260B
Perchlorate		136	15	1.6	ug/l	EPA 314
Specific Conductivity		430	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-10	**GW-09052014-FB**					
Specific Conductivity		3790	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-11	**EMW-05C-720-GW-09052014**					
1,2-Dichloroethane		0.65 J	1.0	0.20	ug/l	SW846 8260B
Ethylbenzene		0.57 J	1.0	0.20	ug/l	SW846 8260B
Toluene		41.8	1.0	0.20	ug/l	SW846 8260B
Xylene (total)		0.74 J	2.0	0.46	ug/l	SW846 8260B
Specific Conductivity		350	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-12	**EMW-05B-610-GW-09052014**					
Acetone		4.0 J	20	4.0	ug/l	SW846 8260B
1,2-Dichloroethane		0.89 J	1.0	0.20	ug/l	SW846 8260B
Ethylbenzene		0.28 J	1.0	0.20	ug/l	SW846 8260B
Toluene		15.0	1.0	0.20	ug/l	SW846 8260B

Summary of Hits

Job Number: C33952
Account: ERM-Irvine
Project: BF Goodrich Superfund Sampling, Rialto
Collected: 05/09/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Trichloroethylene		2.0	1.0	0.20	ug/l	SW846 8260B
Specific Conductivity		728	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-13	**EMW-05A-450-GW-09052014**					
1,2-Dichloroethane		0.32 J	1.0	0.20	ug/l	SW846 8260B
Ethylbenzene		0.35 J	1.0	0.20	ug/l	SW846 8260B
Toluene		14.3	1.0	0.20	ug/l	SW846 8260B
Trichloroethylene		0.90 J	1.0	0.20	ug/l	SW846 8260B
Perchlorate		98.5	15	1.6	ug/l	EPA 314
Specific Conductivity		401	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1
C33952-14	**EMW-05A-450-GW-09052014-D**					
1,2-Dichloroethane		0.64 J	1.0	0.20	ug/l	SW846 8260B
Ethylbenzene		0.62 J	1.0	0.20	ug/l	SW846 8260B
Toluene		26.1	1.0	0.20	ug/l	SW846 8260B
Trichloroethylene		0.78 J	1.0	0.20	ug/l	SW846 8260B
Xylene (total)		0.80 J	2.0	0.46	ug/l	SW846 8260B
Perchlorate		98.8	15	1.6	ug/l	EPA 314
Specific Conductivity		416	1.0	1.0	umhos/cm	SM18 2510B/EPA 120.1

