Melrose

ENTERED

DEPARTMENT OF THE AIR FORCE
27TH SPECIAL OPERATIONS MISSION SUPPORT GROUP (AFSOC)
CANNON AIR FORCE BASE NEW MEXICO

3 Oct 13

Colonel Heather L. Buono
Commander
110 E Alison Avenue Suite 1098
Cannon AFB NM 88103

OCT 2013

Mr. Daniel Comeau
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East Bldg 1
Santa Fe NM 87505-6063

Dear Mr. Comeau

Attached is the "*Background Well (MWQ-24) Installation Report Melrose Air Force Range*". If you have any questions regarding this submittal, please contact Mr. Ron Lancaster, Chief, Installation Management at (575) 784-1146.

Sincerely

Heather L. Buono

HEATHER L. BUONO, Colonel, USAF

Attachment:
Background Well (MWQ-24) Installation Report Melrose Air Force Range.

cc:
Environmental Protection Agency, Region VI, Ms. Wendy Jacques w/o Attachment

TRINITY
ANALYSIS & DEVELOPMENT CORP.
Environmental & Engineering Services

1002 N. Eglin Parkway
Shalimar, FL 32579
Office: (850) 613-6800
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September 30, 2013

Ms. Laura Peters
ERP Manager
27 SOCES/CEIEC
506 N Air Commando Way
Cannon AFB, NM 88103-5003

RE**:** **Background Well MWQ-24 Installation Report**
Melrose Air Force Range, New Mexico
USACE Contract No.: W9128F-10-D-0091, Task Order 006

Dear Ms. Peters,

Enclosed for your review is the *Background Well MWQ-24 Installation Report, Melrose Air Force Range, Roosevelt and Curry Counties, New Mexico.*

We appreciate the opportunity to work with Cannon Air Force Base and USACE to provide service to Melrose Air Force Range. If you have any questions or need further information, please call me at (850) 613-6800.

Sincerely,
Trinity Analysis & Development Corp.

Richard L. Burdine, PG
Senior Vice President

Attachment

Distribution List

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TITLE PAGE

BACKGROUND WELL MWQ-24 INSTALLATION REPORT
MELROSE AIR FORCE RANGE
ROOSEVELT AND CURRY COUNTIES, NEW MEXICO

Prepared For:
Cannon Air Force Base
Air Force Special Operations Command (AFSOC)
27th SOCES/CEANR
Cannon Air Force Base, NM 88103-5003

Prepared By:
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Under Contract To:
United States Army Corps of Engineers (USACE)
Omaha District
1616 Capitol Avenue
Omaha, NE 68102-4901

Contract Number:
W9128F-10-D-0091, Task Order 0006

September 2013

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CERTIFICATION PAGE

BACKGROUND WELL MWQ-24 INSTALLATION REPORT
MELROSE AIR FORCE RANGE
ROOSEVELT AND CURRY COUNTIES, NEW MEXICO

Prepared For:
Air Force Special Operations Command
And
27th Special Operations Wing

Prepared By:
Trinity Analysis & Development Corp.
1002 N. Eglin Parkway
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(850) 613-6800

Under Contract To:
United States Army Corps of Engineers (USACE)
Omaha District

I hereby submit that this Background Well MWQ-24 Installation Report, for the Melrose Air Force Range was prepared by me.

Jonathan M. Kramer
Geologist
Trinity Analysis & Development Corp.

9-27-2013
Date

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- Boring Log
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LIST OF ABBREVIATIONS AND ACRONYMS

°C	Celsius
$^{o}/_{oo}$	Parts per Thousand
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
AFB	Air Force Base
AFR	Air Force Range
AFSOC	Air Force Special Operations Command
bls	Below land surface
COCs	Chain-of-custodies
DO	Dissolved oxygen
DRO	Diesel Range Organics
ELAP	Environmental Laboratory Accreditation Program
GCAL	Gulf Coast Analytical Laboratories, Inc.
IDW	Investigative Derived Waste
MDL	Method Detection Limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/L-N	Milligrams per liter Nitrogen
mS/cm	Microsiemens per centimeter
mV	Millivolt
NC	No criteria
NELAC	National Environmental Laboratory Accreditation Conference
NMED	New Mexico Environment Department
NM-OSE	New Mexico Office of the State Engineer
NT	Not tested
NTU	Nephelometric Turbidity Units
ORP	Oxidation Reduction Potential
PLS	Professional Land Survey
PPE	Personal protective equipment
Q	Qualifier
QA/QC	Quality Assurance/Quality Control
SOW	Special Operations Wing
SU	Standard Units
TPH	Total Petroleum Hydrocarbons
TRINITY	Trinity Analysis & Development Corp.
US	United States
USACE	United States Army Corps of Engineers
VI	Hexavalent
VOC	Volatile organic compounds

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1.0 INTRODUCTION

This *Background Well MWQ-24 Installation Report* for the Melrose Air Force Range (AFR) has been prepared by Trinity Analysis & Development Corp. (TRINITY) on behalf of the Cannon Air Force Base (AFB) 27th Special Operations Wing (SOW) and Air Force Special Operations Command (AFSOC). TRINITY performed this work under contract to the United States (US) Army Corps of Engineers (USACE), Omaha District, Contract W9128F-10-D-0091, Task Order 006. The document was prepared for submission to the New Mexico Environment Department (NMED).

A new background monitoring well was initially requested on October 27, 2009 when NMED provided a review of the *Final Report Initial Baseline Groundwater Monitoring, Melrose Air Force Range, New Mexico, June 2009* (URS, 2009). At the time, MWQ-10 was regarded as the background monitoring well. In that response NMED stated:

> *"NMED discourages including stock wells with steel casings in the Groundwater Quality Well Network, e.g., MWL-6, MWQ-4, MWQ-5, MWQ-6, MWQ-7, and MWQ-8, with the exception of MWQ-10. Although MWQ-10 has a steel casing, it is currently the only productive well located up-gradient of the impact area.*
>
> *The Permittee must install a replacement monitoring well up-gradient of the impact area, then discontinue sampling and analysis of MWQ-10…"*

The subsequent contractor, Tidewater, Inc. was not under contract to install a background monitoring well as discussed in the *Response to Comments contained in the February 11, 2010 Notice of Disapproval to the Draft Work Plan, Groundwater Monitoring, Melrose Air Force Range, New Mexico, October 2009* (Tidewater, Inc., 2009).

An abbreviated *Drilling Work Plan for the new background monitoring well (MWQ-24) at Melrose Air Force Range* (Trinity Analysis & Development Corp., 2013) was approved by NMED on June 18, 2013. A copy of the abbreviated Work Plan and *NMED Approval of the Abbreviated Work Plan* are included in **Appendix A**. The new background well (MWQ-24) was installed the week of August 12, 2013 and sampled the week of August 19, 2013. The well was installed in general accordance with the approved Work Plan. This report summarizes the investigation activities and their findings.

2.0 MONITORING WELL INSTALLATION

TRINITY mobilized to the site (**Figure 1**) on August 12, 2013 to install the new background monitoring well, MWQ-24. Monitoring well MWQ-24 was installed approximately 275 feet northwest of MWQ-10 (**Figure 2**). A copy of the Base Civil Engineering Work Clearance Request (Dig Permit) is included in **Appendix B**.

Drilling and monitoring well installations were completed by a New Mexico Office of the State Engineer (NM-OSE) licensed water well driller (Yellow Jacket Drilling, License No. WD-1458) under the supervision of a professional geologist with TRINITY.

The well was installed using a Speedstar CH 50K drill rig utilizing Air Rotary Casing Hammer. The casing was 9 ⅝" and the drill bit was 8 ½". All equipment was delivered to the site clean. However, all casing and drill rods were steam cleaned onsite prior to use. A cyclone separator was utilized for air containment/dust-suppression and all cuttings were temporarily stored on plastic sheeting and covered. Lithological samples were collected as chips from the cyclone discharge on the drilling rig on five-foot centers. Chip samples were archived for future reference. The boring log and photographic log are included in **Appendix B**.

Well screens and case were installed through the 9 ⅝" casing and artificial filter pack, seals, and grout were placed in the wells' annular spaces as casing was retrieved. The boring was advanced to a total depth of 105 feet below land surface (bls). The borehole was backfilled to 69 feet bls with $^{3}/_{8}$" hole plug and allowed to hydrate. The well was constructed of four-inch inner diameter Schedule 80 polyvinyl chloride casing and screen with threaded joints and centralizers. Well MWQ-24 was constructed with 20 feet of 0.010-inch slotted screen with approximately five feet of screen above the water table and 15 feet below the water table. The screen was set from approximately 42.8 feet bls to 62.8 feet bls. A filter material consisting of clean quartz sand graded at 10/20 was emplaced around well screens to approximately four feet above the top of well screens. Prior to installation of the seal material the well was swabbed/surge blocked resulting in the filter pack settling approximately two feet. The filter pack was brought to a final depth of approximately 38 feet bls. Seal material consisting of approximately 20 feet of bentonite pellets was placed immediately above the filter pack and hydrated. The remainder of annular space was grouted to land surface with neat cement. Wells were completed with a concrete pad, and steel protective case with lock and four protective bollards. Copies of NM-

OSE well construction permits and completion reports, the daily drill report, well construction diagrams, and geologist drilling reports are provided in **Appendix C**.

A Professional Land Surveyor (PLS) survey of the well was conducted on September 18, 2013. A copy of the survey is included in **Appendix C**.

3.0 MONITORING WELL DEVELOPMENT

The monitoring well was developed on August 12, 2013 by bailing and surging with a ten foot stainless steel bailer. Approximately 50 gallons of development water were bailed from the well before going dry. Additional development was conducted by TRINITY on August 19, 2013. A total of approximately 202 gallons of water were developed from the well. A copy of the well development log is included in **Appendix B**.

4.0 GROUNDWATER SAMPLING

Prior to sampling, the well was purged using low-flow sampling techniques using a stainless steel bladder pump. Field parameters were monitored with an YSI 556-MPS multi-parameter water quality meter with attached flow through cell. The YSI multi-parameter water quality meter monitored dissolved oxygen (DO), temperature, pH, specific conductance, and oxidation reduction potential (ORP). Turbidity was monitored with a Hanna HI-98703 Turbidity Meter. Groundwater levels were measured prior to and during pumping to monitor drawdown. Water levels were measured with a Geotech Water Level Meter (500 foot). The water quality meter and turbidity meter were calibrated before use.

Pumping continued until field parameters had stabilized (less than 0.2 pH units or a 10 percent change for the other parameters between four consecutive readings) and the water was clear and below 5 Nephelometric Turbidity Units (NTU). Final field parameters are summarized below in **Table 4-1** and the groundwater sampling form is provided in **Appendix B**.

Table 4-1 Field Parameters – MWQ-24

pH (SU)	Temp (°C)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	Salinity (‰)	ORP (mv)	Color/Odor	Turbidity (NTUs)
7.51	21.87	0.495	8.43	0.24	179.7	clear/none	3.80

SU = standard Units, °C = degrees Celsius, mS/cm = millisiemens per centimeter, ‰ = parts per thousand, mg/L milligrams per liter, mv = millivolt, NTU = Nephelometric Turbidity Units

In accordance with the NMED approved Work Plan, the new background monitoring well was sampled for volatile organic compounds (VOCs), explosives, metals, chloride, sulfate, nitrate, nitrite, total dissolved solids, alkalinity, cyanide, perchlorate, and hexavalent chromium. Total petroleum hydrocarbons – diesel range organics (TPH DRO) was also included for this initial sampling event.

Gulf Coast Analytical Laboratories, Inc. (GCAL), Baton Rouge, LA was used for sample analysis during this investigation. GCAL is accredited in accordance with the National Environmental Laboratory Accreditation Conference (NELAC) (Certificate Number 01955), and the DoD Environmental Laboratory Accreditation Program (ELAP) (Certificate Number 1482). The laboratory provided coolers, sample containers (including preservatives where applicable), custody seals, and chain-of-custody (COC) documents.

Samples intended for chemical analyses were packed on wet ice in sealed coolers for transport to the laboratory. Placing the samples on wet ice ensures a temperature of 4º ±2° Celsius (°C) upon receipt by the contract laboratory. Samples were shipped by overnight commercial courier to the designated laboratory. Proper shipping and handling protocol included: filling of containers with an appropriate amount of sample medium, ensuring that container lids were tight, ensuring that labels were completed, wrapping containers in bubble wrap for protection, double bagging of ice, and inclusion of appropriate quality assurance/quality control (QA/QC) blanks. COCs accompanied samples in a waterproof plastic bag taped to the inside of the cooler lid. Copies of the COCs are provided in **Appendix B**.

Decontamination procedures were in general accordance with the *Ground Water Monitoring Project Work Plan* (Trinity Analysis & Development Corp., 2011). Sufficient quantity of clean equipment was transported to the field to last the entire day. Disposable equipment was used when possible to minimize the possibility of cross contamination. Additionally, new sample containers for laboratory analyses were provided by the laboratory for each sample collected.

The chemical analytical reports (laboratory analytical data) are included in **Appendix D**. Only detected compounds are summarized below in **Table 4-2**. The only reported exceedance of the groundwater screening criteria was arsenic at a reported concentration of 2.28 micrograms per liter (µg/L).

Table 4-2 Groundwater Quality Summary – MWQ-24

Parameter	Unit	Screening Levels	Total				Dissolved		
			Result	Q	MDL		Result	Q	MDL
Chloride	mg/L	NC	16.2		0.1		NT		
Cyanide	mg/L	21.9	0.0033	J	0.0005		NT		
Nitrate	mg/L-N	58.4	3.33		0.082		NT		
Nitrite	mg/L-N	3.65	0.02		0.006		NT		
Sulfate	mg/L	NC	36.4		0.2		NT		
Perchlorate	mg/L	25.6	0.214	J	0.100		NT		
Total Alkalinity	mg/L CaCO3	NC	224		0.26		NT		
TDS	mg/L	NC	294		4.39		NT		
Aluminum	µg/L	36500	168	J	60		60	U	60
Arsenic	µg/L	0.448	2.28		0.25		2.01		0.25
Barium	µg/L	7300	74.4		2.5		73.6		2.5
Calcium	µg/L	NC	41500		50		42500		50
Chromium (VI)	µg/L	0.431	0.076		0.010		NT		
Copper	µg/L	1460	7.87	J	5		8.73	J	5
Magnesium	µg/L	NC	25900		50		26000		50
Manganese	µg/L	876	262		2		267		2
Molybdenum	µg/L	183	15.2	J	3.75		13	J	3.75
Potassium	µg/L	NC	4510		100		4900		100
Sodium	µg/L	NC	36500		200		40500		200
Vanadium	µg/L	183	35.1		3.75		36.3		3.75
Zinc	µg/L	11000	52.8		5		57.9		5

Blank cells in the qualifier column indicate that no qualifier was reported
CaCO3 = calcium carbonate, MDL = method detection limit, mg/L = milligram per liter, mg/L-N = milligram per liter of nitrogen,
NC = no criteria, NT = not tested, J = estimated concentration between the method detection limit and the reporting limit, Q = qualifier
U = not detected, µg/L = micrograms per liter, VI = hexavalent

5.0 INVESTIGATION DERIVED WASTE

The primary type of investigative derived waste (IDW) generated during drilling activities at Melrose AFR were drill cuttings and development/purge water. Drill cuttings were stockpiled on plastic sheeting, and covered pending analytical results. Aqueous IDW from well development and purging was contained in 55-gallon drums pending laboratory analysis. Used personal protective equipment (PPE) and disposable sampling materials were treated as solid waste and disposed of at the installation in a trash receptacle.

The groundwater and soil screening guidelines are included on all appropriate tables. The chemical analytical reports (laboratory analytical data) are included in **Appendix D**.

Groundwater quality is summarized above in **Table 4-2** and analytical data associated with the cuttings (SC-1) is summarized below in **Table 5-1**. Only detected compounds are summarized.

Table 5-1 Soil Cutting Summary – SC-1

Parameter	Unit	Industrial Screening Level	Result	Q	MDL
Chloride	mg/kg	NC	146		1.65
Cyanide	mg/kg	681	0.43	J	0.038
DRO	µg/Kg	NC	4490	J	2040
Nitrate	mg/kg-N	1,820,000	0.634	J	0.204
Nitrite	mg/kg-N	114,000	1.4	J	0.259
Sulfate	mg/kg	NC	337		6.2
Arsenic	µg/Kg	17,700	2180		157
Aluminum	mg/kg	1,130,000	11300		3.11
Barium	mg/kg	223,000	133		0.16
Beryllium	mg/kg	2,260	0.81		0.062
Calcium	mg/kg	NC	19200		12.5
Chromium	mg/kg	1,700,000	15.3		0.16
Cobalt	mg/kg	NC	7.35		0.16
Copper	mg/kg	45,400	15.9		0.31
Iron	mg/kg	795,000	16100		3.11
Lead	mg/kg	800	14.1		0.23
Magnesium	mg/kg	NC	5540		3.11
Manganese	mg/kg	26,700	409		0.23
Nickel	mg/kg	22,500	17.9		0.62
Potassium	mg/kg	NC	2670		7.78
Silver	mg/kg	5,680	0.2	J	0.16
Sodium	mg/kg	NC	1050		15.6
Titanium	mg/kg	NC	54.1		0.16
Vanadium	mg/kg	5,680	21.2		0.31
Zinc	mg/kg	341,000	45.4		0.31
Benzene	µg/Kg	84,700	2.95	J	0.1
Toluene	µg/Kg	57,700,000	2.2	J	0.211

DRO = diesel range organics, J = estimated concentration between the method detection limit and the reporting limit, mg/kg = milligrams per kilogram, µg/kg = micrograms per kilogram

Based on the analytical results, NMED gave approval to Cannon AFB for final disposition to the ground surface. The groundwater was disposed of adjacent to the well and the soil cuttings were thinly spread approximately 50 feet southeast of the well (**Figure 3**).

6.0 WORKS CITED

Tidewater, Inc. (2009). *Response to Comments contained in the February 11, 2010 Notice of Disapproval to the Draft Work Plan, Groundwater Monitoring, Melrose Air Force Range, New Mexico, October 2009.*

Trinity Analysis & Development Corp. (2013). *Drilling Work Plan for new background monitoring well (MWQ-24) at Melrose Air Force Range*.

URS. (June 2009). *Final Report, Initial Baseline Groundwater Monitoring, Melrose Air Force Range, New Mexico.*

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FIGURES

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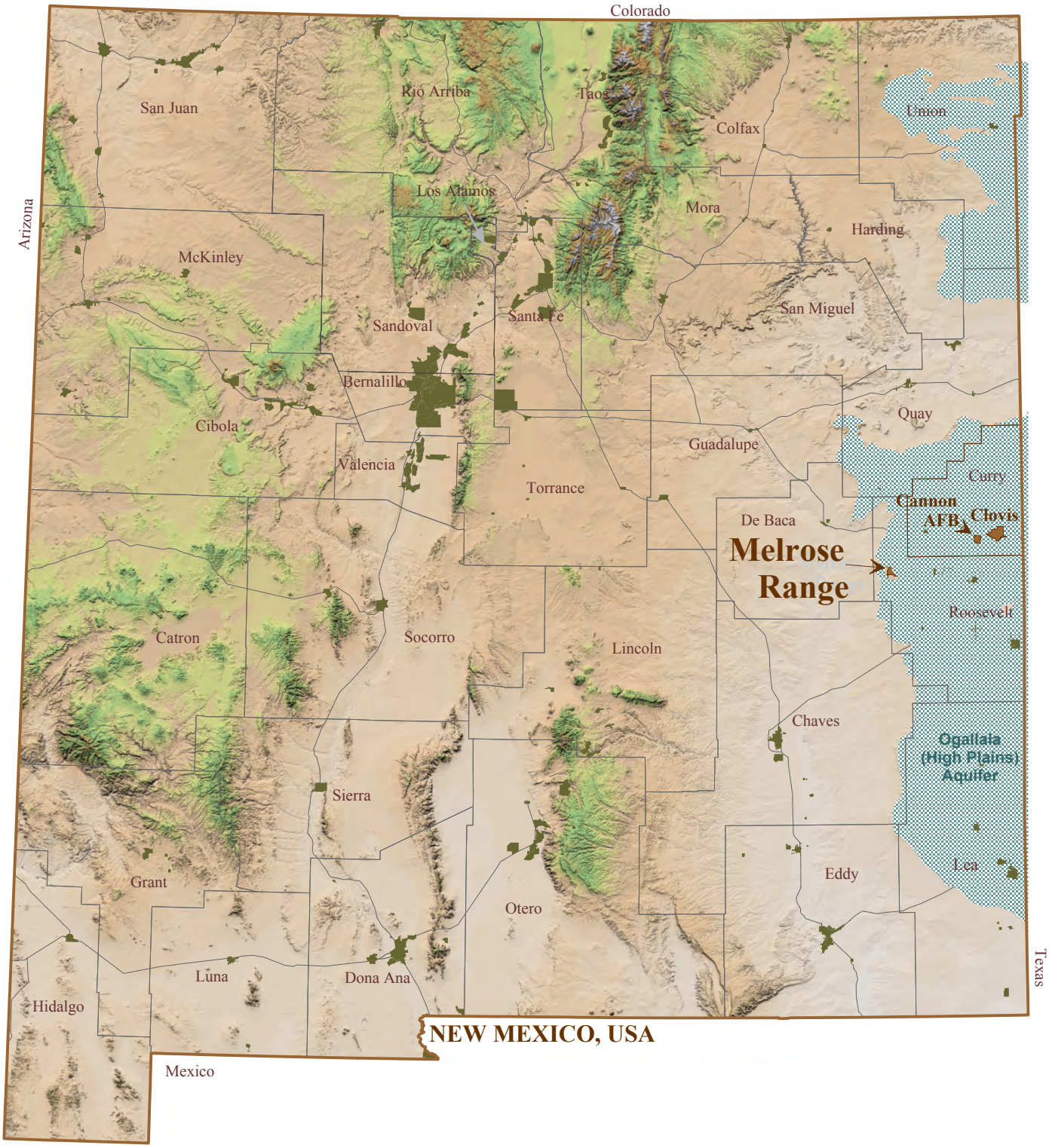


Source files: New Mexico Resource Geographic Information System Program

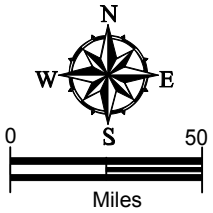


FIGURE 1
SITE LOCATION MAP
Melrose Air Force Range
Roosevelt and Curry Counties, New Mexico

Trinity Analysis and Development Corp.

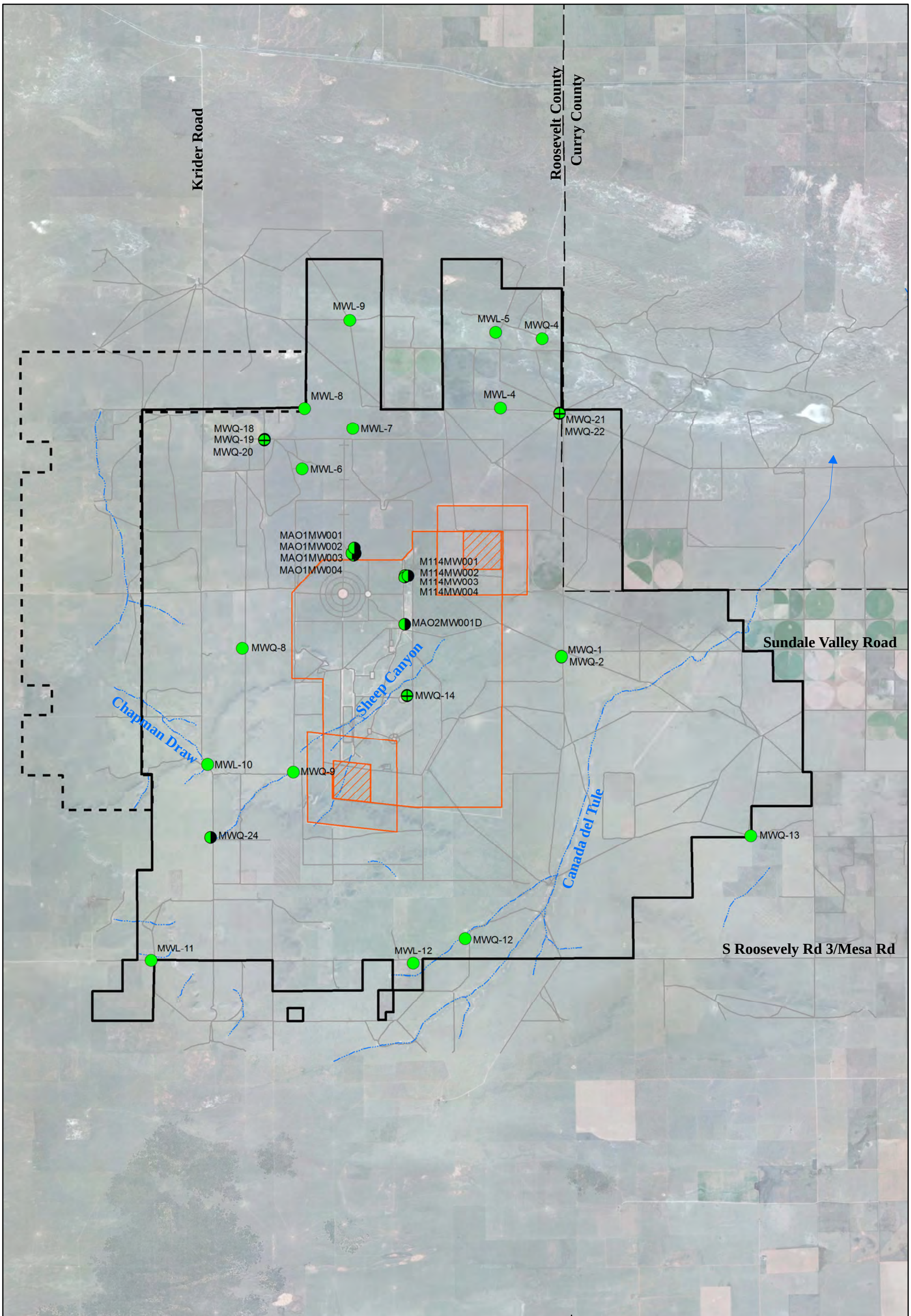
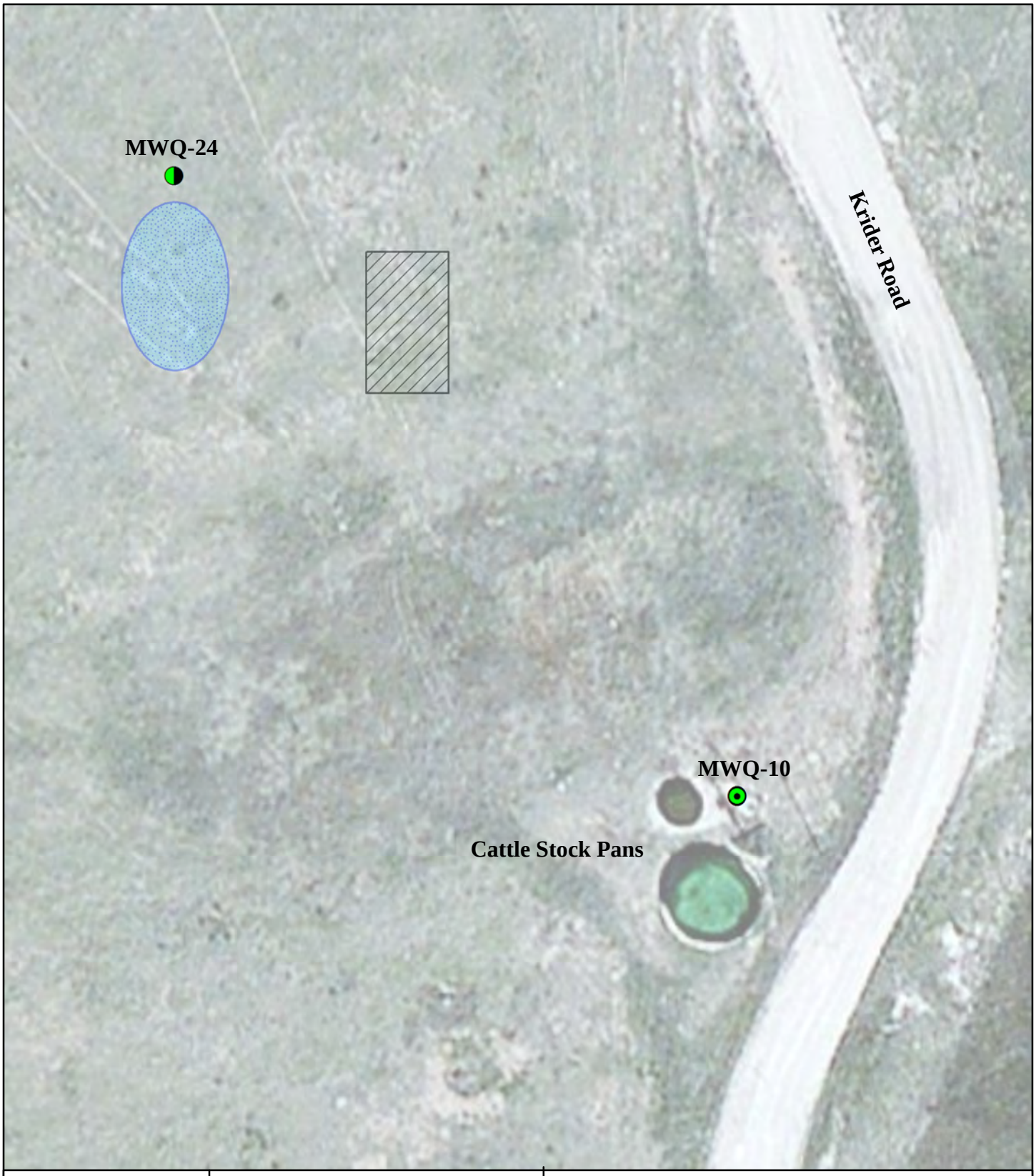


FIGURE 2
MONITORING WELL NETWORK
Melrose Air Force Range
Roosevelt and Curry Counties, New Mexico



N
W E
S
0 50
Feet

Approximate Location of IDW Disposition

Drill Cuttings IDW

Groundwater IDW

FIGURE 3
IDW DISPOSITION
Melrose Air Force Range
Roosevelt and Curry Counties, New Mexico

Trinity Analysis & Development Corp.

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APPENDIX A

Regulatory Correspondence

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Abbreviated Work Plan

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Drilling Work Plan for the New Background Monitoring Well (MWQ-24) at Melrose Air Force Range

Primary Purpose	A new background monitoring well was initially requested on October 27, 2009 when NMED provided a review of the *Final Report, Initial Baseline Groundwater Monitoring, Melrose Air Force Range, New Mexico, June 2009* (URS, 2009). At the time, MWQ-10 was regarded as the background monitoring well. In that response NMED stated *"NMED discourages including stock wells with steel casings in the Groundwater Quality Well Network, e.g., MWL-6, MWQ-4, MWQ-5, MWQ-6, MWQ-7, and MWQ-8, with the exception of MWQ-10. Although MWQ- 10 has a steel casing, it is currently the only productive well located up-gradient of the impact area.* *The Permittee must install a replacement monitoring well up-gradient of the impact area, then discontinue sampling and analysis of MWQ-10…"* The subsequent contractor, Tidewater, Inc. was not under contract to install a background monitoring well as discussed in the *Response to Comments contained in the February 11, 2010 Notice of Disapproval to the Draft Work Plan, Groundwater Monitoring, Melrose Air Force Range, New Mexico, October 2009* (Tidewater, Inc., 2009). TRINITY proposed utilization of and subsequently sampled well MWQ-23 to determine if this location was a viable option as a background well. However, based on review of the collected groundwater quality information from MWQ-23, it did not appear to represent an ideal background groundwater quality sampling location. In addition, no well construction details were known about this well. Personnel from Cannon AFB (Mr. Matt Higginbotham) and TRINITY (Mr. Jonathan Kramer, and Mr. Richard Burdine) met with personnel from NMED (Mr. Dave Cobrain, Ms. Leona Tsinnajinnie, Mr. Dan Comeau, and Ms. Neelam Dhawan) on January 10, 2013 at their office in Santa Fe, New Mexico. Based on comments and discussions occurring during the meeting, NMED requested that a new background well be installed adjacent to MWQ-10. The approximate location of the proposed background well (MWQ-24) is 34°14'37.73"N, 103°50'30.43"W. It is estimated that the total depth of the well will not exceed approximately 100 feet, which will coincide with the base of the Ogallala Formation (Frm)/Southern High Plains Aquifer and the top of the Chinle Frm/Redbeds. The location of existing monitoring wells and the propsed location of the new background monitoring well are depicted on **Figure 1**.
Conceptual Model	The Melrose Air Force Range (AFR) is a bombing and air-to-ground gunnery range under management of Cannon AFB within AFSOC. The Melrose AFR is situated approximately eight miles southwest of the village of Melrose, and located predominately in Roosevelt County with a small parcel in Curry County, New Mexico (Figures 1 and 2). Access to the range is achieved by traveling south from Melrose on New Mexico State Road (SR) 267 for approximately 9.3 miles, then west on Sundale Valley Road for approximately seven miles to the security gate. Background monitoring well MWQ-24 will be located upgradient of the Solid Waste Management Units (SWMUs). For a more detailed discussion of the SWMUs and site

	history please see Phase I RCRA Facility Investigation for Melrose Air Force Range, Cannon Air Force Base, Clovis, New Mexico (Foster Wheeler, 1996), or the RCRA Facility Investigation Report Addendum for Melrose Bombing Range, Cannon Air Force Base, New Mexico (Foster Wheeler, 2003) both of which are part of NMED's administrative record. Melrose AFR is located near the western margin of the Southern High Plains Aquifer of which the Ogallala Formation is the primary water bearing unit. The Southern High Plains Aquifer forms the primary aquifer for potable, livestock, and irrigation water in the vicinity of Melrose AFR and throughout the eastern New Mexico region. In addition, there are several localized shallow water-bearing zones across the region used for irrigation purposes. No deeper aquifers are known to be in use in the vicinity of Melrose AFR. However, groundwater of poorer quality does occur in the Chinle Formation, which underlies the Ogallala Formation. Sediments expected to be encountered in the Ogallala/Southern High Plains Aquifer during drilling at Melrose AFR are predominately silts and very fine sand. Gravel, cobble, and boulder deposits normally associated with the base of the Ogallala formation and a fining up sequence above are not commonly identified during drilling activities at Melrose AFR. The Chinle Formation (Triassic age) is the base of the Ogallala/Southern High Plains Aquifer and is composed of red shales with interbedded sands (redbeds) deposited by low-energy streams in floodplains and deltas. The top of the Chinle Formation is marked by an erosional unconformity with up to several hundred feet of relief (Lee Wan and Associates, Inc., 1990). Based on the water level from an adjacent livestock supply well (MWQ-10) the depth to water groundwater at MWQ-24 is anticipated between approximately 39 and 45 feet below land surface (TRINITY, 2012; Table 2). Based on regional geology (Langman, 2004) the depth to the base of the aquifer/top of the Chinle Formation is not expected to exceed 100 to 150 feet.
Drilling Approach	Drilling will be conducted with methods selected to optimize the potential of completing the well without the use of drilling additives and within the target zone of saturation, given the low hydraulic conductivities and groundwater production anticipated. Air rotary casing advance (ARCA) or reverse circulation casing advance (RCCA) techniques are anticipated to be utilized. **Air Rotary Drilling** The air rotary method consists of a drill pipe or drill stem coupled to a drill bit that mobilizes (i.e. either rotation or hammering) when compressed air is forced down the casing to the bit. Cuttings generated at the drill bit and are lifted to the surface by compressed air through the annular space (between the drill pipe and the borehole wall). The circulation of the compressed air not only removes the cuttings from the borehole but also helps to cool the drill bit. When using air as a drilling fluid supplied by an air compressor during any drilling technique, the air compressor shall have an in-line filter system to filter the air coming from the compressor and prevent potential introduction of contaminants such as residual oils into the borehole. The filter system shall be inspected regularly and be subjected to routine maintenance, to ensure that the system is functioning properly. A cyclone separator or similar air containment/dust-suppression system shall be used to

	funnel the cuttings to one location instead of allowing the cuttings to discharge uncontrolled from the borehole. Particular attention will be paid to the management of cuttings and dust generated during air rotary drilling. *Air Rotary Casing Advance (ARCA)* ARCA with respect to the borehole and cuttings recovery operates technically in much the same was as traditional air rotary drilling as described above, though casing is advanced simultaneously as drilling is progressed to secure the borehole wall in unstable formations. Typically casing lengths will be telescoped as the boring is advanced to total depth.
Hydrogeologic and Geochemical Objectives	The primary objective for the proposed well is to monitor background water quality upgradient of the Solid Waste Management Units (SWMUs) at Melrose Air Force Range. The propsed background monitoring well is upgradient of SWMUs: • SWMU 114 – Expended Ordnance and Industrial Waste Burial Site (Motor Pool Trenches); • SWMU 115 – Explosives-Contaminated Burial Site (Arroyo Burial Site); • SWMU 117 – Domestic Waste Burial Site (Southeast of Main Building); • SWMU 130 – World War II Cantonment Disposal Site (formerly Area of Concern (AOC) 1); • SWMU 131 – Domestic Waste Burial Site (East of Fire Station; formerly AOC 2); • SWMU 132 – Disposal/Burn Site (North Helicopter Pad; formerly AOC 3); and • SWMU 133 – Northwest Munitions Disposal Site (Northwest Corner of Impact Area; formerly AOC 4). Additional objectives are as follows: • Monitor water levels in the regional aquifer in this area; and • Further define the hydrostratigraphy and structure of the site. These additional objectives will be addressed to the best extent possible, but drilling methods will be optimized to accomplish the primary objective.
Potential Groundwater Occurrence and Detection	Based on the water level from an adjacent livestock supply well (MWQ-10) the depth to water groundwater at MWQ-24 is anticipated between approximately 39 and 45 feet below land surface (TRINITY, 2012; Table 2).
Lithological Sampling	Lithological samples will be collected as chips from the cyclone discharge on the drilling rig on 10-foot centers. Chip samples will be archived in chip trays for future reference.
Groundwater Screening and Characterization Sampling	No groundwater screening or characterization sampling is currently planned or anticipated.
Geophysical Logging	In a dry, cased borehole, natural gamma is the only effective wireline geophysical logging method available to measure formation properties through the drive casing. This method yields information on the potential clay content of the formation, though the gamma response would be muted by the steel casing through which the measurement must be conducted. Geophysical logging is not currently planned; however, if equipment is available during drilling activities the open hole will be logged.

Well Completion	A well construction diagram for the proposed background monitoring well is provided on **Figure 2**. The adjacent supply well (MWQ-10) will be utilized to determine the approximate depth to groundwater in the borehole. Based on historic data it is anticipated that the depth to water below land surface will be between approximately 39 and 45 feet (TRINITY, 2012; Table 2). Based on regional geology (Langman, 2004) the depth to the base of the aquifer/top of the Chinle Frm is not expected to exceed 100 feet. Based on the limited saturated thickness of the aquifer TRINITY proposes screen length of sufficient length to extend from the base of the aquifer to five feet above the water table. Total screen length will not exceed 60 feet. The monitoring well will be constructed as follows: • Four-inch, flush-threaded Schedule 80 PVC casing; • Screen will consist of 0.01-inch Schedule 80 slotted screen; • No sump will be used at the bottom of the well; • Centralizers will be installed at 40-foot intervals and at the top and bottom of the screened interval. Additional centralizers may be required based on the length of the screen/depth of the well; • Before the well screen and casings are placed at the bottom of the borehole, at least six-inches of filter material will be placed using a tremie pipe at the bottom to serve as a firm footing; • Using a tremie pipe, the annular space will be filled from the bottom of the borehole to a minimum of two-feet above the well screen with an appropriate filter pack (i.e. 10/20 silica sand); • The filter pack will be placed using a tremie pipe to avoid bridging and ensure a continuous filter pack throughout the screened interval of the well; • A bentonite chip or pellet seal will be installed to a thickness of 10 to 20 feet above the filter pack and hydrated every one-foot per manufacturer instructions to ensure a competent seal. The seal will be placed using a tremie pipe; • After allowing a minimum of four-hours for the bentonite seal to hydrate, a 20 percent high solids bentonite grout slurry will be tremied above the bentonite seal to within 10 feet of the ground surface; • After waiting at minimum of 24-hours for the bentonite grout to cure, a neat cement grout will be tremied into the annular space to the ground surface. The mixture will consist of 94 pounds of Portland cement to seven-gallons of water and 3 percent by weight of sodium bentonite powder; • PVC well casing will extend approximately 2.5 feet above the ground surface and will be protected by installing a lockable 8-inch diameter by 5-foot long protective steel casing to a height 6-inches above the well casing; • A 4-foot by 4-foot by 4-inch concrete pad will then be poured and sloped in such a way as to direct surface runoff from the casing. A weep hole will be drilled in the outer protective casing above the concrete surface; and • The steel outer casing and well pad will be protected by installing four 4-inch diameter by 5-foot long steel bollards around the well on the outside of the concrete pad. • The well will be tagged with a corrosion resistant identification stamp on the protective casing which identifies the well number, depth, date of installation, and the adjusted top of casing elevation. The well number will also be inscribed into the concrete pad. The well will also be clearly designated as a monitoring well.
Well Development	Monitoring well development will be performed within one week after installation but

	no sooner than 48 hours after grout installation. The following procedure will be followed for the development of the new background well: • Initial development will consist of swabbing, bailing, and/or pumping until little or no sediment enters the well; • Following initial development, the well will be continuously pumped using an electric submersible or pneumatic drive positive displacement or bladder pump; • Water level, temperature, pH, specific conductance (SC), turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) will be monitored during pumping, and readings will be taken, at minimum, after every well volume is purged. Pumping will continue until these parameters have stabilized (less than 0.2 pH units or a 10 percent change for the other parameters between four consecutive readings) and the water is clear and free of fines. The main goal of well development is to reduce the turbidity to less than 10 Nephelometric Turbidity Units (NTUs) (however, under 100 NTUs is acceptable); • If these parameters have not stabilized after four hours of continuous pumping, the well will be allowed to sit overnight and development will continue the following day for a maximum of two hours. If the turbidity still does not fall below 100 NTUs, the project manager will be contacted and further direction will be sought; and • If the well goes dry during development a minimum of three well volumes will be removed before development is terminated.
Hydraulic Testing and Groundwater Sampling	No hydraulic testing is currently planned or anticipated. Sampling will be conducted in general accordance with the data quality objectives (DQOs) presented in the approved Final Work Plan for Annual Groundwater Monitoring, Melrose Air Force Range, New Mexico (Tidewater, Inc., 2010) and the Ground Water Monitoring Project Work Plan (TRINITY 2011). In accordance with the approved Work Plan, the new background monitoring well will be sampled for VOCs, explosives, metals, chloride, sulfate, nitrate, nitrite, total dissolved solids, alkalinity, cyanide, perchlorate, and hexavalent chromium. TPH DRO will also be included for the initial sampling event.
Investigation Derived Waste and Waste Characterization	All IDW will be properly managed and disposed of in accordance with state and federal regulations. The types of potential IDW anticipated during drilling and installation of the multi-level monitoring wells include: • Cuttings – unsaturated and saturated soil or rock generated during the drilling and sampling process (cuttings or cores); • Groundwater produced during well development; • Contact waste including used sampling equipment, PPE, plastic sheeting, and other debris that has contacted soil or fluids; and • Decontamination fluids: i.e. water and soap solutions used to wash and decontaminate equipment. At the time that IDW is generated (i.e. removed from the ground, comes in contact, etc.), it will be managed in general accordance with 40 CFR Part 264.34. The accumulation start date for all IDW will be the date that the waste is generated. One or more less than 90-day waste management units will be established in the field within

the perimeter of the groundwater monitoring wells to manage IDW.