Northern California ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: 09052014TB-1
Lab Sample ID: C33952-1
Matrix: AQ - Trip Blank Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling, Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20039.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: 09052014TB-1
Lab Sample ID: C33952-1
Matrix: AQ - Trip Blank Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling,Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-130%
2037-26-5	Toluene-D8	107%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	09052014TB-1		
Lab Sample ID:	C33952-1	**Date Sampled:**	05/09/14
Matrix:	AQ - Trip Blank Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	103%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-01B-556-GW-09052014		
Lab Sample ID:	C33952-2	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20040.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	22.0	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	1.1	1.0	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: EMW-01B-556-GW-09052014
Lab Sample ID: C33952-2
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling,Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	0.53	1.0	0.20	ug/l	J
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	59.3	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	1.7	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	0.62	2.0	0.46	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
2037-26-5	Toluene-D8	107%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-01B-556-GW-09052014		
Lab Sample ID:	C33952-2	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-01B-556-GW-09052014		
Lab Sample ID:	C33952-2	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	25.1	3.0	0.31	ug/l	1	05/13/14 13:49	PH	EPA 314
Specific Conductivity	269	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: EMW-01A-470-GW-09052014
Lab Sample ID: C33952-3
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling, Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20041.D	2.5	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	13.7	50	10	ug/l	J
71-43-2	Benzene	ND	2.5	0.50	ug/l	
108-86-1	Bromobenzene	ND	2.5	0.50	ug/l	
74-97-5	Bromochloromethane	ND	2.5	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	2.5	0.50	ug/l	
75-25-2	Bromoform	ND	2.5	0.55	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.70	ug/l	
108-90-7	Chlorobenzene	ND	2.5	0.50	ug/l	
75-00-3	Chloroethane	ND	2.5	0.50	ug/l	
67-66-3	Chloroform	ND	2.5	0.50	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.65	ug/l	
56-23-5	Carbon tetrachloride	ND	2.5	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.5	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	0.51	2.5	0.50	ug/l	J
563-58-6	1,1-Dichloropropene	ND	2.5	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.5	0.50	ug/l	
107-06-2	1,2-Dichloroethane	ND	2.5	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	2.5	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	2.5	0.50	ug/l	
108-20-3	Di-Isopropyl ether	ND	5.0	0.55	ug/l	
594-20-7	2,2-Dichloropropane	ND	2.5	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	2.5	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.5	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.5	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.5	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.5	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.5	0.50	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-01A-470-GW-09052014		
Lab Sample ID:	C33952-3	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	2.5	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.75	ug/l	
100-41-4	Ethylbenzene	2.8	2.5	0.50	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	5.0	0.55	ug/l	
591-78-6	2-Hexanone	ND	25	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	0.50	ug/l	
98-82-8	Isopropylbenzene	ND	2.5	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	25	2.5	ug/l	
74-83-9	Methyl bromide	ND	5.0	0.50	ug/l	
74-87-3	Methyl chloride	ND	2.5	0.75	ug/l	
74-95-3	Methylene bromide	ND	2.5	0.50	ug/l	
75-09-2	Methylene chloride	ND	25	5.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	25	5.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.5	0.50	ug/l	
91-20-3	Naphthalene	ND	13	1.3	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.50	ug/l	
100-42-5	Styrene	ND	2.5	0.50	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	1.0	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	25	6.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.5	0.75	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.50	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.55	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	ND	2.5	0.75	ug/l	
108-88-3	Toluene	190	2.5	0.50	ug/l	
79-01-6	Trichloroethylene	ND	2.5	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.5	0.50	ug/l	
75-01-4	Vinyl chloride	ND	2.5	0.50	ug/l	
1330-20-7	Xylene (total)	2.8	5.0	1.2	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
2037-26-5	Toluene-D8	105%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-01A-470-GW-09052014		
Lab Sample ID:	C33952-3	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-01A-470-GW-09052014		
Lab Sample ID:	C33952-3	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	38.0	3.0	0.31	ug/l	1	05/13/14 14:42	PH	EPA 314
Specific Conductivity	253	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	EMW-03C-640-GW-09052014		
Lab Sample ID:	C33952-4	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20042.D	2.5	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	47.9	50	10	ug/l	J
71-43-2	Benzene	ND	2.5	0.50	ug/l	
108-86-1	Bromobenzene	ND	2.5	0.50	ug/l	
74-97-5	Bromochloromethane	ND	2.5	0.50	ug/l	
75-27-4	Bromodichloromethane	ND	2.5	0.50	ug/l	
75-25-2	Bromoform	ND	2.5	0.55	ug/l	
104-51-8	n-Butylbenzene	ND	5.0	0.50	ug/l	
135-98-8	sec-Butylbenzene	ND	5.0	0.50	ug/l	
98-06-6	tert-Butylbenzene	ND	5.0	0.70	ug/l	
108-90-7	Chlorobenzene	ND	2.5	0.50	ug/l	
75-00-3	Chloroethane	ND	2.5	0.50	ug/l	
67-66-3	Chloroform	ND	2.5	0.50	ug/l	
95-49-8	o-Chlorotoluene	ND	5.0	0.50	ug/l	
106-43-4	p-Chlorotoluene	ND	5.0	0.65	ug/l	
56-23-5	Carbon tetrachloride	ND	2.5	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.5	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.5	0.50	ug/l	
563-58-6	1,1-Dichloropropene	ND	2.5	0.50	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	1.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.5	0.50	ug/l	
107-06-2	1,2-Dichloroethane	1.6	2.5	0.50	ug/l	J
78-87-5	1,2-Dichloropropane	ND	2.5	0.50	ug/l	
142-28-9	1,3-Dichloropropane	ND	2.5	0.50	ug/l	
108-20-3	Di-Isopropyl ether	ND	5.0	0.55	ug/l	
594-20-7	2,2-Dichloropropane	ND	2.5	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	2.5	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.5	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.5	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.5	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.5	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.5	0.50	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: EMW-03C-640-GW-09052014
Lab Sample ID: C33952-4
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling,Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	2.5	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.75	ug/l	
100-41-4	Ethylbenzene	ND	2.5	0.50	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	5.0	0.55	ug/l	
591-78-6	2-Hexanone	ND	25	5.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	5.0	0.50	ug/l	
98-82-8	Isopropylbenzene	ND	2.5	0.50	ug/l	
99-87-6	p-Isopropyltoluene	ND	5.0	0.50	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	25	2.5	ug/l	
74-83-9	Methyl bromide	ND	5.0	0.50	ug/l	
74-87-3	Methyl chloride	ND	2.5	0.75	ug/l	
74-95-3	Methylene bromide	ND	2.5	0.50	ug/l	
75-09-2	Methylene chloride	ND	25	5.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	25	5.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.5	0.50	ug/l	
91-20-3	Naphthalene	ND	13	1.3	ug/l	
103-65-1	n-Propylbenzene	ND	5.0	0.50	ug/l	
100-42-5	Styrene	ND	2.5	0.50	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	1.0	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	25	6.0	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.5	0.75	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.50	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.50	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.55	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.50	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.50	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.50	ug/l	
127-18-4	Tetrachloroethylene	ND	2.5	0.75	ug/l	
108-88-3	Toluene	190	2.5	0.50	ug/l	
79-01-6	Trichloroethylene	ND	2.5	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.5	0.50	ug/l	
75-01-4	Vinyl chloride	ND	2.5	0.50	ug/l	
1330-20-7	Xylene (total)	ND	5.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-130%
2037-26-5	Toluene-D8	106%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-03C-640-GW-09052014		
Lab Sample ID:	C33952-4	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-03C-640-GW-09052014		
Lab Sample ID:	C33952-4	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	0.96 J	3.0	0.31	ug/l	1	05/13/14 14:59	PH	EPA 314
Specific Conductivity	415	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	EMW-03B-560-GW-09052014		
Lab Sample ID:	C33952-5	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20043.D	2	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	40	8.0	ug/l	
71-43-2	Benzene	ND	2.0	0.40	ug/l	
108-86-1	Bromobenzene	ND	2.0	0.40	ug/l	
74-97-5	Bromochloromethane	ND	2.0	0.40	ug/l	
75-27-4	Bromodichloromethane	ND	2.0	0.40	ug/l	
75-25-2	Bromoform	ND	2.0	0.44	ug/l	
104-51-8	n-Butylbenzene	ND	4.0	0.40	ug/l	
135-98-8	sec-Butylbenzene	ND	4.0	0.40	ug/l	
98-06-6	tert-Butylbenzene	ND	4.0	0.56	ug/l	
108-90-7	Chlorobenzene	ND	2.0	0.40	ug/l	
75-00-3	Chloroethane	ND	2.0	0.40	ug/l	
67-66-3	Chloroform	ND	2.0	0.40	ug/l	
95-49-8	o-Chlorotoluene	ND	4.0	0.40	ug/l	
106-43-4	p-Chlorotoluene	ND	4.0	0.52	ug/l	
56-23-5	Carbon tetrachloride	ND	2.0	0.40	ug/l	
75-34-3	1,1-Dichloroethane	ND	2.0	0.40	ug/l	
75-35-4	1,1-Dichloroethylene	ND	2.0	0.40	ug/l	
563-58-6	1,1-Dichloropropene	ND	2.0	0.40	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.0	0.80	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.40	ug/l	
107-06-2	1,2-Dichloroethane	1.6	2.0	0.40	ug/l	J
78-87-5	1,2-Dichloropropane	ND	2.0	0.40	ug/l	
142-28-9	1,3-Dichloropropane	ND	2.0	0.40	ug/l	
108-20-3	Di-Isopropyl ether	ND	4.0	0.44	ug/l	
594-20-7	2,2-Dichloropropane	ND	2.0	0.40	ug/l	
124-48-1	Dibromochloromethane	ND	2.0	0.40	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.40	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	2.0	0.40	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND	2.0	0.40	ug/l	
95-50-1	o-Dichlorobenzene	ND	2.0	0.40	ug/l	
106-46-7	p-Dichlorobenzene	ND	2.0	0.40	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: EMW-03B-560-GW-09052014
Lab Sample ID: C33952-5
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling,Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	2.0	0.40	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.60	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.40	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	4.0	0.44	ug/l	
591-78-6	2-Hexanone	ND	20	4.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	4.0	0.40	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.40	ug/l	
99-87-6	p-Isopropyltoluene	ND	4.0	0.40	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	20	2.0	ug/l	
74-83-9	Methyl bromide	ND	4.0	0.40	ug/l	
74-87-3	Methyl chloride	ND	2.0	0.60	ug/l	
74-95-3	Methylene bromide	ND	2.0	0.40	ug/l	
75-09-2	Methylene chloride	ND	20	4.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	20	4.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	0.40	ug/l	
91-20-3	Naphthalene	ND	10	1.0	ug/l	
103-65-1	n-Propylbenzene	ND	4.0	0.40	ug/l	
100-42-5	Styrene	ND	2.0	0.40	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	4.0	0.80	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	20	4.8	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	0.60	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.40	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.40	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.44	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	4.0	0.40	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	4.0	0.40	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	4.0	0.40	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	4.0	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	4.0	0.40	ug/l	
127-18-4	Tetrachloroethylene	ND	2.0	0.60	ug/l	
108-88-3	Toluene	149	2.0	0.40	ug/l	
79-01-6	Trichloroethylene	1.1	2.0	0.40	ug/l	J
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.40	ug/l	
1330-20-7	Xylene (total)	ND	4.0	0.92	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
2037-26-5	Toluene-D8	105%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-03B-560-GW-09052014		
Lab Sample ID:	C33952-5	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-03B-560-GW-09052014		
Lab Sample ID:	C33952-5	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	68.9	6.0	0.63	ug/l	2	05/13/14 21:05	PH	EPA 314
Specific Conductivity	459	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	EMW-03A-418-GW-09052014		
Lab Sample ID:	C33952-6	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20044.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	0.43	1.0	0.20	ug/l	J
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-03A-418-GW-09052014		
Lab Sample ID:	C33952-6	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	71.1	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	0.50	1.0	0.20	ug/l	J
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	106%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-03A-418-GW-09052014		
Lab Sample ID:	C33952-6	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-03A-418-GW-09052014		
Lab Sample ID:	C33952-6	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	19.1	3.0	0.31	ug/l	1	05/13/14 15:34	PH	EPA 314
Specific Conductivity	405	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	EMW-04C-690-GW-09052014		
Lab Sample ID:	C33952-7	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20045.D	5	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	100	20	ug/l	
71-43-2	Benzene	ND	5.0	1.0	ug/l	
108-86-1	Bromobenzene	ND	5.0	1.0	ug/l	
74-97-5	Bromochloromethane	ND	5.0	1.0	ug/l	
75-27-4	Bromodichloromethane	ND	5.0	1.0	ug/l	
75-25-2	Bromoform	ND	5.0	1.1	ug/l	
104-51-8	n-Butylbenzene	ND	10	1.0	ug/l	
135-98-8	sec-Butylbenzene	ND	10	1.0	ug/l	
98-06-6	tert-Butylbenzene	ND	10	1.4	ug/l	
108-90-7	Chlorobenzene	ND	5.0	1.0	ug/l	
75-00-3	Chloroethane	ND	5.0	1.0	ug/l	
67-66-3	Chloroform	ND	5.0	1.0	ug/l	
95-49-8	o-Chlorotoluene	ND	10	1.0	ug/l	
106-43-4	p-Chlorotoluene	ND	10	1.3	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	1.0	ug/l	
75-34-3	1,1-Dichloroethane	ND	5.0	1.0	ug/l	
75-35-4	1,1-Dichloroethylene	ND	5.0	1.0	ug/l	
563-58-6	1,1-Dichloropropene	ND	5.0	1.0	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	2.0	ug/l	
106-93-4	1,2-Dibromoethane	ND	5.0	1.0	ug/l	
107-06-2	1,2-Dichloroethane	2.2	5.0	1.0	ug/l	J
78-87-5	1,2-Dichloropropane	ND	5.0	1.0	ug/l	
142-28-9	1,3-Dichloropropane	ND	5.0	1.0	ug/l	
108-20-3	Di-Isopropyl ether	ND	10	1.1	ug/l	
594-20-7	2,2-Dichloropropane	ND	5.0	1.0	ug/l	
124-48-1	Dibromochloromethane	ND	5.0	1.0	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	1.0	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	1.0	ug/l	
541-73-1	m-Dichlorobenzene	ND	5.0	1.0	ug/l	
95-50-1	o-Dichlorobenzene	ND	5.0	1.0	ug/l	
106-46-7	p-Dichlorobenzene	ND	5.0	1.0	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: EMW-04C-690-GW-09052014
Lab Sample ID: C33952-7
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling,Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	1.0	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	1.5	ug/l	
100-41-4	Ethylbenzene	ND	5.0	1.0	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	10	1.1	ug/l	
591-78-6	2-Hexanone	ND	50	10	ug/l	
87-68-3	Hexachlorobutadiene	ND	10	1.0	ug/l	
98-82-8	Isopropylbenzene	ND	5.0	1.0	ug/l	
99-87-6	p-Isopropyltoluene	ND	10	1.0	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	50	5.0	ug/l	
74-83-9	Methyl bromide	ND	10	1.0	ug/l	
74-87-3	Methyl chloride	ND	5.0	1.5	ug/l	
74-95-3	Methylene bromide	ND	5.0	1.0	ug/l	
75-09-2	Methylene chloride	ND	50	10	ug/l	
78-93-3	Methyl ethyl ketone	ND	50	10	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	1.0	ug/l	
91-20-3	Naphthalene	ND	25	2.5	ug/l	
103-65-1	n-Propylbenzene	ND	10	1.0	ug/l	
100-42-5	Styrene	ND	5.0	1.0	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	10	2.0	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	50	12	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	1.5	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	5.0	1.0	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	1.0	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	1.1	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	10	1.0	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	10	1.0	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	10	1.0	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	10	1.0	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	10	1.0	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	1.5	ug/l	
108-88-3	Toluene	246	5.0	1.0	ug/l	
79-01-6	Trichloroethylene	ND	5.0	1.0	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	1.0	ug/l	
75-01-4	Vinyl chloride	ND	5.0	1.0	ug/l	
1330-20-7	Xylene (total)	ND	10	2.3	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		70-130%
2037-26-5	Toluene-D8	107%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-04C-690-GW-09052014		
Lab Sample ID:	C33952-7	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	105%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-04C-690-GW-09052014		
Lab Sample ID:	C33952-7	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	10.0	3.0	0.31	ug/l	1	05/13/14 15:51	PH	EPA 314
Specific Conductivity	265	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	EMW-04B-605-GW-09052014		
Lab Sample ID:	C33952-8	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20046.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	1.9	1.0	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: EMW-04B-605-GW-09052014
Lab Sample ID: C33952-8
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling,Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	45.2	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	4.5	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%
2037-26-5	Toluene-D8	108%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-04B-605-GW-09052014		
Lab Sample ID:	C33952-8	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-04B-605-GW-09052014		
Lab Sample ID:	C33952-8	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	13.6	3.0	0.31	ug/l	1	05/13/14 16:09	PH	EPA 314
Specific Conductivity	445	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	EMW-04A-450-GW-09052014		
Lab Sample ID:	C33952-9	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20047.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	0.41	1.0	0.20	ug/l	J
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-04A-450-GW-09052014		
Lab Sample ID:	C33952-9	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	4.9	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	20.6	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	105%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-04A-450-GW-09052014		
Lab Sample ID:	C33952-9	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	103%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-04A-450-GW-09052014		
Lab Sample ID:	C33952-9	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	136	15	1.6	ug/l	5	05/13/14 20:47	PH	EPA 314
Specific Conductivity	430	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: GW-09052014-FB
Lab Sample ID: C33952-10
Matrix: AQ - Field Blank Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling, Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20048.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	GW-09052014-FB		
Lab Sample ID:	C33952-10	**Date Sampled:**	05/09/14
Matrix:	AQ - Field Blank Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	104%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	GW-09052014-FB		
Lab Sample ID:	C33952-10	**Date Sampled:**	05/09/14
Matrix:	AQ - Field Blank Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	101%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	GW-09052014-FB		
Lab Sample ID:	C33952-10	**Date Sampled:**	05/09/14
Matrix:	AQ - Field Blank Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	0.31 U	3.0	0.31	ug/l	1	05/13/14 17:15	PH	EPA 314
Specific Conductivity	3790	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: EMW-05C-720-GW-09052014
Lab Sample ID: C33952-11
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling, Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20049.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	0.65	1.0	0.20	ug/l	J
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-05C-720-GW-09052014		
Lab Sample ID:	C33952-11	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	0.57	1.0	0.20	ug/l	J
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	41.8	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	0.74	2.0	0.46	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	109%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-05C-720-GW-09052014		
Lab Sample ID:	C33952-11	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	101%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: EMW-05C-720-GW-09052014
Lab Sample ID: C33952-11
Matrix: AQ - Ground Water
Project: BF Goodrich Superfund Sampling, Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	0.31 U	3.0	0.31	ug/l	1	05/13/14 17:32	PH	EPA 314
Specific Conductivity	350	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: EMW-05B-610-GW-09052014
Lab Sample ID: C33952-12
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling, Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20050.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	4.0	20	4.0	ug/l	J
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	0.89	1.0	0.20	ug/l	J
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-05B-610-GW-09052014		
Lab Sample ID:	C33952-12	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	0.28	1.0	0.20	ug/l	J
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	15.0	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	2.0	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-130%
2037-26-5	Toluene-D8	105%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-05B-610-GW-09052014		
Lab Sample ID:	C33952-12	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	101%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: EMW-05B-610-GW-09052014
Lab Sample ID: C33952-12
Matrix: AQ - Ground Water
Project: BF Goodrich Superfund Sampling, Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	0.31 U	3.0	0.31	ug/l	1	05/13/14 17:49	PH	EPA 314
Specific Conductivity	728	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Accutest Laboratories