To perform a "no longer contained-in" determination for listed hazardous wastes, the analytical data generated from borehole composite grab sampling may be compared to the applicable 40 CFR Part 268.40 Treatment Standards and the New Mexico Environment Department (NMED) Soil Screening Levels (SSLs) to determine whether the material poses an unacceptable risk. If contaminant concentrations are found to not pose an unacceptable risk, then NMED may determine that the wastes can be managed as no-longer containing listed wastes. A separate letter from NMED would be required to document such a determination.

To evaluate the toxicity characteristic, the total concentration of each reported constituent may be divided by 20 to determine the maximum theoretical leachate concentration that could result from performing the Toxicity Characteristic Leaching Procedure (TCLP – EPA Method 1311). These concentrations will be compared to the values listed in 40 CFR Part 261.24 Subpart C (Table 1) to determine if the waste exhibits the characteristic of toxicity.

The primary type of IDW generated during drilling activities at Melrose AFR will be drill cuttings and development/purge water. Drill cuttings will be stockpiled on plastic sheeting, bermed, and covered pending analytical results. Aqueous IDW from well purging will be contained in 55-gallon drums pending laboratory analysis. Aqueous IDW from decontamination activities will be segregated from other aqueous IDW and contained in separate drums. Used personal protective equipment (PPE) and disposable sampling materials will be treated as solid waste and disposed of at the installation in a trash receptacle.

Any IDW soil or groundwater that does not meet the definition of a hazardous waste, and does not contain hazardous constituents at concentrations above industrial soil screening levels will be spread on the ground near the well installation. IDW debris that is determined to be non-hazardous waste will be disposed of as solid waste. Soil and groundwater samples sent to the analytical laboratories will be disposed of by the laboratories as environmental samples in accordance with each individual laboratory's procedure.

Schedule

Task	Start Date	Duration
Field Mobilization/Drilling • Drilling equipment mobilization • Well installation • 4 hour hydration time for bentonite seal • 24-hour hydration time for grout slurry • 48 hour standby before development	July 22, 2013	3-4 days
Well Development & Surface Completion	July 25, 2013	1 day
Field Demobilization	July 26, 2013	1 day
Submission of Completion Report	October 24, 2013	---

References

Foster Wheeler. (1996). Phase I RCRA Facility Investigation for Melrose Air Force Range, Cannon Air Force Base, Clovis, New Mexico.

Foster Wheeler. (2003). RCRA Facility Investigation Report Addendum For Melrose Bombing Range, Cannon Air Force Base, New Mexico.

Langman, J. G. (2004). Ground-water hydrology and water quality of the Southern

High Plains aquifer, Melrose Air Force Range, Cannon Air Force Base, Curry and Roosevelt Counties, New Mexico, 2002-03: U.S. Geological Survey Scientific Investigations Report 2004-5158. United States Geological Survey.

Tidewater, Inc. (2009). Response to Comments contained in the February 11, 2010 Notice of Disapproval to the Draft Work Plan, Groundwater Monitoring, Melrose Air Force Range, New Mexico, October 2009

Tidewater, Inc. (2010). Final Work Plan for Annual Groundwater Monitoring, Melrose Air Force Range, New Mexico.

Trinity Analysis & Development Corp. (2011). Ground Water Monitoring Project Work Plan.

Trinity Analysis & Development Corp. (2012). December 2011, Annual Groundwater Monitoring Report, Melrose Air Force Range, Roosevelt and Curry Counties, New Mexico.

URS. (2009). Final Report, Initial Baseline Groundwater Monitoring, Melrose Air Force Range, New Mexico.

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NMED Approval of the Abbreviated Work Plan

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NEW MEXICO ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

RYAN FLYNN
Cabinet Secretary-Designate

BUTCH TONGATE
Deputy Secretary

TOM BLAINE, P.E.
Director
Environmental Health Division

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 18, 2013

Colonel David C. Piech, Commander
27th Special Operations Mission Support Group
110 E. Sextant Avenue, Building 600, Suite 1098
Cannon Air Force Base, New Mexico 88103

RE: APPROVAL
ABBREVIATED DRILLING WORK PLAN
BACKGROUND MONITORING WELL MWQ-24
MELROSE AIR FORCE RANGE
ROOSEVELT AND CURRY COUNTIES, NEW MEXICO
EPA ID #NM7572124454

Dear Col. Piech:

The New Mexico Environment Department (NMED) has received the Melrose Air Force Range (Permittee) *Abbreviated Drilling Work Plan for the New Background Monitoring Well (MWQ-24) at the Melrose Air Force Range* (ADWP), dated May 2013 and received June 7, 2013. NMED has completed review of the ADWP and hereby approves the ADWP. As indicated in the ADWP, a well completion report for MWQ-24 must be submitted to NMED on or before **October 24, 2013**.

If you have any questions regarding this letter, please contact Daniel Comeau at (505) 476-6043.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
N. Dhawan, NMED HWB
D. Comeau, NMED HWB
L. King, EPA 6PD-N
R. Lancaster, CAFB
A. Lafuente, CAFB

File: MELR 2013; Acceptance; ADWP for MWQ-24

APPENDIX B

Field Data

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Base Civil Engineering Work Clearance Request (Dig Permit)

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BASE CIVIL ENGINEERING WORK CLEARANCE REQUEST

(See Instructions on Reverse)

DATE PREPARED (ddmmyyyy)

1. Clearance is requested to proceed with work at: Melrose Air Force range Lat 34° 14' 37.73" N & 103° 50' 30.43" W
On Work Order No _____ Contract No. W9128F-10-D0091 involving excavation or utility disturbance per attached sketch. This area: [ ] has [ ] has not been staked or clearly marked.

2. TYPE OF FACILITY/ WORK INVOLVED

	A. PAVEMENT		D. FIRE DETECTION & PROTECTION SYSTEM					G. AIRCRAFT OR VEHICULAR TRAFFIC FLOW
	B. DRAINAGE SYSTEM		E. UTILITY		OVERHEAD		UNDERGROUND	H. SECURITY
	C. RAILROAD TRACKS		F. COMM		OVERHEAD		UNDERGROUND	I. OTHER

3. DATE CLEARANCE REQUIRED

4. DATE OF CLEARANCE

5. SIGNATURE OF REQUESTING OFFICIAL

6. TELEPHONE NO.

7. ORGANIZATION

ORGANIZATION		REMARKS (Use Reverse for additional comments)	REVIEWER'S NAME & INITIALS
8. BASE OPERATIONS	Bldg 135	Contact 48 hrs prior to clearance requirement 575-784-2801 - Call for clearance	8 Aug 13 S.D. Stokes
9. MAINTENANCE OPERATIONS CENTER	Bldg 790	Contact 48 hrs prior to clearance requirement 575-784-2135	DM
10. SAFETY	Bldg 1	Contact 48 hrs prior to clearance requirement 575-784-2811	08 Aug 13
11. COMMUNICATIONS Possible Cable in Area	Bldg 10	Contact 48 hrs prior to clearance requirement 575-784-6622 - Call for clearance and utility location	TSgt Frank Royal 8-August-13
12. SCX Possible cable If found call	Bldg 10	Contact 48 hrs prior to clearance requirement 575-784-6103 - Call for clearance and utility location	TSgt Frank Royal 8-August-13
13. SECURITY FORCES	Bldg 575	Contact 48 hrs prior to clearance requirement 575-784-4111	RF SSR 8 AUG 2013
14. FIRE PROTECTION	Bldg 158	Contact 48 hrs prior to clearance requirement 575-784-2578 - Call for clearance and utility location	8 Aug 13
15. COMMERCIAL UTILITY COMPANIES		New Mexico 811 Contact 48 hrs prior to clearance requirement 1- 800 -321-2537 - Note date & request number.	Date 08-07-2013 Request # 20133221124
X	TELEPHONE		
X	CABLE		
16. BASE CIVIL ENGINEERING, Bldg 355	A. ELECTRICAL DISTRIBUTION	Contact 48 hrs prior to clearance requirement 575-784-4371 - Call for clearance and utility location	CALL FOR SPOT HZ
	B. GAS DISTRIBUTION	Contact 48 hrs prior to clearance requirement 575-693-2565 - Call for clearance and utility location	
	C. WATER DISTRIBUTION	Contact 48 hrs prior to clearance requirement 575-693-2565 - Call for clearance and utility location	
	D. SEWER DISTRIBUTION	Contact 48 hrs prior to clearance requirement 575-693-2565 - Call for clearance and utility location	Grubbs
	E. IRRIGATION SYSTEMS	HAND DIG ONLY (Unless waived by CEO) CEO Approved _____	
	F. POL DISTRIBUTION	Contact 48 hrs prior to clearance requirement 575-784-6742 - Call for clearance and utility location	clear
	G. ENVIRONMENTAL	Call 575-784-1099 in the event environmental problems are encountered during excavation	OK John Kebman 8 Aug 13
	H. PAVEMENTS / GROUNDS	Contact 48 hrs prior to clearance requirement 575-784-4383 - Call for clearance and utility location	NA HZ
	I. EMCS / HVAC	Contact 48 hrs prior to clearance requirement 575-784-1195 - Call for clearance and utility location	NA HZ
	J. GEOBASE OFFICE	Contact 48 hrs prior to clearance requirement 575-784-1610 - Call to update maps or utility tabs	
17. OTHER (Specify)			

18. REQUESTED CLEARANCE [X] APPROVED [ ] DISAPPROVED

19. TYPED NAME AND SIGNATURE OF APPROVING OFFICIAL (Chief of Operations Flight or CEO Designee) Harry Catewski

18a. DATE SIGNED (ddmmyy) 08082013

INSTRUCTIONS

The BCE work clearance request is used for any work (contract or in-house) that may disrupt aircraft or vehicular flow, base utility services, protection provided by fire and intrusion alarm system, or routine activities of the installation. This form is used to coordinate the required work with key base activities and keep customer inconvenience to a minimum. It is also used to identify potentially hazardous work conditions in an attempt to prevent accidents. The work clearance request is processed just prior to the start of work. If delays are encountered and the conditions at the job site change (or may have changed) this work clearance request must be re-processed.

19. Remarks. (*This section describes specific precautionary measures to be taken before and during work accomplishment. Specific comments concerning the approved method of excavation, hand or powered equipment should be listed)*

Equipment being used: _____

_____

1. Contractor will not proceed with any work until clearance has been coordinated as indicated by remarks that have been provided.

2. Any drawings provided indicate the APPROXIMATE location of the work area.

3. Contractor shall contact and give notice to all listed organizations by calling the phone numbers as listed in the remarks section next to each organization.

   a. It is very important all clearance requests are made and understood by the contractor. The contractor shall log all calls and activities made to each organization as listed on the AF 103. The log information will be placed on page 3 of the AF 103. Each entry will be kept in a numbered, sequential order by date and organization. Note: If additional pages are required for the clearance log, record is to be attached to the original AF103.

   b. If clearance is not required in the location of this request, the contractor will note the reviewer's name and date/time the organization was contacted and indicate "No Action Required".

   c. If clearance is required by the organization, the contractor will coordinate a site meeting with the reviewer(s) representing that organization. The reviewer will physically spot the clearance issue and/or mark the location. The contractor will then have the reviewer fill in his name and initials in the Reviewers Name and Initials column on page 1 for that organization. The contractor will also log on page 3 of the AF103, the meeting, date/time, person(s) name, and action taken.

4. As-builts for irrigation systems are not available. The contractor will ensure restoration of landscaping and repair of irrigation systems are completed, at no cost to the government, during the course of work.

5. In the event any unknown or unidentified items are discovered during demolition or construction, work shall cease immediately and 27 SOCES/CEAN shall be notified. Contact the Restoration Program at 575-784-1095.

6. Notify Bioenvironmental Engineering Flight (Bldg 1400; 575-784-4063) at least 3 working days in advance if any type of maintenance/repair/modification is being performed on water mains, pipes and service lines to include emergency repairs; especially if water is being shut off to buildings/facilities in order to complete these repairs.

7. Notify the New Mexico Environment Department of potable water line work associated with this project IAW New Mexico Administrative Code 20.7.10., Drinking Water, Para. 200B. Notification must be made on the form entitled "Application for the Construction or Modification of a Public Water Supply System." Contact the Water Quality Program Manager, 27 SOCES/CEAN, at 575-784-1099 for questions.

8. The contractor will notify the Contracting Officer Representative (COR) or Project Manager (Box 5) if there are any questions or concerns to ensure proper coordination of this Work Clearance Request.

9. The contractor or his agent will maintain this clearance request on the site and make it available for review by any Government representative upon request.

10. Notify Fire Department Control Center @ 575-784-2578 if any utilities are damaged after normal work hours.

Contractor Representative (Print Name) _____ Telephone No. _____

Signature_____ Date_____
(NOTE: Work cannot begin until signed by Contractor Representative)

Project Manager/COR (Print Name) _____ Telephone No. _____

Action Log

Base Utility	Locater	Action Taken	Contractor	Date/Time
Electrical Distribution				
EMCS / Alarms / HVAC				
Gas Distribution				
Water Distribution				
Sewer Distribution				
Irrigation / Landscaping				
Comm / Americom				
GEO Base				

New Mexico 811	Locater	Action Taken	Contractor	Date/Time
SuddenLink				
CenturyLink				
Plateau				

Organization	Name	Action Taken	Contractor	Date/Time
1.				
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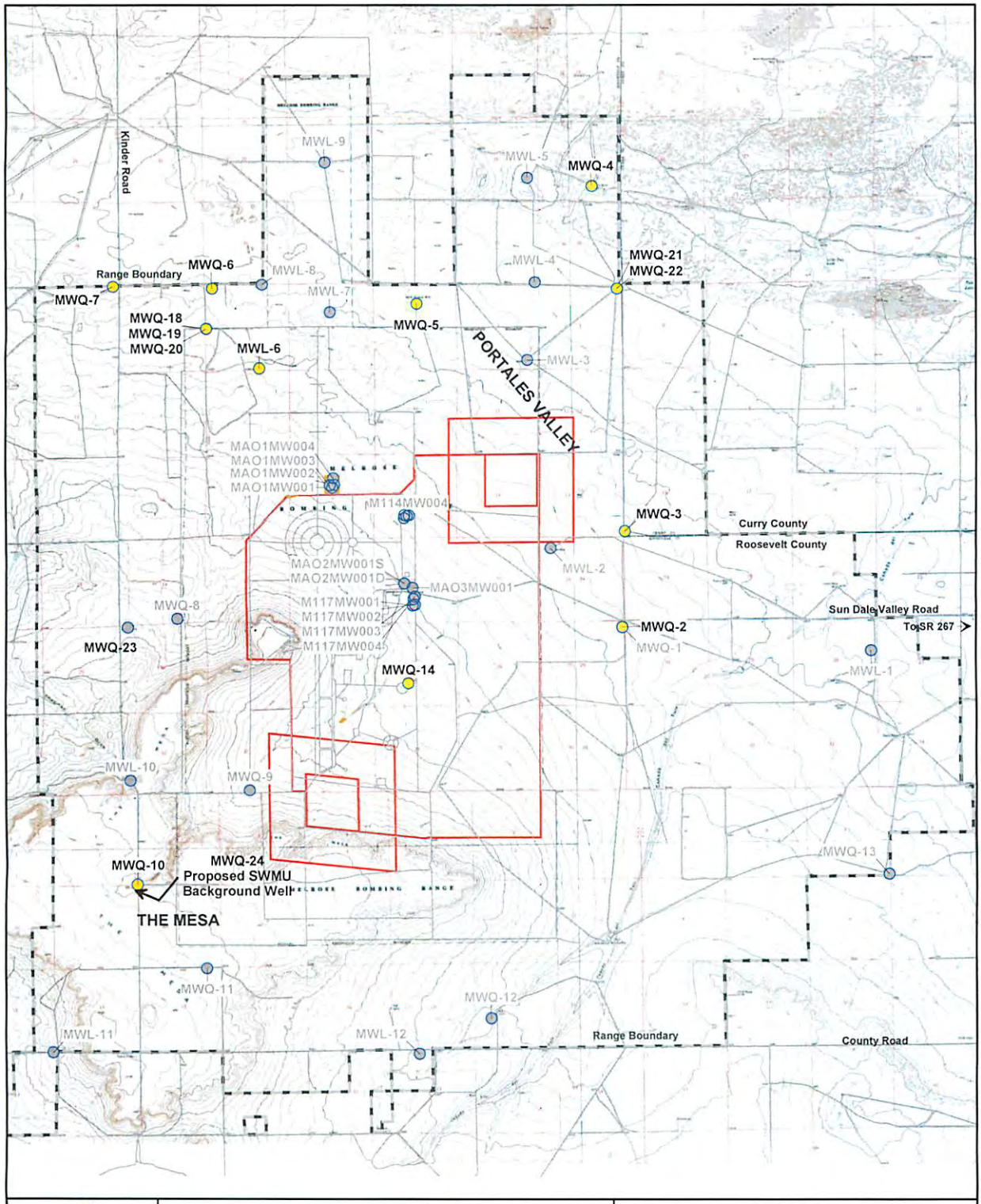

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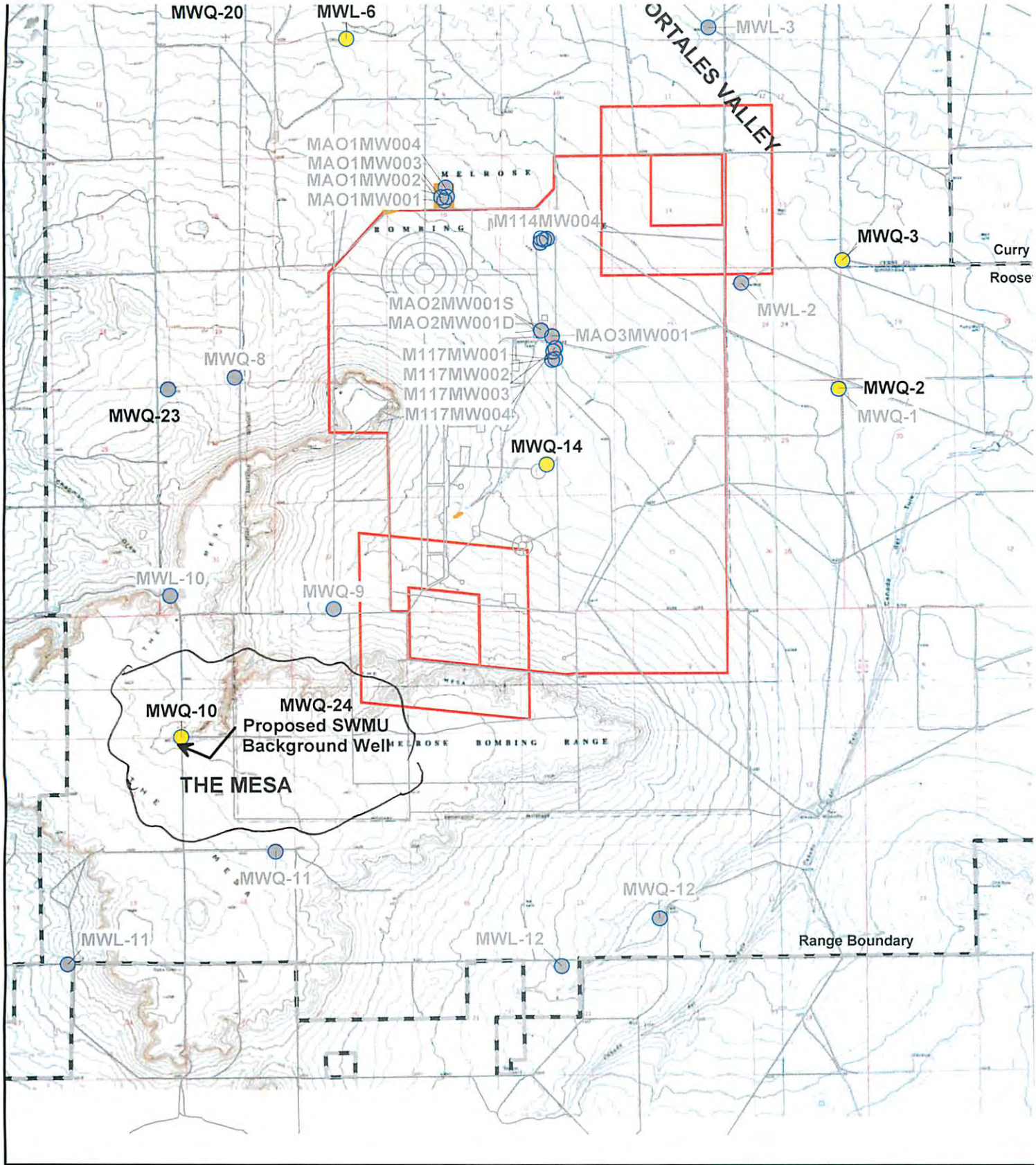
Data files from GeoBase/CAFB

USGS Topographic map from TerraServer

- Water level only or scheduled for abandonment
- Monitoring Well
- Solid Waste Management Unit
- Impact Area
- Range Boundary
- Road

FIGURE 1
GROUND WATER MONITORING WELL NETWORK LOCATIONS
Melrose Air Force Range
Roosevelt and Curry Counties, New Mexico

Trinity Analysis and Development Corp.