Report of Analysis

Client Sample ID:	EMW-05A-450-GW-09052014		
Lab Sample ID:	C33952-13	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20051.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	0.32	1.0	0.20	ug/l	J
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-05A-450-GW-09052014		
Lab Sample ID:	C33952-13	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	0.35	1.0	0.20	ug/l	J
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	14.3	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	0.90	1.0	0.20	ug/l	J
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	107%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-05A-450-GW-09052014		
Lab Sample ID:	C33952-13	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	100%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	EMW-05A-450-GW-09052014		
Lab Sample ID:	C33952-13	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	98.5	15	1.6	ug/l	5	05/19/14 13:40	PH	EPA 314
Specific Conductivity	401	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: EMW-05A-450-GW-09052014-D
Lab Sample ID: C33952-14
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: BF Goodrich Superfund Sampling, Rialto

Date Sampled: 05/09/14
Date Received: 05/10/14
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V20052.D	1	05/13/14	RD	n/a	n/a	VV803
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	0.64	1.0	0.20	ug/l	J
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-05A-450-GW-09052014-D		
Lab Sample ID:	C33952-14	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling,Rialto		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	0.62	1.0	0.20	ug/l	J
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	26.1	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	0.78	1.0	0.20	ug/l	J
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	0.80	2.0	0.46	ug/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		70-130%
2037-26-5	Toluene-D8	108%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	EMW-05A-450-GW-09052014-D		
Lab Sample ID:	C33952-14	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	EMW-05A-450-GW-09052014-D		
Lab Sample ID:	C33952-14	**Date Sampled:**	05/09/14
Matrix:	AQ - Ground Water	**Date Received:**	05/10/14
		Percent Solids:	n/a
Project:	BF Goodrich Superfund Sampling, Rialto		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC								
Perchlorate	98.8	15	1.6	ug/l	5	05/19/14 13:57	PH	EPA 314
Specific Conductivity	416	1.0	1.0	umhos/cm	1	05/13/14 11:00	PH	SM18 2510B/EPA 120.1

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Northern California ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

FEDEX # 804232032298

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

ERMCAS6061

CONDUCT ANALYSIS TO DETECT

LAB - Accutest C33952 COC 1 of 2

CHAIN OF CUSTODY	
CLIENT	ERM
SITE	BF Goodrich Rialto Superfund Site
Project Code/Job #	0179962.04.C

Billing Information:
PO# 0179962.04.C

Report to:
Heather Balfour
ERM
2525 Natomas Park Drive, Suite 350
Sacramento, California 95833
Tel: +01 916 999 8944
heather.balfour@erm.com

CC: Darren.Burgett@erm.com

SAMPLE I.D.	DATE	TIME	MATRIX	CONTAINERS #	VOC's 8260B	Perchlorate 314.0	LAB #	ADD'L INFORMATION
09052014TB-1	5.4.14	0700	W	2	X		1	
EMW-08-556-GW-09052014		0710		4	X	Y	2	
EMW-01S-470-GW-09052014		0735		4	X	Y	3	
EMW-03-D-640-GW-09052014		0805		4	Y	Y	4	
EMW-03I-560-GW-09052014		0825		4	Y	Y	5	
EMW-03S-418-GW-09052014		0845		4	Y	Y	6	
EMW-04-D-690-GW-09052014		0900		4	Y	Y	7	
EMW-04-I-605-GW-09052014		0950		4	Y	Y	8	
EMW-04-S-450-GW-09052014		1015		4	Y	Y	9	
09052014-FB1		1025		4	Y	Y	10	

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY	RESULTS NEEDED NO LATER THAN
	5.4.14		Ben Stevens	

RELEASED BY		TIME 1400	RECEIVED BY Nicole	TIME 5/9/14 1400
RELEASED BY Nicole		TIME	RECEIVED BY	5/09/14 TIME 1545
RELEASED BY	5-9-14	TIME 1700	RECEIVED BY	TIME
SHIPPED VIA FEDEX		TIME SENT	COOLER # 1 TEMP 1.5	Time: 0938 Recvd 5/10/14 LeeBaca

IRVINE

C33952: Chain of Custody
Page 1 of 3

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

LAB - Accutest C33957 COC 2 of 2

CHAIN OF CUSTODY

CLIENT: ERM

SITE: BF Goodrich Rialto Superfund Site

Project Code/Job #: 0179962.04.C

Billing Information:
PO# 0179962.04.C

Report to:
Heather Balfour
ERM
2525 Natomas Park Drive, Suite 350
Sacramento, California 95833
Tel: +01 916 999 8944
heather.balfour@erm.com

CC: Darren.Burgett@erm.com

CONDUCT ANALYSIS TO DETECT

SAMPLE I.D.	DATE	TIME	MATRIX	# CONTAINERS	VOC's 8260B	Perchlorate 314.0						ADD'L INFORMATION
EMW05-D-720-GW-05105/2014	5-4-14	1040	W	4	X	X					11	
EMW05-I-610-GW-05105/2014		1100	W	4	X	X					12	
EMW05-S-450-GW-05105/2014		1115	W	4	X	X					13	
DD05201405-1		1125	W	4	X	X					14	

SAMPLING COMPLETED: DATE 5-4-14 TIME

SAMPLING PERFORMED BY: Ben Stevens

RESULTS NEEDED NO LATER THAN

RELEASED BY: [signature] TIME 1400 RECEIVED BY: NICOLE TIME 5/9/14 1400

RELEASED BY: NICOLE TIME RECEIVED BY: 5/6/14 TIME 1545

RELEASED BY: 5-9-14 TIME 1700 RECEIVED BY: TIME

SHIPPED VIA: FEDEX TIME SENT COOLER # 1 Temp 1.5 5/10/14 0938 RECD

IRVINE

C33952: Chain of Custody
Page 2 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C33952 **Client:** ERM SACRAMENTO **Project:** BF GOODRICH RIALTO SUPERFUND SITE

Date / Time Received: 5/10/2014 **Delivery Method:** FedEx **Airbill #'s:** 804232032298

Cooler Temps (Initial/Adjusted): #1: (1.5/1.5);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☐		☑	3. COC Present:	☑		☐
2. Custody Seals Intact:	☐		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR2;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:408.588.0200
2105 Lundy Avenue
F: 408.588.0201
San Jose, CA 95131
www/accutest.com