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Data files from GeoBase/CAFB

USGS Topographic map from TerraServer

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Solid Waste Management Unit
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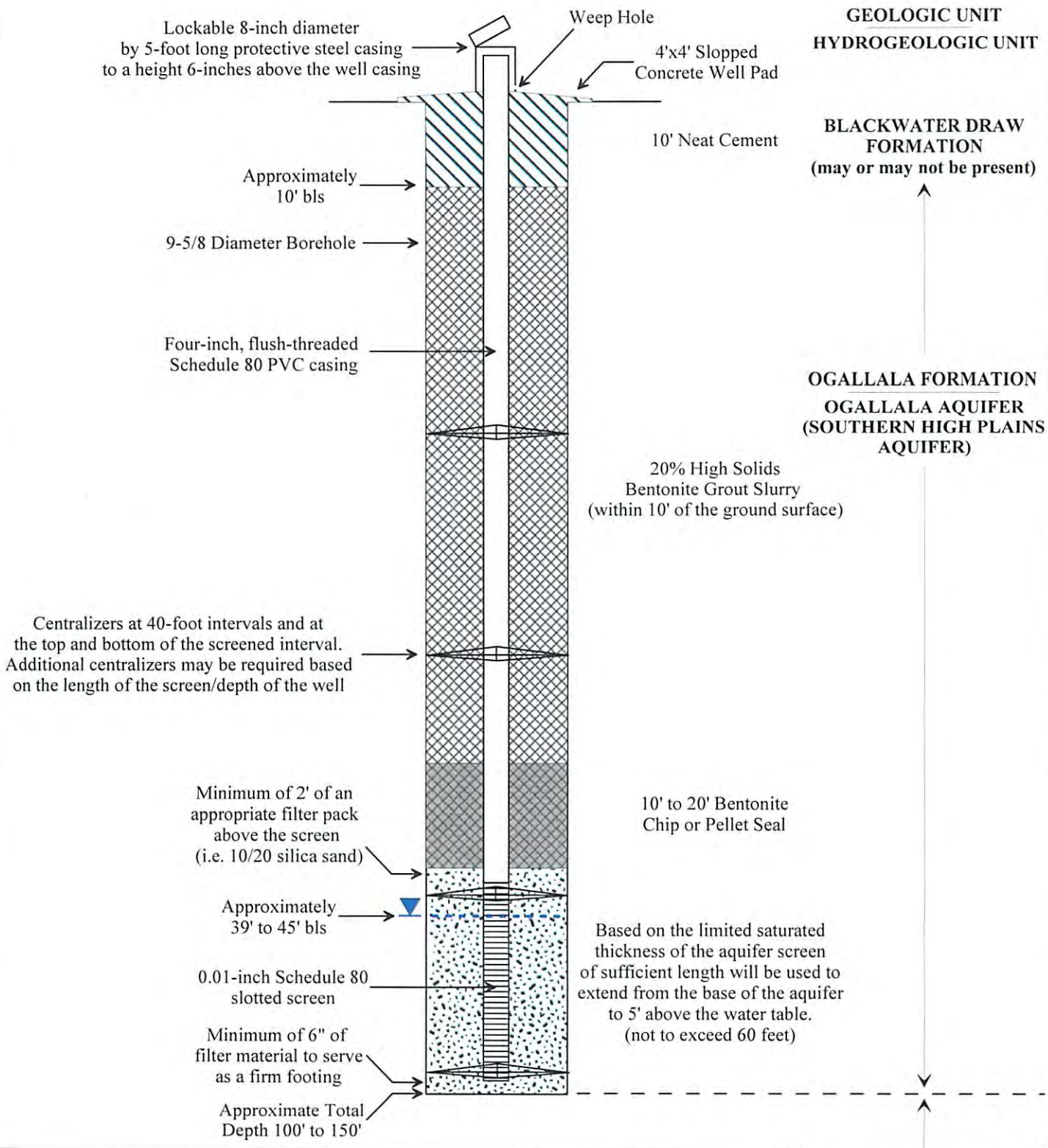
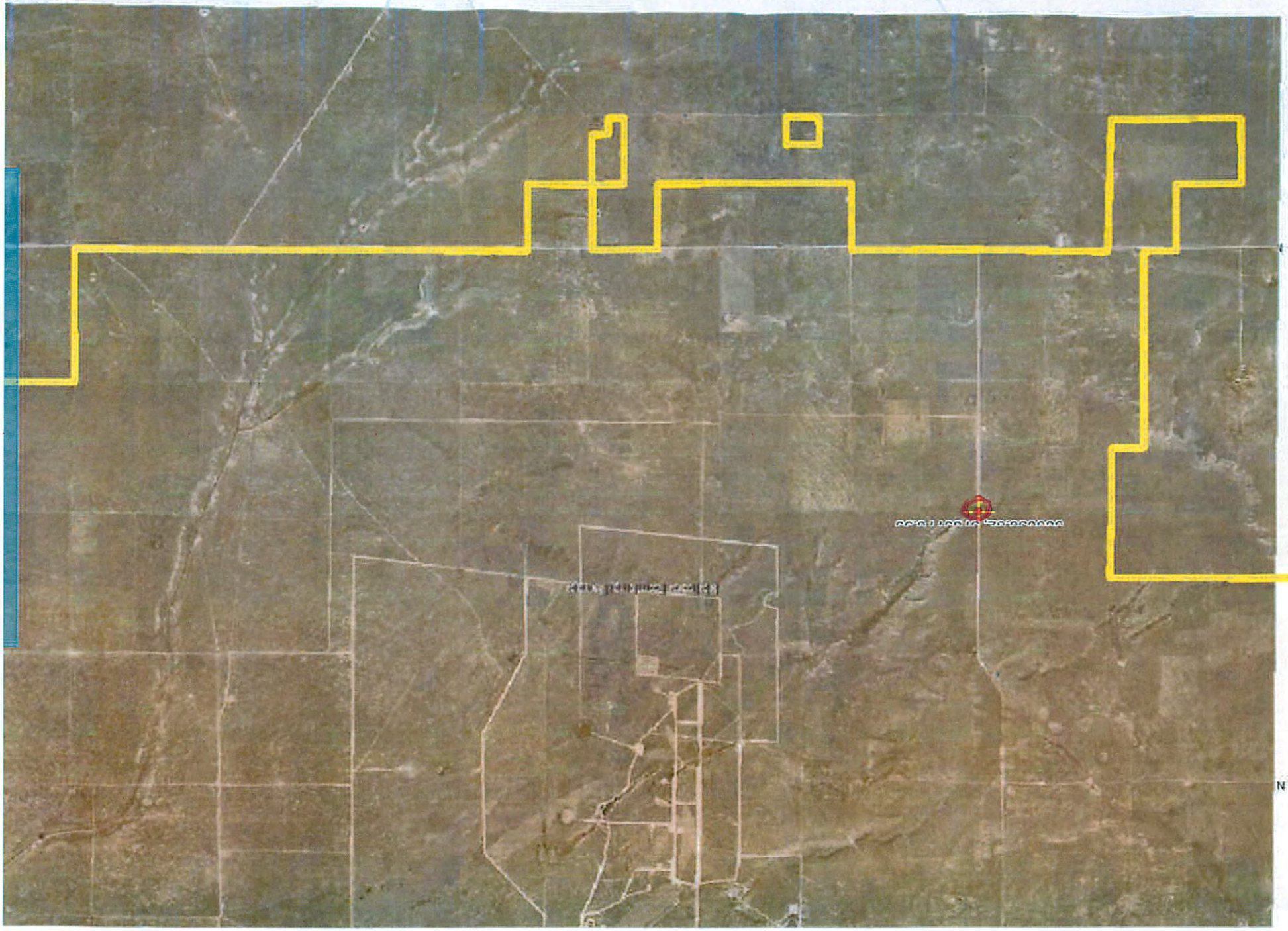


FIGURE 2
GENERAL WELL CONSTRUCTION DIAGRAM
Melrose Air Force Range
Roosevelt and Curry Counties, New Mexico



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NM-OSE Well Construction Permit

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Scott A. Verhines, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 526798
File Nbr: FS-1593 MONITOR

Apr. 26, 2013

CANNON AIR FORCE BASE
ANITA LAFUENTE
506 N DL INGRAM BLVD, BLDG 355
CLOVIS, NM 88103

Greetings:

Enclosed is your copy of the above numbered permit that has been approved subject to the conditions set forth on the approval page. In accordance with the conditions of approval, the well can only be tested for 10 cumulative days, and the well is to be plugged on or before 04/30/2014, unless a permit to use the water is acquired from this office.

A Well Record & Log (OSE Form wr-20) shall be filed in this office within twenty (20) days after completion of drilling, but no later than 04/30/2014.

Appropriate forms can be downloaded from the OSE website www.ose.state.nm.us or will be mailed upon request.

Sincerely,

M Barajas

Mike Barajas
(575)622-6521

File No.

NEW MEXICO OFFICE OF THE STATE ENGINEER

APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER

(check applicable box):

For fees, see State Engineer website: http://www.ose.state.nm.us/ 2.32933

Purpose:	☐ Pollution Control And / Or Recovery	☐ Geo-Thermal
☐ Exploratory	☐ Construction Site De-Watering	☐ Other (Describe):
☒ Monitoring	☐ Mineral De-Watering	

A separate permit will be required to apply water to beneficial use.

☐ Temporary Request - Requested Start Date: Requested End Date:

Plugging Plan of Operations Submitted? ☐ Yes ☐ No

1. APPLICANT(S)

Name: **Jonathan Kramer**	Name: **Ron Lancaster**
Contact or Agent: check here if Agent ☒ **Trinity Analysis & Development Corp.**	Contact or Agent: check here if Agent ☐ **Chief, Asset Management Flight, 27th SOCES, Cannon AFB**
Mailing Address: **1002 N. Eglin Parkway**	Mailing Address: **506 N. DL Ingram Blvd. Building 355**
City: **Shalimar**	City: **Cannon Air Force Base**
State: **FL** Zip Code: **32579**	State: **NM** Zip Code: **88103**
Phone: **850-803-0009** ☐ Home ☒ Cell Phone (Work): **850-613-6800 ext.109**	Phone: ☐ Home ☐ Cell Phone (Work): **575-784-2736**
E-mail (optional): **jkramer@trinityadc.com**	E-mail (optional):

FOR OSE INTERNAL USE

Application for Permit, Form wr-07, Rev 4/12/12

File Number: FS-1593	Trn Number: 526798
Trans Description (optional): Monitor	
Sub-Basin:	
PCW/LOG Due Date: 4-30-14	

SHIPPING CONTAINER TALLY → 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT

Form Approved
OMB No. 0704-0246
Expires Jan 31, 2003

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0246), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. FROM *(Include ZIP Code)*
27 SOCES/CEAN
506 N Air Commando Way
Cannon AFB, NM 88103

SHEET NO	NO. OF SHEETS	5. REQUISITION DATE	6. REQUISITION NUMBER
1	1	20130418	6671003108X501XXX

7. DATE MATERIAL REQUIRED *(YYYYMMDD)*: 20130419

8. PRIORITY: TP-1

2. TO *(Include ZIP Code)*
SHIP TO:
NM Office of State Engineer
1900 West Second Street
Roswell, NM 88201-1712

9. AUTHORITY OR PURPOSE: PERMIT APPLICATION TO DRILL A NEW WELL @MAFR

10. SIGNATURE: A Lafuente

11a. VOUCHER NUMBER & DATE *(YYYYMMDD)*: MS ANITA LAFUENTE 20130418

3. SHIP TO - MARK FOR
OFFICE OF STATE ENGINEER
575-622-6521

12. DATE SHIPPED *(YYYYMMDD)*:

b. 27 SOCES/CEAN 575-784-6391

13. MODE OF SHIPMENT:

14. BILL OF LADING NUMBER:

15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO.:

4. APPROPRIATIONS DATA

57 3 3400 30 3 30 B1 01 342461 46200 28542F 667100 F1L3LM2267NP01 ✓

AMOUNT:

ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION AND CODING OF MATERIAL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CON-TAINER (f)	CON-TAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
1.	NNSN PERMIT APPLICATION TO DRILL A NEW WELL @MAFR This shipment does not contain any classified, sensitive, protective or hazardous materiel. ✓	EA	1		EN		N/A	N/A

15-1583
520788

18. RECAPITULATION OF SHIPMENT

ISSUED BY	TOTAL CON-TAINERS	TYPE CON-TAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE
✓					
CHECKED BY 3108/1140					
PACKED BY					

TCN_____

	DD FORM 1149, REQUISITION AND INVOICE/SHIPMENT DOCUMENT, CHECKLIST				
NO	ITEM	Yes	No	N/A	TM Use Only
1	Does a valid national stock number, part number and nomenclature exist for the item? Note: If yes, verify the material is not on accountable/custodial records requiring update prior to shipment (i.e. the Standard Base Supply System, COMSEC Material Control System, etc)		✓		
*/** 2	Is this item classified, COMSEC, serialized controlled and/or nuclear weapon-related materiel? Note: These items are managed on custodial accounts. Contact the LRS Customer Support Section or your wing COMSEC program manager prior to transfer, deployment, or shipment. The COMSEC program manager approval is required only for COMSEC items not on LRS database records.		✓		
*3	Has the initiator queried the supply database or federal logistics record (FEDLOG) to confirm the item is NOT accountable equipment? If the expendability recoverability reparability cost designator (ERRCD) is ND*, NF*, or XD* (SPRAM), contact the LRS Customer Service Section for guidance. Temporary loan of in-use equipment (e.g., lateral support to restore lost maintenance repair capability) between units may be allowed with written approval from the Command Equipment Management Office and applicable MAJCOM Functional Area Managers. (DD Form 1149 must NOT be used to transfer/ship accountable equipment, as it bypasses supply accountability).			✓	
4	Is this item a small arms/weapons asset? These items are managed on LRS custodial accounts and must be shipped or transferred via the Standard Base Supply System (SBSS) database. Contact the LRS Equipment Liaison Office for shipping guidance.		✓		
*5	Is the ERRCD an XD* or XF* due-in from maintenance (DIFM) items. If yes, contact the LRS Flight Service Center to determine the correct method of shipment.			✓	
6	Has DD Form 1149, Requisition and Invoice/Shipping Document been completed online https://www.afmc-mil.wpafb.af.mil/HQ-AFMC/LG/LSO/lol/ and in accordance with AFI 24-203 Attachment 2, to include a complete description of items being shipped? (Annotate assigned TCN to checklist).	✓			
7	Does the proposed shipment contain Test, Measurement, and Diagnostic Equipment (TMDE)-related assets? Note: TMDE is required to be shipped using DD Form 1149 IAW AFI 21-101, TO 00-20-14 and other applicable publications.		✓		
8	For classified and sensitive items, has DD Form 1149 been marked CCI, CLASSIFIED, or SENSITIVE, followed by the applicable Controlled Item Identification Codes (CIIC) under the block 4 (b), *Federal Stock Number, Description, and Coding of Materiel and/or Services*?			✓	
9	Are all hazardous material shipments clearly documented on DD Form 1149 to reflect the proper shipping name?			✓	
10	For all other shipments, has DD Form 1149 been annotated with the following statement? "I certify this shipment does not contain any classified, sensitive, protective or hazardous material."	✓			
11	Is the accountable person who authorized shipment and signed in block 10 of DD Form 1149 authorized on letter by the squadron commander?	✓			

The following agencies are only required to sign if applicable, denoted by the *

Print Initiator Name/Sign/Phone Number/Date: A LaFuente aLafuente 784-6391

***LRS Customer Spt Rep Name/Sign/Phone Number/Date:** _____

****Base COMSEC Mgr Name/Sign/Phone Number/Date:** _____

FS-1593
526798

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory: ☐ Include a description of any proposed pump test, if applicable.	**Pollution Control and/or Recovery:** ☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for the pollution control or recovery operation. ☐ The estimated maximum period of time for completion of the operation. ☐ The annual diversion amount. ☐ The annual consumptive use amount. ☐ The maximum amount of water to be diverted and injected for the duration of the operation. ☐ The method and place of discharge.	**Construction De-Watering:** ☐ Include a description of the proposed dewatering operation, ☐ The estimated duration of the operation, ☐ The maximum amount of water to be diverted, ☐ A description of the need for the dewatering operation, and, ☐ A description of how the diverted water will be disposed of.	**Mine De-Watering:** ☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for mine dewatering. ☐ The estimated maximum period of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐The geohydrologic characteristics of the aquifer(s). ☐The maximum amount of water to be diverted per annum. ☐The maximum amount of water to be diverted for the duration of the operation. ☐The quality of the water. ☐The method of measurement of water diverted. ☐The recharge of water to the aquifer. ☐Description of the estimated area of hydrologic effect of the project. ☐The method and place of discharge. ☐An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. ☐A description of the methods employed to estimate effects on surface water rights and underground water rights. ☐Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.
Monitoring: ☒ Include the reason for the monitoring well, and, ☒ The duration of the planned monitoring.	☐ The method of measurement of water produced and discharged. ☐ The source of water to be injected. ☐ The method of measurement of water injected. ☐ The characteristics of the aquifer. ☐ The method of determining the resulting annual consumptive use of water and depletion from any related stream system. ☐ Proof of any permit required from the New Mexico Environment Department. ☐ An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	**Geo-Thermal:** ☐ Include a description of the geothermal heat exchange project, ☐ The amount of water to be diverted and re-injected for the project, ☐ The time frame for constructing the geothermal heat exchange project, and, ☐ The duration of the project. ☐ Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	

ACKNOWLEDGEMENT

I, We (name of applicant(s)), JONATHAN KRAMER
Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

4-16-2013 — Applicant Signature

4/16/13 — Applicant Signature

ACTION OF THE STATE ENGINEER

This application is:

☒ approved ☐ partially approved ☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 26th day of April 20 13, for the State Engineer,

Scott A Verhines, P.E., State Engineer

By: M Barajas
Signature — Print

Title: Mike Barajas, Curry County Basin Supervisor
Print

FOR OSE INTERNAL USE

Application for Permit, Form wr-07

File Number: FS-1593	Trn Number: 526798

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL

1A Depth of the well shall not exceed the thickness of the valley fill.

4 No water shall be appropriated and beneficially used under this permit.

7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.

B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with Section 72-12-12 New Mexico Statutes Annotated.

C Driller's well record must be filed with the State Engineer within 20 days after the well is drilled or driven. Well record forms will be provided by the State Engineer upon request.

P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between geologic zones.

LOG The Point of Diversion FS 01593 POD1 must be completed and the Well Log filed on or before 04/30/2014.

Should the permittee change the purpose of use to other than monitoring purposes, an application shall be acquired from the OSE.

Locator Tool Report

General Information:

Application ID:29 Date: 04-24-2013 Time: 10:49:06

WR File Number: FS
Purpose: OTHER

Applicant First Name: CANNON AFB
Applicant Last Name: MONITOR WELL, MELROSE BOMBING RANGE

GW Basin: FORT SUMNER
County: ROOSEVELT

Critical Management Area Name(s): NONE
Special Condition Area Name(s): NONE
Land Grant Name: NON GRANT

PLSS Description (New Mexico Principal Meridian):

SE 1/4 of SE 1/4 of SE 1/4 of SE 1/4 of Section 01, Township 01S, Range 29E.

Coordinate System Details:

Geographic Coordinates:

Latitude:	34 Degrees	14 Minutes	37.7 Seconds	N
Longitude:	103 Degrees	50 Minutes	30.4 Seconds	W

Universal Transverse Mercator Zone: 13N

NAD 1983(92) (Meters)	N: 3,789,797	E: 606,655
NAD 1983(92) (Survey Feet)	N: 12,433,692	E: 1,990,333
NAD 1927 (Meters)	N: 3,789,594	E: 606,705
NAD 1927 (Survey Feet)	N: 12,433,025	E: 1,990,498

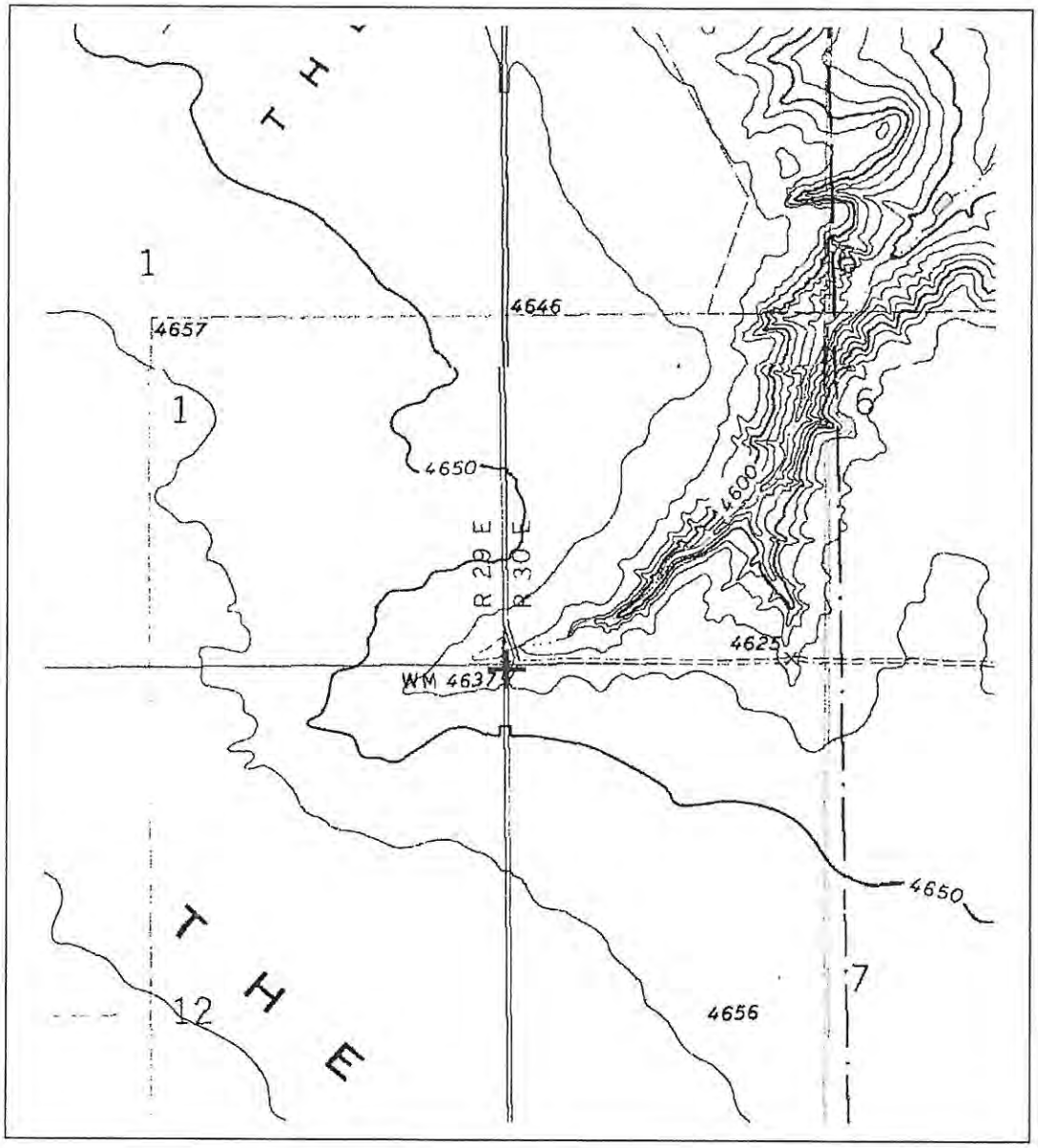
State Plane Coordinate System Zone: New Mexico East

NAD 1983(92) (Meters)	N: 359,809	E: 210,277
NAD 1983(92) (Survey Feet)	N: 1,180,472	E: 689,885
NAD 1927 (Meters)	N: 359,789	E: 197,727
NAD 1927 (Survey Feet)	N: 1,180,408	E: 648,708

FS-1593
526788

NEW MEXICO OFFICE OF STATE ENGINEER

Locator Tool Report



WR File Number: FS Scale: 1:16,484

Northing/Easting: UTM83(92) (Meter): N: 3,789,797 E: 606,655

Northing/Easting: SPCS83(92) (Feet): N: 1,180,472 E: 689,885

GW Basin: Fort Sumner

FS-1593
526798

Print Date: 04/24/2013

OFFICE OF THE STATE ENGINEER/INTERSTATE STREAM COMMISSION – ROSWELL OFFICE

OFFICIAL RECEIPT NUMBER: 2- 32933 DATE: 4.19.2013 FILE NO.: _____

TOTAL: $5 .00 RECEIVED: Fine DOLLARS CHECK NO.: 3487 CASH: —

PAYOR: Trinity Analytical ADDRESS: 1002 N. Eddy Pkwy CITY: Shalimar STATE: FL

ZIP: 32579 RECEIVED BY: _____

INSTRUCTIONS: Indicate the number of actions to the left of the appropriate type of filing. Complete the receipt information. **Original** to payor; **pink** copy to Program Support/ASD; **yellow** copy remains in district office, and **goldenrod** copy to accompany application being filed. If you make an error, void original and all copies and submit to Program Support/ASD along with other valid receipts.