C33952: Chain of Custody
Page 3 of 3

Northern California ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C33952
Account: ERMCAI ERM-Irvine
Project: BF Goodrich Superfund Sampling,Rialto

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV803-MB	V20037.D	1	05/13/14	RD	n/a	n/a	VV803

The QC reported here applies to the following samples: **Method:** SW846 8260B

C33952-1, C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
108-20-3	Di-Isopropyl ether	ND	2.0	0.22	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	

Method Blank Summary

Job Number: C33952
Account: ERMCAI ERM-Irvine
Project: BF Goodrich Superfund Sampling, Rialto

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV803-MB	V20037.D	1	05/13/14	RD	n/a	n/a	VV803

The QC reported here applies to the following samples: **Method:** SW846 8260B

C33952-1, C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
994-05-8	Tert-Amyl Methyl Ether	ND	2.0	0.40	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	98%	70-130%

Method Blank Summary

Job Number: C33952
Account: ERMCAI ERM-Irvine
Project: BF Goodrich Superfund Sampling, Rialto

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV803-MB	V20037.D	1	05/13/14	RD	n/a	n/a	VV803

The QC reported here applies to the following samples: **Method:** SW846 8260B

C33952-1, C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14

CAS No.	Surrogate Recoveries		Limits
2037-26-5	Toluene-D8	103%	70-130%
460-00-4	4-Bromofluorobenzene	101%	70-130%

Blank Spike/Blank Spike Duplicate Summary

Job Number: C33952
Account: ERMCAI ERM-Irvine
Project: BF Goodrich Superfund Sampling, Rialto

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV803-BS	V20034.D	1	05/13/14	RD	n/a	n/a	VV803
VV803-BSD	V20035.D	1	05/13/14	RD	n/a	n/a	VV803

The QC reported here applies to the following samples: **Method:** SW846 8260B

C33952-1, C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	80	81.7	102	77.8	97	5	38-159/24
71-43-2	Benzene	20	19.5	98	19.4	97	1	77-122/25
108-86-1	Bromobenzene	20	20.1	101	19.8	99	2	76-126/17
74-97-5	Bromochloromethane	20	21.0	105	20.1	101	4	77-130/17
75-27-4	Bromodichloromethane	20	19.9	100	19.8	99	1	75-127/16
75-25-2	Bromoform	20	20.8	104	21.0	105	1	69-141/17
104-51-8	n-Butylbenzene	20	19.2	96	19.4	97	1	72-129/18
135-98-8	sec-Butylbenzene	20	20.8	104	21.6	108	4	74-128/18
98-06-6	tert-Butylbenzene	20	21.2	106	21.1	106	0	73-127/18
108-90-7	Chlorobenzene	20	20.4	102	20.9	105	2	77-122/16
75-00-3	Chloroethane	20	21.4	107	21.2	106	1	69-133/18
67-66-3	Chloroform	20	20.1	101	19.7	99	2	74-126/17
95-49-8	o-Chlorotoluene	20	20.9	105	21.1	106	1	72-127/20
106-43-4	p-Chlorotoluene	20	20.2	101	20.0	100	1	68-127/18
56-23-5	Carbon tetrachloride	20	20.1	101	20.9	105	4	71-133/19
75-34-3	1,1-Dichloroethane	20	19.2	96	18.9	95	2	71-125/17
75-35-4	1,1-Dichloroethylene	20	19.4	97	19.7	99	2	66-125/20
563-58-6	1,1-Dichloropropene	20	20.3	102	20.6	103	1	75-124/18
96-12-8	1,2-Dibromo-3-chloropropane	20	19.2	96	19.0	95	1	65-131/20
106-93-4	1,2-Dibromoethane	20	20.7	104	20.8	104	0	75-135/17
107-06-2	1,2-Dichloroethane	20	20.1	101	19.7	99	2	71-131/17
78-87-5	1,2-Dichloropropane	20	20.0	100	19.6	98	2	78-124/16
142-28-9	1,3-Dichloropropane	20	19.7	99	19.6	98	1	78-123/16
108-20-3	Di-Isopropyl ether	20	19.4	97	18.7	94	4	68-129/17
594-20-7	2,2-Dichloropropane	20	19.6	98	19.4	97	1	70-131/19
124-48-1	Dibromochloromethane	20	20.9	105	21.2	106	1	76-132/16
75-71-8	Dichlorodifluoromethane	20	22.7	114	21.9	110	4	32-168/28
156-59-2	cis-1,2-Dichloroethylene	20	20.0	100	19.5	98	3	73-126/17
10061-01-5	cis-1,3-Dichloropropene	20	21.6	108	20.8	104	4	72-130/16
541-73-1	m-Dichlorobenzene	20	20.9	105	20.7	104	1	75-124/16
95-50-1	o-Dichlorobenzene	20	20.8	104	20.5	103	1	76-124/16
106-46-7	p-Dichlorobenzene	20	19.8	99	19.7	99	1	75-124/16
156-60-5	trans-1,2-Dichloroethylene	20	19.6	98	19.3	97	2	71-126/18
10061-02-6	trans-1,3-Dichloropropene	20	19.8	99	20.2	101	2	71-126/16
100-41-4	Ethylbenzene	20	19.7	99	20.1	101	2	76-126/17
637-92-3	Ethyl Tert Butyl Ether	20	21.5	108	21.0	105	2	75-134/17

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C33952
Account: ERMCAI ERM-Irvine
Project: BF Goodrich Superfund Sampling, Rialto

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV803-BS	V20034.D	1	05/13/14	RD	n/a	n/a	VV803
VV803-BSD	V20035.D	1	05/13/14	RD	n/a	n/a	VV803

The QC reported here applies to the following samples: **Method:** SW846 8260B

C33952-1, C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
591-78-6	2-Hexanone	80	87.5	109	87.8	110	0	67-150/22
87-68-3	Hexachlorobutadiene	20	18.8	94	20.0	100	6	69-135/20
98-82-8	Isopropylbenzene	20	20.2	101	21.3	107	5	61-125/17
99-87-6	p-Isopropyltoluene	20	20.0	100	20.4	102	2	68-127/18
108-10-1	4-Methyl-2-pentanone	80	85.4	107	83.1	104	3	71-142/21
74-83-9	Methyl bromide	20	19.5	98	18.7	94	4	68-132/18
74-87-3	Methyl chloride	20	22.0	110	20.8	104	6	39-150/28
74-95-3	Methylene bromide	20	21.2	106	20.7	104	2	77-127/16
75-09-2	Methylene chloride	20	19.4	97	18.6	93	4	67-128/18
78-93-3	Methyl ethyl ketone	80	89.0	111	85.0	106	5	56-155/23
1634-04-4	Methyl Tert Butyl Ether	20	20.8	104	19.7	99	5	73-132/17
91-20-3	Naphthalene	20	20.5	103	20.5	103	0	70-136/20
103-65-1	n-Propylbenzene	20	20.3	102	20.4	102	0	71-127/17
100-42-5	Styrene	20	20.1	101	20.4	102	1	72-134/16
994-05-8	Tert-Amyl Methyl Ether	20	20.9	105	20.1	101	4	73-133/17
75-65-0	Tert-Butyl Alcohol	100	102	102	100	100	2	60-149/26
630-20-6	1,1,1,2-Tetrachloroethane	20	20.4	102	20.7	104	1	77-130/16
71-55-6	1,1,1-Trichloroethane	20	19.9	100	20.1	101	1	74-128/19
79-34-5	1,1,2,2-Tetrachloroethane	20	20.4	102	19.9	100	2	77-129/17
79-00-5	1,1,2-Trichloroethane	20	20.1	101	20.0	100	0	77-125/16
87-61-6	1,2,3-Trichlorobenzene	20	19.5	98	20.0	100	3	70-133/18
96-18-4	1,2,3-Trichloropropane	20	18.9	95	18.9	95	0	69-126/18
120-82-1	1,2,4-Trichlorobenzene	20	19.4	97	19.9	100	3	68-129/17
95-63-6	1,2,4-Trimethylbenzene	20	20.3	102	20.2	101	0	74-129/17
108-67-8	1,3,5-Trimethylbenzene	20	20.9	105	20.9	105	0	77-129/17
127-18-4	Tetrachloroethylene	20	19.4	97	20.4	102	5	69-127/20
108-88-3	Toluene	20	19.5	98	20.1	101	3	75-122/17
79-01-6	Trichloroethylene	20	19.8	99	20.0	100	1	78-123/17
75-69-4	Trichlorofluoromethane	20	21.8	109	21.9	110	0	65-136/23
75-01-4	Vinyl chloride	20	22.8	114	22.2	111	3	57-146/22
1330-20-7	Xylene (total)	60	60.6	101	62.0	103	2	77-125/17