A. Ground Water Rights Filing Fees

___	1.	Declaration of Water Right	$ 1.00
___	2.	Application to Appropriate or Supplement Domestic 72-12-1 Well	$125.00
___	3.	Application for Stock Well	$ 5.00
___	4.	Application to Repair or Deepen 72-12-1 Well	$ 75.00
___	5.	Application for Replacement 72-12-1 Well	$ 75.00
___	6.	Application to Change Purpose of Use 72-12-1 Well	$ 75.00
___	7.	Application to Appropriate Irrig., Mun., or Comm. Use	$ 25.00
___	8.	Application for Supplemental Non 72-12-1 Well	$ 25.00
___	9.	Application to Change Location of Non 72-12-1 Well	$ 25.00
___	10.	Application to Change Place or Purpose of Use Non 72-12-1 Well	$ 25.00
___	11.	Application to Change Location of Well and Place and/or Purpose of Use	$ 50.00
___	12.	Application for Extension of Time	$ 25.00
___	13.	Proof of Application to Beneficial Use	$ 25.00
___	14.	Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Ground Water	$ 50.00
1	15.	Application for Test, Expl. Observ. Well	$ 5.00
___	16.	Change of Ownership of Water Right	$ 2.00
___	17.	Application to Repair or Deepen Non 72-12-1 Well	$ 5.00

B. Surface Water Rights Filing Fees

___	1.	Declaration of Water Right	$ 10.00
___	2.	Amended Declaration	$ 25.00
___	3.	Declaration of Livestock Water Impoundment	$ 10.00
___	4.	Application for Livestock Water Impoundment	$ 10.00
___	5.	Application to Appropriate	$ 25.00
___	6.	Notice of Intent to Appropriate	$ 25.00
___	7.	Application to Change Point of Diversion	$100.00
___	8.	Application to Change Place and/or Purpose of Use	$100.00
___	9.	Application to Change Point of Diversion and Place and/or Purpose of Use	$200.00
___	10.	Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Surface Water	$200.00
___	11.	Application for Extension of Time	$ 50.00
___	12.	Supplemental Well to a Surface Right	$100.00
___	13.	Return Flow Credit	$100.00
___	14.	Proof of Completion of Works	$ 25.00
___	15.	Proof of Application of Water to Beneficial Use	$ 25.00
___	16.	Water Development Plan	$100.00
___	17.	Change of Ownership of Water Right	$ 5.00

C. Miscellaneous Fees

___	1.	Application for Well Driller's License	$50.00
___	2.	Application for Renewal of Well Driller's License	$50.00
___	3.	Application to Amend Well Driller's License	$50.00

D. Reproduction of Documents

_____ @ 0.25¢/copy $_____

_____ Map(s) $_____

E. Certification $_____

E. Other $_____

G. Comments:

Fine ups

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NM-OSE Well Completion Report

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WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S): FS-1593
WELL OWNER NAME(S): USACE Omaha Cannon AFB	PHONE (OPTIONAL): (575) 784-2736
WELL OWNER MAILING ADDRESS: 506 N. DL Ingram Blvd. Bldg 355	CITY: Cannon AFB STATE: NM ZIP: 88103

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	34	14	37.73	N
LONGITUDE	103	50	30.43	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND

* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1458	Richard Le Blanc	Yellow Jacket Drilling

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
8/12/13	8/15/13	63.12'	105'	63'

COMPLETED WELL IS: (X) ARTESIAN ( ) DRY HOLE ( ) SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT):

DRILLING FLUID: (X) AIR ( ) MUD ADDITIVES – SPECIFY:

DRILLING METHOD: (X) ROTARY ( ) HAMMER ( ) CABLE TOOL ( ) OTHER – SPECIFY:

DEPTH (feet bgl) FROM	TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	42	9 5/8	4" Sch80 PVC	Flush Thread	3.786	.337	
42	62	9 5/8	4" Sch80 PVC	Flush Thread	3.786	.337	.010"

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	18	9 5/8	Cement		Gravity
18	38	9 5/8	Bentonite Pellets	1.85	Gravity
38	69	9 5/8	10x20 Sand	2.79	Gravity
69	105	9 5/8	Hole Plug	3.24	Gravity

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
				◯ Y ◯ N	
				◯ Y ◯ N	
			* SEE ATTACHED *	◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	
				◯ Y ◯ N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: ◯ PUMP ◯ AIR LIFT ◯ BAILER ◯ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm):

5. TEST; RIG SUPERVISION

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:
John Chaves
Joseph Cloyd + Ivan Martinez

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

R. LeBlanc — Richard LeBlanc — 9/9/13

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 2 OF 2

Daily Drill Report

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DAILY DRILL REPORT

YELLOW JACKET DRILLING SERVICES

CLIENT: Trinity

DRILLING LOCATION: Melrose Air Force Range

YJD JOB NO:

PAGE 1 OF 1

DATE: 8-12-13 mon

RIG #: 119

FROM	TO	DESCRIPTION OF ACTIVITIES
8:00	10:00	~~Wait~~ Drive to Meeting spot & wait for escort, get water & go Thru security
10:00	1:00	Set up
1:00	5:30	Drive bushing is not Big enough for 9 5/8 grind on it & Drive heads Take to Machine shop

HOLE #				
FOOTAGE DRILLED FROM				
FOOTAGE DRILLED TO				
SAMPLES TAKEN THIS DATE				
SURFACE CONDITION (CIRCLE ONE)		DIRT ASPHALT CONCRETE	DIRT ASPHALT CONCRETE	DIRT ASPHALT CONCRETE
CEMENT GROUT	FROM			
	TO			
BENT. GROUT	FROM			
	TO			
BENT. SEAL	FROM			
	TO			
SAND PACK	FROM			
	TO			
BLANK CASING	FROM			
	TO			
SCREEN	FROM			
	TO			
SUMP	FROM			
	TO			
GPS COORDINATES	LAT.			
	LONG.			
	ELEV.			
FORMATION	FROM TO			
	FROM TO			
	FROM TO			
	FROM TO			

QTY	CONSTRUCTION SUPPLIES
	____" X ____' Steel Well Prot.
	____" x ____' Steel Guard Posts
	Flush Traffic Vault: Size ____
	Bags: Asphalt
	Bags: Concrete Mix
	Bags: Quickcrete
	Bags: Portland Type II Cement
	Bags: Bentonite Grout
	Bags: Bentonite Chips-Size ____
	Pails: Bentonite Pellets-Size ____
	Bags: Sand-Grade ____
	Bags: Sand-Grade ____
	____" x 5' Casing: PVC/SS ____
	____" x 10' Casing: PVC/SS ____
	____" x 5' Screen-Slot Size: ____
	____" x 10' Screen-Slot Size: ____
	Bottom Caps
	Slip Cap - Size ____
	J. Plug - Size ____
	Bags: Bentonite Gel Powder
	55 Gal. Drums - 17H Rated
	____" ____ Sample Liners
	Visqueen Tarps 6 mil.
	Sono Tube

EQUIPMENT	DESCRIPTION	UNIT NO.
	DRILL RIG:	
	PIPE TRUCK:	
	CREW TRUCK:	
	STEAM CLEANER	
	COMPRESSOR:	
	BOBCAT/FORKLIFT:	
	BACKHOE:	

PERSONNEL EMPLOYED	EMPLOYEE'S NAME	HOURS	PER DIEM	INITIALS
DRILLER:	John Chawd	11	YES OR NO	J/C
HELPER:	T. Cloyd	8	YES OR NO	J/C
HELPER:	T. Martenez	8	YES OR NO	TM
HELPER:			YES OR NO	

CLIENT APPROVAL:

DAILY DRILL REPORT

YELLOW JACKET DRILLING SERVICES

CLIENT: Trinity

DRILLING LOCATION: Melrose Air Force Range

YJD JOB NO: 13-0801 NM

PAGE 1 OF 1

DATE: 8-13-13 Tues

RIG #: 119

FROM	TO	DESCRIPTION OF ACTIVITIES
7:00	7:30	Meet w/ 2M
7:30	8:30	get escorted to site
8:30	9:15	Warm equip, H&S, Prep to Drill
9:15	11:15	Drill 9 5/8 Ø-62'
11:15	3:30	Wait on Water level
3:30	5:30	get supplies

HOLE #				
FOOTAGE DRILLED FROM		Ø		
FOOTAGE DRILLED TO		62'		
SAMPLES TAKEN THIS DATE				
SURFACE CONDITION (CIRCLE ONE)		(DIRT) ASPHALT CONCRETE	DIRT ASPHALT CONCRETE	DIRT ASPHALT CONCRETE
CEMENT GROUT	FROM			
	TO			
BENT. GROUT	FROM			
	TO			
BENT. SEAL	FROM			
	TO			
SAND PACK	FROM			
	TO			
BLANK CASING	FROM			
	TO			
SCREEN	FROM			
	TO			
SUMP	FROM			
	TO			
GPS COORDINATES	LAT.			
	LONG.			
	ELEV.			
FORMATION	FROM TO			
	FROM TO			
	FROM TO			
	FROM TO			

QTY	CONSTRUCTION SUPPLIES
	____" X ____' Steel Well Prot.
	____" x ____' Steel Guard Posts
	Flush Traffic Vault: Size ____
	Bags: Asphalt
	Bags: Concrete Mix
	Bags: Quickcrete
	Bags: Portland Type II Cement
	Bags: Bentonite Grout
	Bags: Bentonite Chips-Size ____
	Pails: Bentonite Pellets-Size ____
	Bags: Sand-Grade ____
	Bags: Sand-Grade ____
	____" x 5' Casing: PVC/SS ____
	____" x 10' Casing: PVC/SS ____
	____" x 5' Screen-Slot Size: ____
	____" x 10' Screen-Slot Size: ____
	Bottom Caps
	Slip Cap - Size ____
	J. Plug - Size ____
	Bags: Bentonite Gel Powder
	55 Gal. Drums - 17H Rated
	____" ____ Sample Liners
	Visqueen Tarps 6 mil.
	Sono Tube

EQUIPMENT	DESCRIPTION	UNIT NO.
	DRILL RIG:	
	PIPE TRUCK:	
	CREW TRUCK:	
	STEAM CLEANER	
	COMPRESSOR:	
	BOBCAT/FORKLIFT:	
	BACKHOE:	

PERSONNEL EMPLOYED	EMPLOYEE'S NAME	HOURS	PER DIEM	INITIALS
DRILLER:	John Chavez	10	(YES) OR NO	JC
HELPER:	S. Cloud	8	(YES) OR NO	JC
HELPER:	I. Martinez	8	(YES) OR NO	IM
HELPER:			YES OR NO	

CLIENT APPROVAL:

DAILY DRILL REPORT

YELLOW JACKET DRILLING SERVICES

CLIENT: Trinity

DRILLING LOCATION: Melrose Air Force Range

YJD JOB NO:

PAGE 1 OF 1

DATE: 8-14-13 Wed

RIG #: 119

FROM	TO	DESCRIPTION OF ACTIVITIES
7:00	8:15	escorted to site
8:15	8:30	Warm equip
8:30	10:30	Drilled 62'-102' Clean hole
10:30	1:00	Pull tools - Rig down set up pullers pull casing ~~to~~ up
1:00	3:30	Rig back up over hole Clean out Casing Back fill w/ hole plug 102'-69'
3:30	5:30	goto Lowes get wood & paint for job

HOLE #				
FOOTAGE DRILLED FROM		62'		
FOOTAGE DRILLED TO		102'		
SAMPLES TAKEN THIS DATE				
SURFACE CONDITION (CIRCLE ONE)		(DIRT) ASPHALT CONCRETE	DIRT ASPHALT CONCRETE	DIRT ASPHALT CONCRETE
CEMENT GROUT	FROM			
	TO			
BENT. GROUT	FROM			
	TO			
BENT. SEAL	FROM	102'		
	TO	69'		
SAND PACK	FROM			
	TO			
BLANK CASING	FROM			
	TO			
SCREEN	FROM			
	TO			
SUMP	FROM			
	TO			
GPS COORDINATES	LAT.			
	LONG.			
	ELEV.			
FORMATION	FROM TO			
	FROM TO			
	FROM TO			
	FROM TO			

QTY	CONSTRUCTION SUPPLIES
	____" X ____' Steel Well Prot.
	____" x ____' Steel Guard Posts
	Flush Traffic Vault: Size ____
	Bags: Asphalt
	Bags: Concrete Mix
	Bags: Quickcrete
	Bags: Portland Type II Cement
	Bags: Bentonite Grout
15	Bags: Bentonite Chips-Size ____
	Pails: Bentonite Pellets-Size ____
	Bags: Sand-Grade ____
	Bags: Sand-Grade ____
	____" x 5' Casing: PVC/SS ____
	____" x 10' Casing: PVC/SS ____
	____" x 5' Screen-Slot Size: ____
	____" x 10' Screen-Slot Size: ____
	Bottom Caps
	Slip Cap - Size ____
	J. Plug - Size ____
	Bags: Bentonite Gel Powder
	55 Gal. Drums - 17H Rated
	____" ____ Sample Liners
	Visqueen Tarps 6 mil.
	Sono Tube

EQUIPMENT	DESCRIPTION	UNIT NO.
	DRILL RIG:	
	PIPE TRUCK:	
	CREW TRUCK:	
	STEAM CLEANER	
	COMPRESSOR:	
	BOBCAT/FORKLIFT:	
	BACKHOE:	

PERSONNEL EMPLOYED	EMPLOYEE'S NAME	HOURS	PER DIEM	INITIALS
DRILLER:	J. Chavez	10	YES OR NO	JC
HELPER:	J. Cloud	10	YES OR NO	JC
HELPER:	I Martinez	10	YES OR NO	IM
HELPER:			YES OR NO	

CLIENT APPROVAL:

DAILY DRILL REPORT

YELLOW JACKET DRILLING SERVICES

CLIENT: Trinity

DRILLING LOCATION: Melrose Air Force Range

YJD JOB NO:

PAGE 1 OF 1

DATE: 8-15-13 Thurs

RIG #: 119

FROM	TO	DESCRIPTION OF ACTIVITIES
7:00	8:30	escort to site
8:00	9:00	Warm equip
9:00	12:00	Set Well 66'-Ø'
		Sand 69'-38'
		Chip 38'-18
		Cement 18'-Ø
12:00	1:00	Develop well
1:00	5:30	Decon & load equip
5:30	7:30	~~[illegible]~~ Weight Trucks

HOLE #				
FOOTAGE DRILLED FROM				
FOOTAGE DRILLED TO				
SAMPLES TAKEN THIS DATE				
SURFACE CONDITION (CIRCLE ONE)		DIRT ASPHALT CONCRETE	DIRT ASPHALT CONCRETE	DIRT ASPHALT CONCRETE
CEMENT GROUT	FROM	18		
	TO	Ø		
BENT. GROUT	FROM			
	TO			
BENT. SEAL	FROM	38		
	TO	18		
SAND PACK	FROM	69		
	TO	38		
BLANK CASING	FROM	46		
	TO	4		
SCREEN	FROM	66		
	TO	46		
SUMP	FROM			
	TO			
GPS COORDINATES	LAT.			
	LONG.			
	ELEV.			
FORMATION	FROM TO			
	FROM TO			
	FROM TO			
	FROM TO			

QTY	CONSTRUCTION SUPPLIES
1	8 " X 5 ' Steel Well Prot.
4	4 " x 5 ' Steel Guard Posts
	Flush Traffic Vault: Size
	Bags: Asphalt
	Bags: Concrete Mix
25	Bags: Quickcrete
6	Bags: Portland Type II Cement
	Bags: Bentonite Grout
~~[illegible]~~	Bags: Bentonite Chips-Size
	Pails: Bentonite Pellets-Size
39	Bags: Sand-Grade 10 - 20
	Bags: Sand-Grade
	" x 5' Casing: PVC/SS
50'	" x 10' Casing: PVC/SS
20	" x 5' Screen-Slot Size: 10
	" x 10' Screen-Slot Size:
1	Bottom Caps
	Slip Cap - Size
1	J. Plug - Size
	Bags: Bentonite Gel Powder
4	55 Gal. Drums - 17H Rated
	" Sample Liners
1	Visqueen Tarps 6 mil.
	Sono Tube
2	Centralizers

EQUIPMENT	DESCRIPTION	UNIT NO.
	DRILL RIG:	
	PIPE TRUCK:	
	CREW TRUCK:	
	STEAM CLEANER	
	COMPRESSOR:	
	BOBCAT/FORKLIFT:	
	BACKHOE:	

PERSONNEL EMPLOYED	EMPLOYEE'S NAME	HOURS	PER DIEM	INITIALS
DRILLER:	J. Chavez	12	YES OR NO	JC
HELPER:	J. Cloyd	12	YES OR NO	JC
HELPER:	J. Martinez	12	YES OR NO	JM
HELPER:			YES OR NO	

CLIENT APPROVAL:

Boring Log

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TRINITY ANALYSIS & DEVELOPMENT CORP.
Environmental & Engineering Services

BORING NUMBER MWQ-24

CLIENT USACE
PROJECT NAME Melrose AFR, Background Well
PROJECT NUMBER
PROJECT LOCATION Melrose AFR, New Mexico
DATE STARTED 8/13/13 **COMPLETED** 8/14/13
GROUND ELEVATION 4643.32 ft bls **HOLE SIZE** 9.625 inches
DRILLING CONTRACTOR Yellow Jacket Drilling
GROUND WATER LEVELS:
DRILLING METHOD Air Rotary Casing Hammer
AT TIME OF DRILLING ---
LOGGED BY Ben Stewart **CHECKED BY** J. Kramer
AT END OF DRILLING 48.82 ft / Elev 4594.50 ft
NORTHING 3789867.191 **EASTING** 606590.509
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
0					**POORLY GRADED SAND WITH SILT** SILTY SAND, (SP-SM), pink (7.5YR 7/4), poorly graded, subrounded, dry, mostly fine sand, some silt		
10						10.0 / 4633.3	
					SANDY CALICHE, white (10YR 8/1)		
20							
						25.0 / 4618.3	
					POORLY GRADED SAND WITH SILT SILTY SAND, (SP-SM), pink (7.5YR 8/3), poorly graded, subangular-subrounded, dry, little coarse sand, mostly fine sand, some silt, pink, little coarse quartz (2.5YR 7/4)		
30						32.0 / 4611.3	
					POORLY GRADED SAND SILTY SAND, (SP), reddish yellow (5YR 6/6), poorly graded, subangular-subrounded, dry, little coarse sand, mostly fine sand, trace silt, reddish yellow		
40						40.0 / 4603.3	
					POORLY GRADED SAND WITH GRAVEL GRAVELLY SAND, (SP), reddish yellow (5YR 6/6), poorly graded, angular-subrounded, dry, some gravel, mostly fine sand, trace silt, reddish yellow		
50						50.0 / 4593.3	
					POORLY GRADED SAND (SP), very pale brown / grayish orange (10YR 7/4), poorly graded, subangular-subrounded, dry, trace gravel, mostly fine sand, trace silt, quartz rich	51.0 / 4592.3	
						51.5 / 4591.8	
					POORLY GRADED SAND (SP), yellowish brown (10YR 5/6), poorly graded, angular-subrounded, moist, mostly fine sand, trace mica, yellowish brown, some quartz sandstone	55.0 / 4588.3	
60					SANDSTONE, brownish yellow / dark yellowish orange	60.0 / 4583.3	

(Continued Next Page)

TRINITY ANALYSIS & DEVELOPMENT CORP.
Environmental & Engineering Services

BORING NUMBER MWQ-24

CLIENT USACE **PROJECT NAME** Melrose AFR, Background Well

PROJECT NUMBER **PROJECT LOCATION** Melrose AFR, New Mexico

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
60					(10YR 6/6) **POORLY GRADED SAND** SILTY SAND, (SP), brownish yellow / dark yellowish orange (10YR 6/6), poorly graded, subrounded, dry, mostly fine sand, little silt, trace mica, brownish yellow		
70					**POORLY GRADED SAND** SILTY SAND, (SP), brownish yellow / dark yellowish orange (10YR 6/6), poorly graded, subrounded, moist, mostly fine sand, little silt, little mica, brownish yellow, at 65' moderately cemented	4573.3	
					70.0 **POORLY GRADED SAND** SILTY SAND, (SP), reddish yellow (5YR 6/6), poorly graded, subrounded, saturated, mostly fine sand, little silt, trace clay, reddish yellow, trace gravel	4568.3	
80					75.0 **POORLY GRADED SAND** SILTY SAND, (SC), brownish yellow / dark yellowish orange (10YR 6/6), poorly graded, subangular-subrounded, saturated, low plasticity, mostly fine sand, little silt, little clay, reddish yellow, trace medium sand, clay increases with depth		
90					90.0 **POORLY GRADED SAND WITH CLAY** CLAYEY SAND, (SP-SC), reddish yellow (5YR 6/6), poorly graded, saturated, low plasticity, mostly fine sand, some clay, trace medium sand, reddish yellow	4553.3	
100					105.0	4538.3	

Bottom of borehole at 105.0 feet bls.