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	106%	101%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C33952
Account: ERMCAI ERM-Irvine
Project: BF Goodrich Superfund Sampling, Rialto

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VV803-BS	V20034.D	1	05/13/14	RD	n/a	n/a	VV803
VV803-BSD	V20035.D	1	05/13/14	RD	n/a	n/a	VV803

The QC reported here applies to the following samples: **Method:** SW846 8260B

C33952-1, C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
2037-26-5	Toluene-D8	102%	105%	70-130%
460-00-4	4-Bromofluorobenzene	102%	104%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C33952
Account: ERMCAI ERM-Irvine
Project: BF Goodrich Superfund Sampling,Rialto

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C33750-5MS	V20054.D	10	05/13/14	RD	n/a	n/a	VV803
C33750-5MSD	V20055.D	10	05/13/14	RD	n/a	n/a	VV803
C33750-5 [a]	V20038.D	10	05/13/14	RD	n/a	n/a	VV803

The QC reported here applies to the following samples: **Method:** SW846 8260B

C33952-1, C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14

CAS No.	Compound	C33750-5 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		800	824	103	800	835	104	1	38-159/24
71-43-2	Benzene	ND		200	184	92	200	185	93	1	77-122/16
108-86-1	Bromobenzene	ND		200	187	94	200	185	93	1	76-126/17
74-97-5	Bromochloromethane	ND		200	205	103	200	209	105	2	77-130/17
75-27-4	Bromodichloromethane	ND		200	182	91	200	185	93	2	75-127/16
75-25-2	Bromoform	ND		200	178	89	200	182	91	2	69-141/17
104-51-8	n-Butylbenzene	ND		200	158	79	200	159	80	1	72-129/18
135-98-8	sec-Butylbenzene	ND		200	178	89	200	181	91	2	74-128/18
98-06-6	tert-Butylbenzene	ND		200	177	89	200	181	91	2	73-127/18
108-90-7	Chlorobenzene	ND		200	191	96	200	193	97	1	77-122/16
75-00-3	Chloroethane	ND		200	224	112	200	228	114	2	69-133/18
67-66-3	Chloroform	ND		200	201	101	200	206	103	2	74-126/17
95-49-8	o-Chlorotoluene	ND		200	194	97	200	193	97	1	72-127/20
106-43-4	p-Chlorotoluene	ND		200	187	94	200	185	93	1	68-127/18
56-23-5	Carbon tetrachloride	ND		200	165	83	200	173	87	5	71-133/19
75-34-3	1,1-Dichloroethane	21.0		200	212	96	200	218	99	3	71-125/17
75-35-4	1,1-Dichloroethylene	357		200	476	60* [b]	200	490	67	3	66-125/20
563-58-6	1,1-Dichloropropene	ND		200	176	88	200	182	91	3	75-124/18
96-12-8	1,2-Dibromo-3-chloropropane	ND		200	164	82	200	167	84	2	65-131/20
106-93-4	1,2-Dibromoethane	ND		200	192	96	200	195	98	2	75-135/17
107-06-2	1,2-Dichloroethane	ND		200	186	93	200	188	94	1	71-131/17
78-87-5	1,2-Dichloropropane	ND		200	193	97	200	195	98	1	78-124/16
142-28-9	1,3-Dichloropropane	ND		200	185	93	200	191	96	3	78-123/16
108-20-3	Di-Isopropyl ether	ND		200	204	102	200	208	104	2	68-129/17
594-20-7	2,2-Dichloropropane	ND		200	157	79	200	162	81	3	70-131/19
124-48-1	Dibromochloromethane	ND		200	187	94	200	191	96	2	76-132/16
75-71-8	Dichlorodifluoromethane	ND		200	172	86	200	201	101	16	32-168/28
156-59-2	cis-1,2-Dichloroethylene	5.4		200	205	100	200	207	101	1	73-126/17
10061-01-5	cis-1,3-Dichloropropene	ND		200	196	98	200	196	98	0	72-130/16
541-73-1	m-Dichlorobenzene	ND		200	189	95	200	190	95	1	75-124/16
95-50-1	o-Dichlorobenzene	ND		200	195	98	200	192	96	2	76-124/16
106-46-7	p-Dichlorobenzene	ND		200	183	92	200	181	91	1	75-124/16
156-60-5	trans-1,2-Dichloroethylene	ND		200	188	94	200	195	98	4	71-126/18
10061-02-6	trans-1,3-Dichloropropene	ND		200	178	89	200	183	92	3	71-126/16
100-41-4	Ethylbenzene	ND		200	176	88	200	180	90	2	76-126/17
637-92-3	Ethyl Tert Butyl Ether	ND		200	219	110	200	226	113	3	75-134/17

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C33952
Account: ERMCAI ERM-Irvine
Project: BF Goodrich Superfund Sampling,Rialto

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C33750-5MS	V20054.D	10	05/13/14	RD	n/a	n/a	VV803
C33750-5MSD	V20055.D	10	05/13/14	RD	n/a	n/a	VV803
C33750-5 [a]	V20038.D	10	05/13/14	RD	n/a	n/a	VV803

The QC reported here applies to the following samples: **Method:** SW846 8260B

C33952-1, C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14

CAS No.	Compound	C33750-5 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
591-78-6	2-Hexanone	ND		800	863	108	800	872	109	1	67-150/22
87-68-3	Hexachlorobutadiene	ND		200	134	67* [b]	200	144	72	7	69-135/20
98-82-8	Isopropylbenzene	ND		200	179	90	200	187	94	4	61-125/17
99-87-6	p-Isopropyltoluene	ND		200	169	85	200	172	86	2	68-127/18
108-10-1	4-Methyl-2-pentanone	ND		800	852	107	800	851	106	0	71-142/21
74-83-9	Methyl bromide	ND		200	198	99	200	203	102	2	68-132/18
74-87-3	Methyl chloride	ND		200	212	106	200	226	113	6	39-150/28
74-95-3	Methylene bromide	ND		200	197	99	200	201	101	2	77-127/16
75-09-2	Methylene chloride	ND		200	197	99	200	203	102	3	67-128/18
78-93-3	Methyl ethyl ketone	ND		800	847	106	800	875	109	3	56-155/23
1634-04-4	Methyl Tert Butyl Ether	ND		200	208	104	200	213	107	2	73-132/17
91-20-3	Naphthalene	ND		200	176	88	200	181	91	3	70-136/20
103-65-1	n-Propylbenzene	ND		200	180	90	200	182	91	1	71-127/17
100-42-5	Styrene	ND		200	185	93	200	191	96	3	72-134/16
994-05-8	Tert-Amyl Methyl Ether	ND		200	211	106	200	216	108	2	73-133/17
75-65-0	Tert-Butyl Alcohol	ND		1000	616	62	1000	773	77	23	60-149/26
630-20-6	1,1,1,2-Tetrachloroethane	ND		200	187	94	200	189	95	1	77-130/16
71-55-6	1,1,1-Trichloroethane	ND		200	180	90	200	191	96	6	74-128/19
79-34-5	1,1,2,2-Tetrachloroethane	ND		200	203	102	200	204	102	0	77-129/17
79-00-5	1,1,2-Trichloroethane	ND		200	197	99	200	197	99	0	77-125/16
87-61-6	1,2,3-Trichlorobenzene	ND		200	158	79	200	165	83	4	70-133/18
96-18-4	1,2,3-Trichloropropane	ND		200	171	86	200	176	88	3	69-126/18
120-82-1	1,2,4-Trichlorobenzene	ND		200	165	83	200	170	85	3	68-129/17
95-63-6	1,2,4-Trimethylbenzene	ND		200	184	92	200	182	91	1	74-129/17
108-67-8	1,3,5-Trimethylbenzene	ND		200	190	95	200	189	95	1	77-129/17
127-18-4	Tetrachloroethylene	22.1		200	182	80	200	189	83	4	69-127/20
108-88-3	Toluene	ND		200	180	90	200	183	92	2	75-122/17
79-01-6	Trichloroethylene	160		200	314	77* [b]	200	322	81	3	78-123/17
75-69-4	Trichlorofluoromethane	ND		200	172	86	200	200	100	15	65-136/23
75-01-4	Vinyl chloride	ND		200	231	116	200	241	121	4	57-146/22
1330-20-7	Xylene (total)	ND		600	551	92	600	569	95	3	77-125/17

CAS No.	Surrogate Recoveries	MS	MSD	C33750-5	Limits
1868-53-7	Dibromofluoromethane	113%	116%	104%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C33952
Account: ERMCAI ERM-Irvine
Project: BF Goodrich Superfund Sampling,Rialto

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C33750-5MS	V20054.D	10	05/13/14	RD	n/a	n/a	VV803
C33750-5MSD	V20055.D	10	05/13/14	RD	n/a	n/a	VV803
C33750-5 [a]	V20038.D	10	05/13/14	RD	n/a	n/a	VV803

The QC reported here applies to the following samples: **Method:** SW846 8260B

C33952-1, C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14

CAS No.	Surrogate Recoveries	MS	MSD	C33750-5	Limits
2037-26-5	Toluene-D8	104%	104%	106%	70-130%
460-00-4	4-Bromofluorobenzene	101%	102%	104%	70-130%

(a) Sample reanalyzed past hold time due to need for further dilution; originally analyzed within hold time.
(b) Outside control limits due to matrix interference. AZ:M2

* = Outside of Control Limits.

Northern California ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C33952
Account: ERMCAI - ERM-Irvine
Project: BF Goodrich Superfund Sampling,Rialto

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Perchlorate	GP6378/GN13574	3.0	0.0	ug/l	25	24.2	96.8	85-115%
Perchlorate	GP6398/GN13611	3.0	0.0	ug/l	25	24.5	98.0	85-115%
Specific Conductivity	GN13575	1.0	0.0	umhos/cm				

Associated Samples:
Batch GP6378: C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12
Batch GP6398: C33952-13, C33952-14
Batch GN13575: C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14
(*) Outside of QC limits

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C33952
Account: ERMCAI - ERM-Irvine
Project: BF Goodrich Superfund Sampling,Rialto

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Perchlorate	GP6378/GN13574	ug/l	25	24.2	0.0	
Perchlorate	GP6398/GN13611	ug/l	25	24.3	0.8	

Associated Samples:
Batch GP6378: C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12
Batch GP6398: C33952-13, C33952-14
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C33952
Account: ERMCAI - ERM-Irvine
Project: BF Goodrich Superfund Sampling,Rialto

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Specific Conductivity	GN13575	C33967-1	umhos/cm	1190	1190	0.3	0-10%

Associated Samples:
Batch GN13575: C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12, C33952-13, C33952-14
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C33952
Account: ERMCAI - ERM-Irvine
Project: BF Goodrich Superfund Sampling,Rialto

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Perchlorate	GP6378/GN13574	C33952-4	ug/l	0.96	25	20.3	77.4N(a)	80-120%
Perchlorate	GP6398/GN13611	C33977-2	ug/l	1.5	25	23.5	88.0	80-120%

Associated Samples:
Batch GP6378: C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12
Batch GP6398: C33952-13, C33952-14
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: C33952
Account: ERMCAI - ERM-Irvine
Project: BF Goodrich Superfund Sampling,Rialto

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Perchlorate	GP6378/GN13574	C33952-4	ug/l	0.96	25	20.3	0.0	15%
Perchlorate	GP6398/GN13611	C33977-2	ug/l	1.5	25	22.6	3.9	15%

Associated Samples:
Batch GP6378: C33952-2, C33952-3, C33952-4, C33952-5, C33952-6, C33952-7, C33952-8, C33952-9, C33952-10, C33952-11, C33952-12
Batch GP6398: C33952-13, C33952-14
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

Appendix G
Data Validation Report

Memorandum

Environmental Resources Management

One Lakeshore Centre
3281 E. Guasti Road
Suite 300
Ontario, CA 91761
(909) 947-3500
(909) 947-3499 (fax)

To: Heather Balfour

From: Jerry Rosby

Date: 06 June 2014

Subject: Data Review of Rockets, Fireworks, and Flares Superfund Site Groundwater Samples Collected May 2014

Project Number: 0179962

Data Packages: Accutest Laboratories Data Packages C33952

The quality of the data was assessed and any necessary qualifiers were applied following the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* October 1999 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* October 2004. Data were also assessed following the guidance of the *Quality Assurance Project Plan (QAPP), Source Area Operable Unit, B.F. Goodrich Superfund Site*, May 2013 .

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. The sample shipments were received at the laboratory within the method-prescribed temperature preservation requirements. None of the data were qualified based on holding time or temperature preservation exceedances.

BLANK EVALUATION

The method, trip, and field blank sample results were nondetected for each of the target analytes. None of the data required qualification based on blank results.

BLANK SPIKE EVALUATION

The laboratory blank spike (BS) and blank spike duplicate (BSD) recoveries were within the laboratory's limits of acceptance. No sample data were qualified based on the blank spike evaluation. The BS recoveries indicate acceptable laboratory accuracy and precision.