Photographic Log

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Photograph 1. Speedstar CH 50K drill rig utilizing Air Rotary Casing Hammer.

Photograph 2. All equipment was delivered to the site clean. However, all casing and drill rods were steam cleaned onsite prior to use.

Photograph 3. Support truck and equipment.

Photograph 4. Drilling activities: casing was 9 ⅝" and the drill bit was 8 ½". A cyclone separator was utilized for air containment/dust-suppression.

Photograph 5. The boring was advanced to a total depth of 105 feet bls. The borehole was backfilled to 69 feet bls with 3/8" hole plug.

Photograph 6. The well was constructed of four-inch I.D. Schedule 80 PVC casing.

Background Well MWQ-24 Installation
Melrose Air Force Range
Roosevelt County, New Mexico

Photograph 7. Stainless steel centralizers and stainless steel sump/end cap.

Photograph 8. MWQ-24 was constructed with 20 ft of 0.010-in. slotted screen with approx. five ft of screen above water table and 15 ft below water table. The screen was set from approximately 42.8 ft bls to 62.8 ft bls.

Photograph 9. A filter material consisting of clean quartz sand graded at 10/20 was emplaced around well screens to approximately four feet above the top of well screens.

Photograph 10. Prior to installation of the seal material the well was swabbed/surge blocked resulting in the filter pack settling approximately two feet. The filter pack was brought to a final depth of approximately 38 feet bls.

Photograph 11. Seal material consisting of approximately 20 feet of bentonite pellets was placed immediately above the filter pack. The remainder of annular space was grouted to land surface with neat cement.

Photograph 12. Development on 8-12-2013 by bailing and surging with a ten foot stainless steel bailer. Additional development was conducted on 8-19-2013. A total of approximately 202 gallons of water was developed from the well.

Background Well MWQ-24 Installation
Melrose Air Force Range
Roosevelt County, New Mexico

Photograph 13. Wells were completed with a concrete pad, and steel protective case with lock and four protective bollards.

Photograph 14. Drill cuttings were stockpiled on plastic sheeting, and covered pending analytical results.

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Well Construction Diagram

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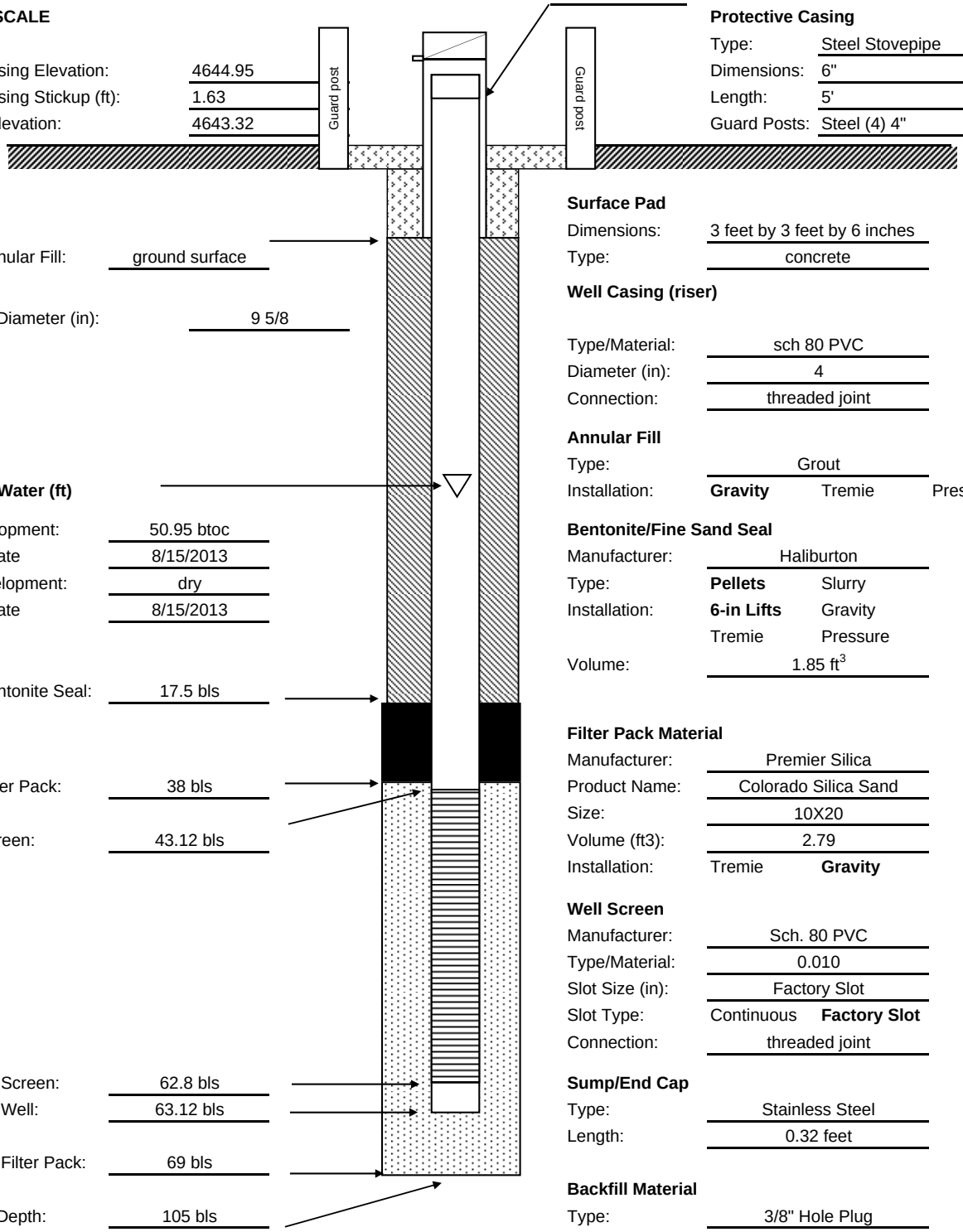
WELL CONSTRUCTION DIAGRAM (Above Grade)

Project/Phase:	Melrose LTM	Well/Boring No.:	MWQ-24
Location:	Melrose Air Force Range, New Mexico	Drilling Method:	Air Rotary Casing Hammer
Client:	USACE Omaha	Date(s):	August 12-15, 2013
Drilling Contractor:	Yellow Jacket Drilling Services	Northing (UTM NAD 83):	3789867.191
Driller:	John Chaves	Easting (UTM NAD 83):	606590.509
Geologist:	Benjamin Stewart, Jonathan Kramer	Project #:	A003-006

NOT TO SCALE

Top of Casing Elevation:	4644.95
Top of Casing Stickup (ft):	1.63
Surface Elevation:	4643.32



Top of Annular Fill:	ground surface
Borehole Diameter (in):	9 5/8
Depth to Water (ft)	
Pre Development:	50.95 btoc
Date	8/15/2013
Post Development:	dry
Date	8/15/2013
Top of Bentonite Seal:	17.5 bls
Top of Filter Pack:	38 bls
Top of Screen:	43.12 bls
Bottom of Screen:	62.8 bls
Bottom of Well:	63.12 bls
Bottom of Filter Pack:	69 bls
Borehole Depth:	105 bls

Protective Casing

Type:	Steel Stovepipe
Dimensions:	6"
Length:	5'
Guard Posts:	Steel (4) 4"

Surface Pad

Dimensions:	3 feet by 3 feet by 6 inches
Type:	concrete

Well Casing (riser)

Type/Material:	sch 80 PVC
Diameter (in):	4
Connection:	threaded joint

Annular Fill

Type:	Grout
Installation:	**Gravity** Tremie Pressure

Bentonite/Fine Sand Seal

Manufacturer:	Haliburton
Type:	**Pellets** Slurry
Installation:	**6-in Lifts** Gravity Tremie Pressure
Volume:	1.85 ft^3

Filter Pack Material

Manufacturer:	Premier Silica
Product Name:	Colorado Silica Sand
Size:	10X20
Volume (ft3):	2.79
Installation:	Tremie **Gravity**

Well Screen

Manufacturer:	Sch. 80 PVC
Type/Material:	0.010
Slot Size (in):	Factory Slot
Slot Type:	Continuous **Factory Slot**
Connection:	threaded joint

Sump/End Cap

Type:	Stainless Steel
Length:	0.32 feet

Backfill Material

Type:	3/8" Hole Plug
Volume:	3.24

Comments: During development on 8/15/2013 the well was bailed dry with a 10-foot stainless steel bailer.

Additional development on 8/18/2013 was conducted with a submersible pump. The post development water level was 59.21 btoc

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Well Development Log

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ANALYSIS & DEVELOPMENT CORP.
Environmental & Engineering Services

WELL DEVELOPMENT LOG

Site Name: Melrose AFR	Location: Melrose, NM	Well ID: MWQ-21	Well Diameter: 4"
Personnel: Ben Stewart, Jonathan Kramer		Weather: Hot, 85°F, Sunny	Date: 8/15/2013 → 8/19/2013

TIME	VOLUME PURGED	CUMUL. VOLUME PURGED	PURGE RATE	DEPTH TO WATER	pH	TEMP.	SPEC. COND.	DISS O_2	SAL.	ORP	TURB.	COLOR	ODOR	NOTES
Military	gal	gal	gpm	ft	S.U.	°C	mS/cm	mg/L	ppt	mV	NTU			
8/15/13		bailed ~50 gallons w/ stainless steel bailer												
0858			~~1.075~~	50.08	Initiated purge									
0947	~~38.75~~ 45	~~86.75~~ 129	~~0.75~~ 1.00	59.28	6.59	17.85	0.531	5.80	0.26	183.3	52.1	clear	none	
1005	18	117	1.0	58.83	7.26	17.92	0.521	6.15	0.25	136.2	32.5	clear	none	
1020	15	132	1.0	59.03	7.47	17.96	0.501	6.15	0.24	120.0	36.1	clear	none	
1050	30	162	1.0	59.15	7.58	17.89	0.509	5.73	0.25	102.5	43.1	clear	none	
1115	25	187	1.0	59.21	7.57	18.24	0.516	5.41	0.25	99.5	20.6	clear	none	
1120	5	192	1.0	59.21	7.57	17.97	0.507	5.53	0.25	99.7	35.6	clear	none	
1130	10	202	1.0	59.21	7.59	17.93	0.515	5.57	0.25	95.0	25.3	clear	none	
1131	Ended development													

Development Method _____

DTW 50.08 TDW 65.20

Page: 1 of ___

2013_01

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Groundwater Sampling Log

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TRINITY
ANALYSIS & DEVELOPMENT CORP.
Environmental & Engineering Services
www.trinityadc.com

Modified FDEP Form FD 9000-24

GROUNDWATER SAMPLING LOG

☐ SYSTEM ON ☐ SYSTEM OFF ☐ NOT APPLICABLE (NO SYSTEM)

SITE NAME: Melrose AFR	SITE LOCATION: Melrose AFR	DATE: 8/20/13
WELL NO: MWQ-24 / SAMPLE ID: MWQ-24	FREE PRODUCT: Y (N) / DEPTH TO PRODUCT (ft BTOC): NA	FIELD DUPLICATE: Y (N) / DUPLICATE ID: NA

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 7/16	WELL SCREEN INTERVAL DEPTH: 45.7 feet to 65.7 feet	STATIC DEPTH TO WATER (feet): 50.11	PURGE PUMP TYPE OR BAILER: BP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) x WELL CAPACITY
(only fill out if applicable)
= (65.2 feet – 50.11 feet) x 0.65 gallons/foot = 9.81 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY x TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= 0.0 gallons + (0.0014 gallons/foot x 65 feet) + 0.25 gallons = 0.34 gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 58	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 58	PURGING INITIATED AT: 0948	PURGING ENDED AT: 1100	TOTAL VOLUME PURGED (gallons): 5.04

Time	Volume Purged (gallons)	Cum. Volume Purged (gallons)	Purge Rate (gpm)	Depth to Water (ft BTOC)	pH (SU)	Temp. (°C)	Spec. Cond. (mS/cm)	Dissolved Oxygen (mg/L)	Salinity (‰)	ORP (mV)	Color/ Odor (describe)	Turbidity (NTUs)
1010	1.54	1.54	0.07	50.44	6.94	21.77	0.499	9.30	0.24	243.0	clear none	20.1
1015	0.35	1.89	0.07	50.44	7.09	21.76	0.494	9.12	0.24	230.0	clear none	19.6
1030	1.05	2.94	0.07	50.49	7.42	21.77	0.492	8.66	0.24	197.0	clear none	11.8
1045	1.05	3.99	0.07	50.49	7.50	21.79	0.494	8.59	0.24	187.2	clear none	12.0
1050	0.35	4.34	0.07	50.49	7.45	21.87	0.493	8.39	0.24	184.0	clear none	11.40
1055	0.35	4.69	0.07	50.49	7.53	21.89	0.495	8.30	0.24	181.4	clear none	9.24
1100	0.35	5.04	0.07	50.49	7.51	21.82	0.495	8.43	0.24	179.7	clear none	3.80

WELL CAPACITY (gal/ft): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (gal/ft): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Ben Stewart Trinity ADC	SAMPLER(S) SIGNATURE(S):	SAMPLE TIME: 1101
PUMP OR TUBING DEPTH IN WELL (feet):	TUBING MATERIAL CODE: LDPE	FIELD-FILTERED: (Y) N / Filtration Equipment Type: inline / FILTER SIZE: ____ µm

FIELD DECONTAMINATION: PUMP (Y) N TUBING Y (N) (replaced)

SAMPLE CONTAINER SPECIFICATION				INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED			

FIELD EQUIPMENT IDENTIFICATION

H20 QUALITY PARAMETER	
Model: YSI 556	SN#: 05F1542 A1
TURBIDIMETER	
Model: HI98703	SN#: 08537192
OTHER	
In Situ Water type	
QED MP10 controller	
QED Sample Pro BP	

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **O** = Other (Specify)

NOTES: **1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.**
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

☐ well needs repair No ☐ needs well tag yes ☐ locking cap: present ☐ other comment: ____
☐ DI Water Lot # ____ ☐ MS / MSD ____ ☐ Equip blk ____ ☐ Ambient blk ____ ☐ Trip blk ____

2012_1102

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Chain of Custodies

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ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

09930

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: Melrose LTM	Project Number: A006-003
Project Manager: Jonathan Kramer	Report CC:
Company/Address: 1002 N Eglin Parkway, Shalimar FL 32579	
Phone #: 850 136 800	Email: jkramer@trinityadc.com
Sampler's Signature:	Sampler's Printed Name: Benjamin Stewart

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	Hexavalent Chromium 8/15/6	REMARKS/ ALTERNATE DESCRIPTION
MWQ-24		8/20/13	1101	WG	1								X	NH4 2SO4, HNO3

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day

REQUESTED REPORT DATE
_____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO: Trinity ADC
1002 N Eglin Parkway
Shalimar, FL 32579

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Ben Stewart	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Trinity	Firm	Firm	Firm	Firm	Firm
Date/Time: 4/20/13 1530	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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CHAIN OF CUSTODY RECORD

GCAL USE ONLY

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Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Report to:
Client: Trinity APC
Address: 1007 N Eglin Parkway, Shalimar FL 32579
Contact: Jonathan Kramer
Phone: 850 613 6800
E-mail: jkramer@trinityconsum

Bill to:
Client: Same
Address:
Contact:
Phone:
E-mail:

P.O. Number:
Project Name/Number: ACOG-003 Melrose LTM
Sampled By: Ben Stewart Jonathan Kramer

GCAL use only:
Custody Seal
used ☐ yes ☐ no
intact ☐ yes ☐ no
Temperature °C

☑ Dissolved Analysis Requested
☑ Field filtered
☐ Lab filtered

Analytical Requests & Method

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	VOCs 8260B	Explosives 8330	Metals (Total/Diss) (6010)	Chromium VI 7196	Cyanide 9012A	Mercury 7470A	Nitrate, Nitrite, Chloride 300.0	Perchlorate (6860) Arsenic 6020A	Alkalinity 2320B TDS 2540C	DRO TPH	pH, Flashpoint, TPH TX1005	Preservative
GWG	8/24/13	1101		X	MWQ-24	17	X	X	X		X	X	X	X	X	X	X	
SO	8/24/13	1105	X		SC-1	7	X	X	X	X	X	X	X	X	X	X	X	
WQ	8/24/13	1101			TB-1	3	X											
WQ					TEMP BLANK	1												

Air Bill No:

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	8/24/13	1430			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue

*Requires prior approval, rush charges may apply.

We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

APPENDIX C

PLS Survey

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ROBERT CHAD LYDICK
PROFESSIONAL ENGINEER AND
LAND SURVEYOR

Lydick
ENGINEERS AND SURVEYORS, INC.
205 E. SECOND STREET – P.O. BOX 728
575 762-3771 – FAX 505 762-9093

REGISTERED
New Mexico
Texas - Oklahoma
Colorado

Mr. Jonathan Kramer, Geologist
TRINITY Analysis & Development Corp.
1002 N. Eglin Parkway
Shalimar, Florida 32579
jkramer@trinityadc.com

Re: Monitor Well Locations at Melrose Bombing Range MWQ-24
Date: September 18, 2013
Survey Date: September 16, 2013

Horizontal Projection: New Mexico (East Zone)
Horizontal Datum: NAD 83 (2011) – US Survey Feet
Vertical Datum: NAVD 88 – Feet

WELL DESIGNATION	NORTHING	EASTING	SURVEY LOCATION	SURVEY ELEVATION
MWQ-24	1180704.95	689675.49	TOP OF PLATE	4644.95
MWQ-24	1180704.72	689676.13	TOP OF CONC.	4643.32

Note: Well coordinates were established by "side-shot" surveying of actual well locations based on a 4 point localization on control points established by Lydick Engineers. Control point data was obtained by "long set" static occupation (over 2 hours) of each point. The resulting static data was uploaded to OPUS for solutions.

Robert Chad Lydick
Robert C. Lydick
P.E. & L.S. No. 5955

PLAT NO. 23820

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APPENDIX D

Chemical Analytical Reports

(Laboratory Analytical Reports)

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NELAP CERTIFICATE NUMBER 01955
DOD ELAP CERTIFICATE NUMBER ADE - 1482

ANALYTICAL RESULTS

PERFORMED BY

GULF COAST ANALYTICAL LABORATORIES, INC.

7979 GSRI Avenue

Baton Rouge, LA 70820

Report Date 09/12/2013

GCAL Report 213082102

Deliver To	Trinity A&D 1002 N Eglin Pkwy Shalimar, FL 32579 850-613-6800
Attn	Jonathan Kramer

Project A006-003 Melrose LTM

CASE NARRATIVE

Client: TRINITY Analysis & Development Corp. **Report:** 213082102

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the sample cross-reference page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

In the SW-846 8330A analysis for prep batch 514460, the LCS/LCSD RPDs are above the control limit for 4-Nitrotoluene and Nitroglycerin. No target analytes were detected in the associated sample.

METALS

In the SW-846 6020A analysis, a chemical or physical interference necessitated a dilution for sample 21308210202 (SC-1). This is reflected in the elevated reporting limits.

In the SW-846 6020A analysis for prep batch 514307, the MS and/or MSD recovery is outside the control limits for Arsenic. The LCS recovery is within control limits. This indicates the analysis is in control and the sample is affected by matrix interference.

CONVENTIONALS

In the Hexavalent Chromium analysis for prep batch 514444, the MS recovery is below the lower control limit. The LCS recovery is acceptable. A post-digestion spike was performed with a recovery of 92%.

In the EPA 300.0 analysis, sample 21308210201 (MWQ-24) had to be diluted in order to bracket the concentration of target analytes within the calibration range of the instrument.

In the EPA 353.2 analysis, sample 21308210202 (SC-1) had to be diluted in order to bracket the concentration within the calibration range of the instrument.

In the SW-846 9056A analysis, sample 21308210202 (SC-1) had to be diluted in order to bracket the concentration of target analtyes within the calibration range of the instrument.

In the SW-846 9012B analysis, a chemical or physical interference necessitated a dilution for sample 21308210202 (SC-1). This is reflected in the elevated reporting limit.

MISCELLANEOUS

See Subcontract reports for any case narrative.

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations Utilized in this Report

ND	Indicates the result was Not Detected at the specified RDL
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
RDL	Reporting Detection Limit
00:00	Reported as a time equivalent to 12:00 AM

Reporting Flags Utilized in this Report

J	Indicates the result is between the MDL and RDL
U	Indicates the compound was analyzed for but not detected
B	Indicates the analyte was detected in the associated Method Blank

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with the NELAC standard and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

_____

Authorized Signature
GCAL REPORT 213082102

THIS REPORT CONTAINS _____ PAGES.