MATRIX SPIKE EVALUATION

The matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the laboratory's limits of acceptance with few exceptions. Project sample *EMW-03C-640-09052014* was utilized for MS/MSD analyses. The MS/MSD recoveries of perchlorate (77.4%) were below control limits (80-120%) and the associated sample data were qualified as estimated bias low (J-) for positive results and estimated (UJ) for nondetects. There were also recoveries of 1,1-dichloroethylene, hexachlorobutadiene, and trichloroethylene that were below laboratory control limits; however, no sample data were qualified if the spike sample was prepared using a non-client sample or if only one recovery in a MS/MSD pair exceeded control limits. The qualified data and outlying MS recoveries are presented in Table 1.

SURROGATE EVALUATION

The surrogate recoveries were within acceptable limits. No qualifications to the data were made. The surrogate recoveries indicate minimal matrix interference in the samples.

FIELD DUPLICATE EVALUATION

One sample was collected and submitted in duplicate. ERM calculated the relative percent difference (RPD) between duplicates with detected results. The USEPA has not established control criteria for field duplicate samples; therefore, sample data are not qualified on the basis of field duplicate imprecision. A list of field duplicate detections and calculated RPDs is provided in Table 2.

OVERALL ASSESSMENT

No data were determined to be unusable. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

Table 1
Matrix Spike Recoveries Outside of Acceptable Limits
May 2014 Groundwater Sampling
BF Goodrich Superfund Site
Rialto, California

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
MS/MSD									
C33952	Batch MS/MSD	--	1,1-Dichloroethylene	60/67	66-125	3	20	--	--
C33952	Batch MS/MSD	--	Hexachlorobutadiene	67/72	69-135	7	20	--	--
C33952	Batch MS/MSD	--	Trichloroethylene	77/81	78-123	3	17	--	--
C33952	EMW-03C-640-GW-09052014 (MS/MSD)	see below	Perchlorate	77.4	80-120	0	15	--	--
C33952	--	EMW-01B-556-GW-09052014	Perchlorate	--	--	--	--	25.1	J-
C33952	--	EMW-01A-470-GW-09052014	Perchlorate	--	--	--	--	38	J-
C33952	--	EMW-03C-640-GW-09052014	Perchlorate	--	--	--	--	0.96	J-
C33952	--	EMW-03B-560-GW-09052014	Perchlorate	--	--	--	--	68.9	J-
C33952	--	EMW-03A-418-GW-09052014	Perchlorate	--	--	--	--	19.1	J-
C33952	--	EMW-04C-690-GW-09052014	Perchlorate	--	--	--	--	10	J-
C33952	--	EMW-04B-605-GW-09052014	Perchlorate	--	--	--	--	13.6	J-
C33952	--	EMW-04A-450-GW-09052014	Perchlorate	--	--	--	--	136	J-
C33952	--	GW-09052014-FB	Perchlorate	--	--	--	--	<3.0	UJ
C33952	--	EMW-05C-720-GW-09052014	Perchlorate	--	--	--	--	<3.0	UJ
C33952	--	EMW-05B-610-GW-09052014	Perchlorate	--	--	--	--	<3.0	UJ
C33952	--	EMW-05A-450-GW-09052014	Perchlorate	--	--	--	--	98.5	J-
C33952	--	EMW-05A-450-GW-09052014-D	Perchlorate	--	--	--	--	98.8	J-

Data packages reviewed: C33952

Key:
J- = Estimated result biased low
UJ = Estimated nondetect
RPD = Relative percent difference
MS/MSD = Matrix spike/matrix spike duplicate
Batch = Spike sample prepared using non-client sample

Table 2
Field Duplicate Results and Calculated Relative Percent Differences
May 2014 Groundwater Sampling
BF Goodrich Superfund Site
Rialto, California

Lab Package	Sample=Duplicate ID	Compound	Concentration		Report Limit	Units	RPD
			Sample	Duplicate			
C33952	EMW-05A-450-GW-09052014/ EMW-05A-450-GW-09052014-D	1,2-Dichloroethane	0.32	0.64	1.0	µg/L	66.7
		Ethylbenzene	0.35	0.62	1.0	µg/L	55.7
		Toluene	14.3	26.1	1.0	µg/L	58.4
		Trichloroethylene	0.9	0.8	1.0	µg/L	14
		Perchlorate	98.5	98.8	1.6	µg/L	0.3
		Specific Conductivity	401	416	1.0	umhos/cm	3.7

Data packages reviewed: C33952

Key:
RPD = Relative percent difference
umhos/cm = Micro mhos per centimeter
µg/L = Micrograms per liter

Appendix H
Monitoring Well Installation and Sampling Report Comments and Responses

USEPA Comments on *Monitoring Well Installation and Sampling Report*, Source Area Operable Unit, Rockets, Fireworks, and Flares Superfund Site prepared for Emhart Industries by ERM-West, Inc. (ERM) (Monitoring Well Installation and Sampling Report dated June 2014; USEPA comments dated July 15, 2014)

No.	Location	Comments and Responses
#1.	Figures 3 and 4	**Comment:** The water level contour maps (Figures 3 and 4) could be prepared with greater resolution and accuracy if water level data and interpreted water level contours generated by San Bernardino County/GLA were considered. Figures 3 and 4 do not make use of these data. Future water level contour maps should consider the County's data and maps, even if the data were not collected at the same time.
		Response: Emhart will prepare comprehensive water level contour maps considering all relevant available data following monitoring and sampling activities to be performed by multiple parties in August 2014. For future submittals, Emhart believes it is appropriate to consider only data points collected relatively contemporaneously because using water levels collected several weeks or months apart to develop contour lines may be misleading.
#2.	Pg. 14, Section 5.2	**Comment:** In Section 5.2, please note which chemicals exceed their MCL.
		Response: Section 5.2 has been revised to include the following text: The following compounds were detected at concentrations above their respective maximum contaminant level (MCL): • 1,2-Dichloroethane; • Perchlorate; • Toluene; and • TCE.
#3.	Pg. 15, Section 5.3	**Comment:** In Section 5.3, please briefly explain why all of the detected perchlorate results are "J" flagged ("estimated result biased low") and how this affects the usability of the data.
		Response: Section 5.3 has been revised to include the following text: Validation qualifiers were applied to the dataset because matrix spike (MS) and matrix spike duplicate (MSD) recoveries of perchlorate (77.4%) were slightly below control limits (80-120%). The associated sample data were qualified as "estimated result biased low" (J-) for positive results and "estimated" (UJ) for non-detects. All of the analytical data collected during this event can be used for decision-making purposes.

No.	Location	Comments and Responses
#4.	Table 3	**Comment:** In Table 3, the average water level listed for the Regional Aquifer in the Comment column of EMW-05 is incorrect. Please correct.
		Response: The correct value is 978.09. While reviewing the data in response to this comment, ERM identified that the well survey data was not transcribed properly on Tables 1 and 3. Tables 1 and 3 have been revised. No changes were needed for the figures.
#5.	Table 4	**Comment:** In Table 4, please list the MCL for each chemical, and indicate results that exceed the relevant MCL.
		Response: The MCL for each chemical has been added to Table 4. Detections that exceed the corresponding MCL have been shaded grey.