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	MWQ-24	Water	08/20/2013 11:01	08/21/2013 09:55
21308210202	SC-1	Solid	08/20/2013 11:05	08/21/2013 09:55
21308210203	TB-1	Water	08/20/2013 11:01	08/21/2013 09:55

Summary of Compounds Detected

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	**MWQ-24**	Water	08/20/2013 11:01	08/21/2013 09:55

EPA 9012B

CAS#	Parameter	Result	RDL	MDL	Units
57-12-5	Cyanide	0.0033J	0.0050	0.00050	mg/L

EPA 6010C Dissolved

CAS#	Parameter	Result	RDL	MDL	Units
7440-39-3	Barium	73.6	10.0	2.50	ug/L
7440-70-2	Calcium	42500	800	50.0	ug/L
7440-50-8	Copper	8.73J	20.0	5.00	ug/L
7439-95-4	Magnesium	26000	200	50.0	ug/L
7439-96-5	Manganese	267	15.0	2.00	ug/L
7439-98-7	Molybdenum	13.0J	30.0	3.75	ug/L
7440-09-7	Potassium	4900	500	100	ug/L
7440-23-5	Sodium	40500	1000	200	ug/L
7440-62-2	Vanadium	36.3	20.0	3.75	ug/L
7440-66-6	Zinc	57.9	20.0	5.00	ug/L

EPA 6010C

CAS#	Parameter	Result	RDL	MDL	Units
7429-90-5	Aluminum	168J	200	60.0	ug/L
7440-39-3	Barium	74.4	10.0	2.50	ug/L
7440-70-2	Calcium	41500	800	50.0	ug/L
7440-50-8	Copper	7.87J	20.0	5.00	ug/L
7439-95-4	Magnesium	25900	200	50.0	ug/L
7439-96-5	Manganese	262	15.0	2.00	ug/L
7439-98-7	Molybdenum	15.2J	30.0	3.75	ug/L
7440-09-7	Potassium	4510	500	100	ug/L
7440-62-2	Vanadium	35.1	20.0	3.75	ug/L
7440-66-6	Zinc	52.8	20.0	5.00	ug/L

EPA 6010C

CAS#	Parameter	Result	RDL	MDL	Units
7440-23-5	Sodium	36500	1000	200	ug/L

EPA 6020A

CAS#	Parameter	Result	RDL	MDL	Units
7440-38-2	Arsenic	2.28	1.00	0.25	ug/L

EPA 6020A Dissolved

CAS#	Parameter	Result	RDL	MDL	Units
7440-38-2	Arsenic	2.01	1.00	0.25	ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	**MWQ-24**	Water	08/20/2013 11:01	08/21/2013 09:55

EPA 300.0

CAS#	Parameter	Result	RDL	MDL	Units
16887-00-6	Chloride	16.2	2.00	0.100	mg/L
14808-79-8	Sulfate	36.4	2.00	0.200	mg/L

SM 2540 C-2011

CAS#	Parameter	Result	RDL	MDL	Units
WET-035	Total Dissolved Solids(TDS)	294	10.0	4.39	mg/L

EPA 353.2 Rev. 2

CAS#	Parameter	Result	RDL	MDL	Units
14797-55-8	Nitrate	3.33	0.100	0.082	mg/L-N

SM 2320 B-2011

CAS#	Parameter	Result	RDL	MDL	Units
000000-00-5	Total Alkalinity	224	1.0	0.26	mg/L CaCO3

SM 4500-H+ B-2011/EPA 9040C

CAS#	Parameter	Result	RDL	MDL	Units
pH	pH	7.68	1.00	1.00	pH unit

EPA 353.2 Rev. 2

CAS#	Parameter	Result	RDL	MDL	Units
14797-65-0	Nitrite	0.020	0.010	0.006	mg/L-N

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210202	**SC-1**	Solid	08/20/2013 11:05	08/21/2013 09:55

EPA 8015C

CAS#	Parameter	Result	RDL	MDL	Units
GCSV-00-4	Diesel Range Organics	4490J	6260	2040	ug/Kg

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210202	SC-1	Solid	08/20/2013 11:05	08/21/2013 09:55

EPA 6020A

CAS#	Parameter	Result	RDL	MDL	Units
7440-38-2	Arsenic	2180	628	157	ug/Kg

EPA 353.2 Rev. 2

CAS#	Parameter	Result	RDL	MDL	Units
14797-65-0	Nitrite	1.40J	3.92	0.259	mg/kg-N

EPA 9012B

CAS#	Parameter	Result	RDL	MDL	Units
57-12-5	Cyanide	0.43J	2.0	0.038	mg/kg

EPA 353.2 Rev. 2

CAS#	Parameter	Result	RDL	MDL	Units
14797-55-8	Nitrate	0.634J	3.92	0.204	mg/kg-N

EPA 9056A

CAS#	Parameter	Result	RDL	MDL	Units
16887-00-6	Chloride	146	7.85	1.65	mg/kg
14808-79-8	Sulfate	337	15.7	6.20	mg/kg

EPA 6010C

CAS#	Parameter	Result	RDL	MDL	Units
7429-90-5	Aluminum	11300	12.5	3.11	mg/kg
7440-39-3	Barium	133	0.62	0.16	mg/kg
7440-41-7	Beryllium	0.81	0.25	0.062	mg/kg
7440-70-2	Calcium	19200	49.8	12.5	mg/kg
7440-47-3	Chromium	15.3	0.62	0.16	mg/kg
7440-48-4	Cobalt	7.35	0.62	0.16	mg/kg
7440-50-8	Copper	15.9	1.25	0.31	mg/kg
7439-89-6	Iron	16100	12.5	3.11	mg/kg
7439-92-1	Lead	14.1	0.93	0.23	mg/kg
7439-95-4	Magnesium	5540	12.5	3.11	mg/kg
7439-96-5	Manganese	409	0.93	0.23	mg/kg
7440-02-0	Nickel	17.9	2.49	0.62	mg/kg
7440-09-7	Potassium	2670	31.1	7.78	mg/kg
7440-22-4	Silver	0.20J	0.62	0.16	mg/kg
7440-23-5	Sodium	1050	62.3	15.6	mg/kg
7440-32-6	Titanium	54.1	0.62	0.16	mg/kg
7440-62-2	Vanadium	21.2	1.25	0.31	mg/kg
7440-66-6	Zinc	45.4	1.25	0.31	mg/kg

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210202	**SC-1**	Solid	08/20/2013 11:05	08/21/2013 09:55

EPA 8260B

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	2.95J	9.86	0.100	ug/Kg
108-88-3	Toluene	2.20J	9.86	0.211	ug/Kg

EPA 9045D

CAS#	Parameter	Result	RDL	MDL	Units
pH	pH	8.83	1.00	1.00	pH unit

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210203	**TB-1**	Water	08/20/2013 11:01	08/21/2013 09:55

EPA 8260B

CAS#	Parameter	Result	RDL	MDL	Units
67-64-1	Acetone	3.35J	5.00	0.193	ug/L
74-87-3	Chloromethane	1.84	1.00	0.144	ug/L
75-09-2	Methylene chloride	1.29J	5.00	0.149	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	**MWQ-24**	Water	08/20/2013 11:01	08/21/2013 09:55

Subcontract Data

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	09/09/2013 08:08	SMH2	

CAS#	Parameter	Result	RDL	MDL	Units
SHIP-000	Ship Result	*			mg/L

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/25/2013 18:02	JCK	514466

CAS#	Parameter	Result	RDL	MDL	Units
630-20-6	1,1,1,2-Tetrachloroethane	0.120U	1.00	0.120	ug/L
71-55-6	1,1,1-Trichloroethane	0.123U	1.00	0.123	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.109U	1.00	0.109	ug/L
79-00-5	1,1,2-Trichloroethane	0.159U	1.00	0.159	ug/L
75-34-3	1,1-Dichloroethane	0.171U	1.00	0.171	ug/L
75-35-4	1,1-Dichloroethene	0.200U	1.00	0.200	ug/L
563-58-6	1,1-Dichloropropene	0.052U	1.00	0.052	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.079U	1.00	0.079	ug/L
96-18-4	1,2,3-Trichloropropane	0.065U	1.00	0.065	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.105U	1.00	0.105	ug/L
95-63-6	1,2,4-Trimethylbenzene	0.084U	1.00	0.084	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	0.194U	1.00	0.194	ug/L
106-93-4	1,2-Dibromoethane	0.102U	1.00	0.102	ug/L
95-50-1	1,2-Dichlorobenzene	0.135U	1.00	0.135	ug/L
107-06-2	1,2-Dichloroethane	0.116U	1.00	0.116	ug/L
78-87-5	1,2-Dichloropropane	0.150U	1.00	0.150	ug/L
108-67-8	1,3,5-Trimethylbenzene	0.066U	1.00	0.066	ug/L
541-73-1	1,3-Dichlorobenzene	0.138U	1.00	0.138	ug/L
142-28-9	1,3-Dichloropropane	0.059U	1.00	0.059	ug/L
106-46-7	1,4-Dichlorobenzene	0.083U	1.00	0.083	ug/L
594-20-7	2,2-Dichloropropane	0.170U	1.00	0.170	ug/L
78-93-3	2-Butanone	0.142U	5.00	0.142	ug/L
95-49-8	2-Chlorotoluene	0.080U	1.00	0.080	ug/L
591-78-6	2-Hexanone	0.122U	5.00	0.122	ug/L
106-43-4	4-Chlorotoluene	0.124U	1.00	0.124	ug/L
99-87-6	4-Isopropyltoluene	0.070U	1.00	0.070	ug/L
108-10-1	4-Methyl-2-pentanone	0.120U	5.00	0.120	ug/L
67-64-1	Acetone	0.193U	5.00	0.193	ug/L
71-43-2	Benzene	0.111U	1.00	0.111	ug/L
108-86-1	Bromobenzene	0.145U	1.00	0.145	ug/L
74-97-5	Bromochloromethane	0.127U	1.00	0.127	ug/L
75-27-4	Bromodichloromethane	0.083U	1.00	0.083	ug/L
75-25-2	Bromoform	0.215U	1.00	0.215	ug/L
74-83-9	Bromomethane	0.427U	1.00	0.427	ug/L
75-15-0	Carbon disulfide	0.190U	1.00	0.190	ug/L
56-23-5	Carbon tetrachloride	0.248U	1.00	0.248	ug/L
108-90-7	Chlorobenzene	0.083U	1.00	0.083	ug/L
75-00-3	Chloroethane	0.235U	1.00	0.235	ug/L
67-66-3	Chloroform	0.155U	1.00	0.155	ug/L
74-87-3	Chloromethane	0.144U	1.00	0.144	ug/L
74-95-3	Dibromomethane	0.211U	1.00	0.211	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	**MWQ-24**	Water	08/20/2013 11:01	08/21/2013 09:55

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/25/2013 18:02	JCK	514466

CAS#	Parameter	Result	RDL	MDL	Units
75-71-8	Dichlorodifluoromethane	0.145U	1.00	0.145	ug/L
100-41-4	Ethylbenzene	0.109U	1.00	0.109	ug/L
87-68-3	Hexachlorobutadiene	0.265U	1.00	0.265	ug/L
98-82-8	Isopropylbenzene (Cumene)	0.130U	1.00	0.130	ug/L
75-09-2	Methylene chloride	0.149U	5.00	0.149	ug/L
91-20-3	Naphthalene	0.176U	1.00	0.176	ug/L
100-42-5	Styrene	0.089U	1.00	0.089	ug/L
127-18-4	Tetrachloroethene	0.193U	1.00	0.193	ug/L
108-88-3	Toluene	0.122U	1.00	0.122	ug/L
79-01-6	Trichloroethene	0.161U	1.00	0.161	ug/L
75-69-4	Trichlorofluoromethane	0.157U	1.00	0.157	ug/L
75-01-4	Vinyl chloride	0.127U	1.00	0.127	ug/L
156-59-2	cis-1,2-Dichloroethene	0.103U	1.00	0.103	ug/L
10061-01-5	cis-1,3-Dichloropropene	0.124U	1.00	0.124	ug/L
136777-61-2	m,p-Xylene	0.123U	2.00	0.123	ug/L
104-51-8	n-Butylbenzene	0.123U	1.00	0.123	ug/L
103-65-1	n-Propylbenzene	0.727U	1.00	0.727	ug/L
95-47-6	o-Xylene	0.055U	1.00	0.055	ug/L
135-98-8	sec-Butylbenzene	0.107U	1.00	0.107	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.078U	5.00	0.078	ug/L
98-06-6	tert-Butylbenzene	0.087U	1.00	0.087	ug/L
156-60-5	trans-1,2-Dichloroethene	0.077U	1.00	0.077	ug/L
10061-02-6	trans-1,3-Dichloropropene	0.128U	1.00	0.128	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	51.9	ug/L	104	75 - 120
1868-53-7	Dibromofluoromethane	50	49.5	ug/L	99	85 - 115
2037-26-5	Toluene d8	50	52.7	ug/L	105	85 - 120
17060-07-0	1,2-Dichloroethane-d4	50	48.6	ug/L	97	70 - 120

EPA 8015C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/25/2013 15:30	514439	SW-846 3510C	1	08/26/2013 19:39	PMM	514643

CAS#	Parameter	Result	RDL	MDL	Units
GCSV-00-4	Diesel Range Organics	44.9U	125	44.9	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	50	39	ug/L	78	59 - 120

TX1005 Hydrocarbons by Range

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/23/2013 09:50	514265	TX 1005	1	08/26/2013 11:59	SMH	514592

CAS#	Parameter	Result	RDL	MDL	Units
GCSV-05-02	>C12-C28	120U	2300	120	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	**MWQ-24**	Water	08/20/2013 11:01	08/21/2013 09:55

TX1005 Hydrocarbons by Range

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/23/2013 09:50	514265	TX 1005	1	08/26/2013 11:59	SMH	514592

CAS#	Parameter	Result	RDL	MDL	Units
GCSV-05-03	>C28-C35	120U	2300	120	ug/L
GCSV-05-01	C6-C12	104U	1380	104	ug/L
GCSV-05-04	Total TPH (C6-C35)	104U	2300	104	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	15300	15300	ug/L	100	58 - 148

EPA 8330A

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/26/2013 05:00	514460	SW-846 8330A	1	08/26/2013 13:05	DLB	514586

CAS#	Parameter	Result	RDL	MDL	Units
99-35-4	1,3,5-Trinitrobenzene	0.240U	1.00	0.240	ug/L
99-65-0	1,3-Dinitrobenzene	0.167U	1.00	0.167	ug/L
118-96-7	2,4,6-Trinitrotoluene	0.483U	1.00	0.483	ug/L
121-14-2	2,4-Dinitrotoluene	0.501U	1.00	0.501	ug/L
606-20-2	2,6-Dinitrotoluene	0.283U	1.00	0.283	ug/L
355-72-78-2	2-Amino-4,6-dinitrotoluene	0.576U	1.00	0.576	ug/L
88-72-2	2-Nitrotoluene	0.120U	1.00	0.120	ug/L
99-08-1	3-Nitrotoluene	0.369U	1.00	0.369	ug/L
1946-51-0	4-Amino-2,6-dinitrotoluene	0.489U	1.00	0.489	ug/L
99-99-0	4-Nitrotoluene	0.417U	1.00	0.417	ug/L
2691-41-0	HMX	0.212U	1.00	0.212	ug/L
98-95-3	Nitrobenzene	0.267U	1.00	0.267	ug/L
55-63-0	Nitroglycerin	0.369U	1.00	0.369	ug/L
78-11-5	Pentaerythritol Tetranitrate	0.502U	1.00	0.502	ug/L
121-82-4	RDX	0.189U	1.00	0.189	ug/L
479-45-8	Tetryl	0.241U	1.00	0.241	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
528-29-0	1,2-Dinitrobenzene	1	1.11	ug/L	111	60 - 140

EPA 6020A

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/24/2013 07:30	514289	SW-846 3010A	1	09/03/2013 16:02	BAM	515002

CAS#	Parameter	Result	RDL	MDL	Units
7440-38-2	**Arsenic**	**2.28**	**1.00**	**0.25**	**ug/L**
7440-28-0	Thallium	0.25U	1.00	0.25	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	**MWQ-24**	Water	08/20/2013 11:01	08/21/2013 09:55

EPA 7470A Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 13:45	514304	SW-846 7470A Dissolved	1	08/23/2013 12:10	CMB	514375

CAS#	Parameter	Result	RDL	MDL	Units
7439-97-6	Mercury	0.068U	0.20	0.068	ug/L

EPA 7470A

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 13:45	514304	SW-846 7470A	1	08/23/2013 12:08	CMB	514375

CAS#	Parameter	Result	RDL	MDL	Units
7439-97-6	Mercury	0.068U	0.20	0.068	ug/L

EPA 6020A Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/24/2013 10:05	514349	SW-846 3005 Dissolved	1	09/03/2013 15:18	BAM	515002

CAS#	Parameter	Result	RDL	MDL	Units
7440-38-2	**Arsenic**	**2.01**	**1.00**	**0.25**	**ug/L**
7440-28-0	Thallium	0.25U	1.00	0.25	ug/L

EPA 6010C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 10:40	514236	SW-846 3010A	1	08/22/2013 16:17	PJS	514318

CAS#	Parameter	Result	RDL	MDL	Units
7440-23-5	**Sodium**	**36500**	**1000**	**200**	**ug/L**

EPA 6010C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 10:40	514236	SW-846 3010A	1	08/22/2013 16:59	PJS	514314

CAS#	Parameter	Result	RDL	MDL	Units
7429-90-5	**Aluminum**	**168J**	**200**	**60.0**	**ug/L**
7440-36-0	Antimony	15.0U	60.0	15.0	ug/L
7440-39-3	**Barium**	**74.4**	**10.0**	**2.50**	**ug/L**
7440-41-7	Beryllium	1.00U	4.00	1.00	ug/L
7440-43-9	Cadmium	0.20U	5.00	0.20	ug/L
7440-70-2	**Calcium**	**41500**	**800**	**50.0**	**ug/L**
7440-47-3	Chromium	1.00U	10.0	1.00	ug/L
7440-48-4	Cobalt	1.00U	10.0	1.00	ug/L
7440-50-8	**Copper**	**7.87J**	**20.0**	**5.00**	**ug/L**
7439-89-6	Iron	40.0U	200	40.0	ug/L
7439-92-1	Lead	3.75U	15.0	3.75	ug/L
7439-95-4	**Magnesium**	**25900**	**200**	**50.0**	**ug/L**

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	**MWQ-24**	Water	08/20/2013 11:01	08/21/2013 09:55

EPA 6010C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 10:40	514236	SW-846 3010A	1	08/22/2013 16:59	PJS	514314

CAS#	Parameter	Result	RDL	MDL	Units
7439-96-5	**Manganese**	**262**	**15.0**	**2.00**	**ug/L**
7439-98-7	**Molybdenum**	**15.2J**	**30.0**	**3.75**	**ug/L**
7440-02-0	Nickel	10.0U	40.0	10.0	ug/L
7440-09-7	**Potassium**	**4510**	**500**	**100**	**ug/L**
7782-49-2	Selenium	10.0U	40.0	10.0	ug/L
7440-22-4	Silver	2.50U	10.0	2.50	ug/L
7440-32-6	Titanium	1.20U	10.0	1.20	ug/L
7440-62-2	**Vanadium**	**35.1**	**20.0**	**3.75**	**ug/L**
7440-66-6	**Zinc**	**52.8**	**20.0**	**5.00**	**ug/L**

EPA 6010C Dissolved

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 10:40	514138	SW-846 3005 Dissolved	1	08/23/2013 21:07	PJS	514391

CAS#	Parameter	Result	RDL	MDL	Units
7429-90-5	Aluminum	60.0U	200	60.0	ug/L
7440-36-0	Antimony	15.0U	60.0	15.0	ug/L
7440-39-3	**Barium**	**73.6**	**10.0**	**2.50**	**ug/L**
7440-41-7	Beryllium	1.00U	4.00	1.00	ug/L
7440-43-9	Cadmium	0.20U	5.00	0.20	ug/L
7440-70-2	**Calcium**	**42500**	**800**	**50.0**	**ug/L**
7440-47-3	Chromium	1.00U	10.0	1.00	ug/L
7440-48-4	Cobalt	1.00U	10.0	1.00	ug/L
7440-50-8	**Copper**	**8.73J**	**20.0**	**5.00**	**ug/L**
7439-89-6	Iron	40.0U	200	40.0	ug/L
7439-92-1	Lead	3.75U	15.0	3.75	ug/L
7439-95-4	**Magnesium**	**26000**	**200**	**50.0**	**ug/L**
7439-96-5	**Manganese**	**267**	**15.0**	**2.00**	**ug/L**
7439-98-7	**Molybdenum**	**13.0J**	**30.0**	**3.75**	**ug/L**
7440-02-0	Nickel	10.0U	40.0	10.0	ug/L
7440-09-7	**Potassium**	**4900**	**500**	**100**	**ug/L**
7782-49-2	Selenium	10.0U	40.0	10.0	ug/L
7440-22-4	Silver	2.50U	10.0	2.50	ug/L
7440-23-5	**Sodium**	**40500**	**1000**	**200**	**ug/L**
7440-32-6	Titanium	1.20U	10.0	1.20	ug/L
7440-62-2	**Vanadium**	**36.3**	**20.0**	**3.75**	**ug/L**
7440-66-6	**Zinc**	**57.9**	**20.0**	**5.00**	**ug/L**

SM 2540 C-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/21/2013 12:07	BNW	514198

CAS#	Parameter	Result	RDL	MDL	Units
WET-035	**Total Dissolved Solids(TDS)**	**294**	**10.0**	**4.39**	**mg/L**

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	**MWQ-24**	Water	08/20/2013 11:01	08/21/2013 09:55

EPA 353.2 Rev. 2

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/21/2013 16:01	AEL	514229

CAS#	Parameter	Result	RDL	MDL	Units
14797-65-0	**Nitrite**	**0.020**	**0.010**	**0.006**	**mg/L-N**

EPA 353.2 Rev. 2

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			10	08/21/2013 17:33	AEL	514228

CAS#	Parameter	Result	RDL	MDL	Units
14797-55-8	**Nitrate**	**3.33**	**0.100**	**0.082**	**mg/L-N**

EPA 300.0

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			10	08/25/2013 11:06	AEL	514381

CAS#	Parameter	Result	RDL	MDL	Units
16887-00-6	**Chloride**	**16.2**	**2.00**	**0.100**	**mg/L**
14808-79-8	**Sulfate**	**36.4**	**2.00**	**0.200**	**mg/L**

SM 2320 B-2011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/22/2013 14:42	DJH	514337

CAS#	Parameter	Result	RDL	MDL	Units
000000-00-5	**Total Alkalinity**	**224**	**1.0**	**0.26**	**mg/L CaCO3**

EPA 1010A

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/29/2013 10:00	AEL	514776

CAS#	Parameter	Result	RDL	MDL	Units
000000-01-3	FlashPoint	>170	50	50	Deg F

EPA 9012B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 09:30	514245	SW-846 9012B	1	08/22/2013 14:39	AEL	514329

CAS#	Parameter	Result	RDL	MDL	Units
57-12-5	**Cyanide**	**0.0033J**	**0.0050**	**0.00050**	**mg/L**

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210201	**MWQ-24**	Water	08/20/2013 11:01	08/21/2013 09:55

SM 4500-H+ B-2011/EPA 9040C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/21/2013 16:30	DNM	514253

CAS#	Parameter	Result	RDL	MDL	Units
pH	**pH**	**7.68**	**1.00**	**1.00**	**pH unit**

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210202	**SC-1**	Solid	08/20/2013 11:05	08/21/2013 09:55

Subcontract Data

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	09/09/2013 08:08	SMH2	

CAS#	Parameter	Result	RDL	MDL	Units
SHIP-000	Ship Result	*			mg/L

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/25/2013 19:04	JCK	514469

CAS#	Parameter	Result	RDL	MDL	Units
630-20-6	1,1,1,2-Tetrachloroethane	0.351U	9.86	0.351	ug/Kg
71-55-6	1,1,1-Trichloroethane	0.319U	9.86	0.319	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	0.344U	9.86	0.344	ug/Kg
79-00-5	1,1,2-Trichloroethane	0.126U	9.86	0.126	ug/Kg
75-34-3	1,1-Dichloroethane	0.190U	9.86	0.190	ug/Kg
75-35-4	1,1-Dichloroethene	0.447U	9.86	0.447	ug/Kg
563-58-6	1,1-Dichloropropene	0.374U	9.86	0.374	ug/Kg
87-61-6	1,2,3-Trichlorobenzene	0.710U	9.86	0.710	ug/Kg
96-18-4	1,2,3-Trichloropropane	0.574U	9.86	0.574	ug/Kg
120-82-1	1,2,4-Trichlorobenzene	0.601U	9.86	0.601	ug/Kg
95-63-6	1,2,4-Trimethylbenzene	0.285U	9.86	0.285	ug/Kg
96-12-8	1,2-Dibromo-3-chloropropane	0.562U	9.86	0.562	ug/Kg
106-93-4	1,2-Dibromoethane	0.406U	9.86	0.406	ug/Kg
95-50-1	1,2-Dichlorobenzene	0.328U	9.86	0.328	ug/Kg
107-06-2	1,2-Dichloroethane	0.390U	9.86	0.390	ug/Kg
78-87-5	1,2-Dichloropropane	0.150U	9.86	0.150	ug/Kg
108-67-8	1,3,5-Trimethylbenzene	0.260U	9.86	0.260	ug/Kg
541-73-1	1,3-Dichlorobenzene	0.387U	9.86	0.387	ug/Kg
142-28-9	1,3-Dichloropropane	0.230U	9.86	0.230	ug/Kg
106-46-7	1,4-Dichlorobenzene	0.395U	9.86	0.395	ug/Kg
594-20-7	2,2-Dichloropropane	0.491U	9.86	0.491	ug/Kg
78-93-3	2-Butanone	0.637U	9.86	0.637	ug/Kg
95-49-8	2-Chlorotoluene	0.291U	9.86	0.291	ug/Kg
591-78-6	2-Hexanone	0.582U	9.86	0.582	ug/Kg
106-43-4	4-Chlorotoluene	0.304U	9.86	0.304	ug/Kg
99-87-6	4-Isopropyltoluene	0.235U	9.86	0.235	ug/Kg
108-10-1	4-Methyl-2-pentanone	0.304U	9.86	0.304	ug/Kg
67-64-1	Acetone	0.584U	49.3	0.584	ug/Kg
71-43-2	**Benzene**	**2.95J**	**9.86**	**0.100**	**ug/Kg**
108-86-1	Bromobenzene	0.299U	9.86	0.299	ug/Kg
74-97-5	Bromochloromethane	0.654U	9.86	0.654	ug/Kg
75-27-4	Bromodichloromethane	0.204U	9.86	0.204	ug/Kg
75-25-2	Bromoform	0.861U	9.86	0.861	ug/Kg
74-83-9	Bromomethane	0.958U	9.86	0.958	ug/Kg
75-15-0	Carbon disulfide	0.369U	9.86	0.369	ug/Kg
56-23-5	Carbon tetrachloride	0.372U	9.86	0.372	ug/Kg
108-90-7	Chlorobenzene	0.255U	9.86	0.255	ug/Kg
75-00-3	Chloroethane	0.397U	9.86	0.397	ug/Kg
67-66-3	Chloroform	0.340U	9.86	0.340	ug/Kg
74-87-3	Chloromethane	0.380U	9.86	0.380	ug/Kg
74-95-3	Dibromomethane	0.359U	9.86	0.359	ug/Kg

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210202	**SC-1**	Solid	08/20/2013 11:05	08/21/2013 09:55

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/25/2013 19:04	JCK	514469

CAS#	Parameter	Result	RDL	MDL	Units
75-71-8	Dichlorodifluoromethane	0.442U	9.86	0.442	ug/Kg
100-41-4	Ethylbenzene	0.361U	9.86	0.361	ug/Kg
87-68-3	Hexachlorobutadiene	0.723U	9.86	0.723	ug/Kg
98-82-8	Isopropylbenzene (Cumene)	0.206U	9.86	0.206	ug/Kg
75-09-2	Methylene chloride	1.01U	19.7	1.01	ug/Kg
91-20-3	Naphthalene	0.765U	9.86	0.765	ug/Kg
100-42-5	Styrene	0.164U	9.86	0.164	ug/Kg
127-18-4	Tetrachloroethene	0.584U	9.86	0.584	ug/Kg
108-88-3	**Toluene**	**2.20J**	**9.86**	**0.211**	**ug/Kg**
79-01-6	Trichloroethene	0.251U	9.86	0.251	ug/Kg
75-69-4	Trichlorofluoromethane	0.255U	9.86	0.255	ug/Kg
75-01-4	Vinyl chloride	0.382U	9.86	0.382	ug/Kg
156-59-2	cis-1,2-Dichloroethene	0.225U	9.86	0.225	ug/Kg
10061-01-5	cis-1,3-Dichloropropene	0.255U	9.86	0.255	ug/Kg
136777-61-2	m,p-Xylene	0.329U	19.7	0.329	ug/Kg
104-51-8	n-Butylbenzene	0.342U	9.86	0.342	ug/Kg
103-65-1	n-Propylbenzene	0.234U	9.86	0.234	ug/Kg
95-47-6	o-Xylene	0.158U	9.86	0.158	ug/Kg
135-98-8	sec-Butylbenzene	0.322U	9.86	0.322	ug/Kg
1634-04-4	tert-Butyl methyl ether (MTBE)	0.120U	9.86	0.120	ug/Kg
98-06-6	tert-Butylbenzene	0.681U	9.86	0.681	ug/Kg
156-60-5	trans-1,2-Dichloroethene	0.235U	9.86	0.235	ug/Kg
10061-02-6	trans-1,3-Dichloropropene	0.162U	9.86	0.162	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	62.8	66.5	ug/Kg	106	85 - 120
1868-53-7	Dibromofluoromethane	62.8	65.9	ug/Kg	105	65 - 130
2037-26-5	Toluene d8	62.8	63.4	ug/Kg	101	85 - 115
17060-07-0	1,2-Dichloroethane-d4	62.8	65.9	ug/Kg	105	62 - 125

EPA 8015C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 13:00	514232	SW-846 3550C	1	08/23/2013 13:06	PMM	514524

CAS#	Parameter	Result	RDL	MDL	Units
GCSV-00-4	**Diesel Range Organics**	**4490J**	**6260**	**2040**	**ug/Kg**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	1660	1300	ug/Kg	78	63 - 120

TX1005 Hydrocarbons by Range

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/23/2013 12:10	514264	TX 1005	1	08/26/2013 14:05	SMH	514592

CAS#	Parameter	Result	RDL	MDL	Units
GCSV-05-02	>C12-C28	6630U	76200	6630	ug/Kg

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210202	**SC-1**	Solid	08/20/2013 11:05	08/21/2013 09:55

TX1005 Hydrocarbons by Range

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/23/2013 12:10	514264	TX 1005	1	08/26/2013 14:05	SMH	514592

CAS#	Parameter	Result	RDL	MDL	Units
GCSV-05-03	>C28-C35	6630U	76200	6630	ug/Kg
GCSV-05-01	C6-C12	6780U	76200	6780	ug/Kg
GCSV-05-04	Total TPH (C6-C35)	6630U	76200	6630	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
84-15-1	o-Terphenyl	48500	62600	ug/Kg	129	58 - 148

EPA 8330A

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/27/2013 11:00	514470	SW-846 8330A	1	09/08/2013 01:57	DLB	515352

CAS#	Parameter	Result	RDL	MDL	Units
99-35-4	1,3,5-Trinitrobenzene	66.5U	314	66.5	ug/Kg
99-65-0	1,3-Dinitrobenzene	38.6U	314	38.6	ug/Kg
118-96-7	2,4,6-Trinitrotoluene	114U	314	114	ug/Kg
121-14-2	2,4-Dinitrotoluene	71.4U	314	71.4	ug/Kg
606-20-2	2,6-Dinitrotoluene	131U	314	131	ug/Kg
355-72-78-2	2-Amino-4,6-dinitrotoluene	102U	314	102	ug/Kg
88-72-2	2-Nitrotoluene	38.9U	314	38.9	ug/Kg
99-08-1	3-Nitrotoluene	130U	314	130	ug/Kg
1946-51-0	4-Amino-2,6-dinitrotoluene	71.7U	314	71.7	ug/Kg
99-99-0	4-Nitrotoluene	78.9U	314	78.9	ug/Kg
2691-41-0	HMX	56.5U	314	56.5	ug/Kg
98-95-3	Nitrobenzene	38.6U	314	38.6	ug/Kg
121-82-4	RDX	60.0U	314	60.0	ug/Kg
479-45-8	Tetryl	176U	314	176	ug/Kg

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
528-29-0	1,2-Dinitrobenzene	400	371	ug/Kg	93	50 - 150

EPA 6020A

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
09/04/2013 12:30	514307	SW-846 3050B	10	09/09/2013 14:28	BAM	515375

CAS#	Parameter	Result	RDL	MDL	Units
7440-38-2	**Arsenic**	**2180**	**628**	**157**	**ug/Kg**
7440-28-0	Thallium	157U	628	157	ug/Kg

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210202	**SC-1**	Solid	08/20/2013 11:05	08/21/2013 09:55

EPA 7471B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/23/2013 11:30	514309	SW-846 7471B	1	08/26/2013 17:35	CMB	514406

CAS#	Parameter	Result	RDL	MDL	Units
7439-97-6	Mercury	0.0062U	0.019	0.0062	mg/kg

EPA 6010C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 15:30	514237	SW-846 3050B	1	08/23/2013 23:10	PJS	514391

CAS#	Parameter	Result	RDL	MDL	Units
7429-90-5	**Aluminum**	**11300**	**12.5**	**3.11**	**mg/kg**
7440-36-0	Antimony	0.93U	3.74	0.93	mg/kg
7440-39-3	**Barium**	**133**	**0.62**	**0.16**	**mg/kg**
7440-41-7	**Beryllium**	**0.81**	**0.25**	**0.062**	**mg/kg**
7440-43-9	Cadmium	0.078U	0.31	0.078	mg/kg
7440-70-2	**Calcium**	**19200**	**49.8**	**12.5**	**mg/kg**
7440-47-3	**Chromium**	**15.3**	**0.62**	**0.16**	**mg/kg**
7440-48-4	**Cobalt**	**7.35**	**0.62**	**0.16**	**mg/kg**
7440-50-8	**Copper**	**15.9**	**1.25**	**0.31**	**mg/kg**
7439-89-6	**Iron**	**16100**	**12.5**	**3.11**	**mg/kg**
7439-92-1	**Lead**	**14.1**	**0.93**	**0.23**	**mg/kg**
7439-95-4	**Magnesium**	**5540**	**12.5**	**3.11**	**mg/kg**
7439-96-5	**Manganese**	**409**	**0.93**	**0.23**	**mg/kg**
7439-98-7	Molybdenum	0.47U	1.87	0.47	mg/kg
7440-02-0	**Nickel**	**17.9**	**2.49**	**0.62**	**mg/kg**
7440-09-7	**Potassium**	**2670**	**31.1**	**7.78**	**mg/kg**
7782-49-2	Selenium	0.62U	2.49	0.62	mg/kg
7440-22-4	**Silver**	**0.20J**	**0.62**	**0.16**	**mg/kg**
7440-23-5	**Sodium**	**1050**	**62.3**	**15.6**	**mg/kg**
7440-32-6	**Titanium**	**54.1**	**0.62**	**0.16**	**mg/kg**
7440-62-2	**Vanadium**	**21.2**	**1.25**	**0.31**	**mg/kg**
7440-66-6	**Zinc**	**45.4**	**1.25**	**0.31**	**mg/kg**

EPA 353.2 Rev. 2

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/27/2013 15:00	514649	EPA 353.2	5	08/28/2013 09:42	AEL	514650

CAS#	Parameter	Result	RDL	MDL	Units
14797-55-8	**Nitrate**	**0.634J**	**3.92**	**0.204**	**mg/kg-N**

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210202	**SC-1**	Solid	08/20/2013 11:05	08/21/2013 09:55

EPA 353.2 Rev. 2

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/27/2013 15:00	514651	EPA 353.2	5	08/28/2013 10:11	AEL	514652

CAS#	Parameter	Result	RDL	MDL	Units
14797-65-0	**Nitrite**	**1.40J**	**3.92**	**0.259**	**mg/kg-N**

EPA 9045D

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/25/2013 12:30	DNM	514449

CAS#	Parameter	Result	RDL	MDL	Units
pH	**pH**	**8.83**	**1.00**	**1.00**	**pH unit**

EPA 9056A

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/28/2013 13:00	514740	SW-846 5050	5	08/30/2013 19:34	AEL	514741

CAS#	Parameter	Result	RDL	MDL	Units
16887-00-6	**Chloride**	**146**	**7.85**	**1.65**	**mg/kg**
14808-79-8	**Sulfate**	**337**	**15.7**	**6.20**	**mg/kg**

EPA 7196A

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/26/2013 10:50	514444	SW-846 3060A	1	08/26/2013 15:16	DMT	514542

CAS#	Parameter	Result	RDL	MDL	Units
18540-29-9	Chromium VI	0.487U	0.785	0.487	mg/kg

EPA 9012B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
08/22/2013 09:30	514234	SW-846 9012B	5	08/22/2013 15:03	AEL	514330

CAS#	Parameter	Result	RDL	MDL	Units
57-12-5	**Cyanide**	**0.43J**	**2.0**	**0.038**	**mg/kg**

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210202	**SC-1**	Solid	08/20/2013 11:05	08/21/2013 09:55

EPA 1030

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/22/2013 16:00	AEL	514373

CAS#	Parameter	Result	RDL	MDL	Units
000000-01-7	Ignitable	NO			

RESULTS REPORTED ON A DRY WEIGHT BASIS

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210203	**TB-1**	Water	08/20/2013 11:01	08/21/2013 09:55

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/25/2013 18:23	JCK	514466

CAS#	Parameter	Result	RDL	MDL	Units
630-20-6	1,1,1,2-Tetrachloroethane	0.120U	1.00	0.120	ug/L
71-55-6	1,1,1-Trichloroethane	0.123U	1.00	0.123	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.109U	1.00	0.109	ug/L
79-00-5	1,1,2-Trichloroethane	0.159U	1.00	0.159	ug/L
75-34-3	1,1-Dichloroethane	0.171U	1.00	0.171	ug/L
75-35-4	1,1-Dichloroethene	0.200U	1.00	0.200	ug/L
563-58-6	1,1-Dichloropropene	0.052U	1.00	0.052	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.079U	1.00	0.079	ug/L
96-18-4	1,2,3-Trichloropropane	0.065U	1.00	0.065	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.105U	1.00	0.105	ug/L
95-63-6	1,2,4-Trimethylbenzene	0.084U	1.00	0.084	ug/L
96-12-8	1,2-Dibromo-3-chloropropane	0.194U	1.00	0.194	ug/L
106-93-4	1,2-Dibromoethane	0.102U	1.00	0.102	ug/L
95-50-1	1,2-Dichlorobenzene	0.135U	1.00	0.135	ug/L
107-06-2	1,2-Dichloroethane	0.116U	1.00	0.116	ug/L
78-87-5	1,2-Dichloropropane	0.150U	1.00	0.150	ug/L
108-67-8	1,3,5-Trimethylbenzene	0.066U	1.00	0.066	ug/L
541-73-1	1,3-Dichlorobenzene	0.138U	1.00	0.138	ug/L
142-28-9	1,3-Dichloropropane	0.059U	1.00	0.059	ug/L
106-46-7	1,4-Dichlorobenzene	0.083U	1.00	0.083	ug/L
594-20-7	2,2-Dichloropropane	0.170U	1.00	0.170	ug/L
78-93-3	2-Butanone	0.142U	5.00	0.142	ug/L
95-49-8	2-Chlorotoluene	0.080U	1.00	0.080	ug/L
591-78-6	2-Hexanone	0.122U	5.00	0.122	ug/L
106-43-4	4-Chlorotoluene	0.124U	1.00	0.124	ug/L
99-87-6	4-Isopropyltoluene	0.070U	1.00	0.070	ug/L
108-10-1	4-Methyl-2-pentanone	0.120U	5.00	0.120	ug/L
67-64-1	**Acetone**	**3.35J**	**5.00**	**0.193**	**ug/L**
71-43-2	Benzene	0.111U	1.00	0.111	ug/L
108-86-1	Bromobenzene	0.145U	1.00	0.145	ug/L
74-97-5	Bromochloromethane	0.127U	1.00	0.127	ug/L
75-27-4	Bromodichloromethane	0.083U	1.00	0.083	ug/L
75-25-2	Bromoform	0.215U	1.00	0.215	ug/L
74-83-9	Bromomethane	0.427U	1.00	0.427	ug/L
75-15-0	Carbon disulfide	0.190U	1.00	0.190	ug/L
56-23-5	Carbon tetrachloride	0.248U	1.00	0.248	ug/L
108-90-7	Chlorobenzene	0.083U	1.00	0.083	ug/L
75-00-3	Chloroethane	0.235U	1.00	0.235	ug/L
67-66-3	Chloroform	0.155U	1.00	0.155	ug/L
74-87-3	**Chloromethane**	**1.84**	**1.00**	**0.144**	**ug/L**
74-95-3	Dibromomethane	0.211U	1.00	0.211	ug/L
75-71-8	Dichlorodifluoromethane	0.145U	1.00	0.145	ug/L
100-41-4	Ethylbenzene	0.109U	1.00	0.109	ug/L
87-68-3	Hexachlorobutadiene	0.265U	1.00	0.265	ug/L
98-82-8	Isopropylbenzene (Cumene)	0.130U	1.00	0.130	ug/L
75-09-2	**Methylene chloride**	**1.29J**	**5.00**	**0.149**	**ug/L**
91-20-3	Naphthalene	0.176U	1.00	0.176	ug/L
100-42-5	Styrene	0.089U	1.00	0.089	ug/L
127-18-4	Tetrachloroethene	0.193U	1.00	0.193	ug/L
108-88-3	Toluene	0.122U	1.00	0.122	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21308210203	**TB-1**	Water	08/20/2013 11:01	08/21/2013 09:55

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	08/25/2013 18:23	JCK	514466

CAS#	Parameter	Result	RDL	MDL	Units
79-01-6	Trichloroethene	0.161U	1.00	0.161	ug/L
75-69-4	Trichlorofluoromethane	0.157U	1.00	0.157	ug/L
75-01-4	Vinyl chloride	0.127U	1.00	0.127	ug/L
156-59-2	cis-1,2-Dichloroethene	0.103U	1.00	0.103	ug/L
10061-01-5	cis-1,3-Dichloropropene	0.124U	1.00	0.124	ug/L
136777-61-2	m,p-Xylene	0.123U	2.00	0.123	ug/L
104-51-8	n-Butylbenzene	0.123U	1.00	0.123	ug/L
103-65-1	n-Propylbenzene	0.727U	1.00	0.727	ug/L
95-47-6	o-Xylene	0.055U	1.00	0.055	ug/L
135-98-8	sec-Butylbenzene	0.107U	1.00	0.107	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.078U	5.00	0.078	ug/L
98-06-6	tert-Butylbenzene	0.087U	1.00	0.087	ug/L
156-60-5	trans-1,2-Dichloroethene	0.077U	1.00	0.077	ug/L
10061-02-6	trans-1,3-Dichloropropene	0.128U	1.00	0.128	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	51.6	ug/L	103	75 - 120
1868-53-7	Dibromofluoromethane	50	50.1	ug/L	100	85 - 115
2037-26-5	Toluene d8	50	52.2	ug/L	104	85 - 120
17060-07-0	1,2-Dichloroethane-d4	50	48.5	ug/L	97	70 - 120

GC/MS Volatiles Quality Control Summary

Analytical Batch	514466	**Client ID**	MB514466			LCS514466			LCSD514466		
Prep Batch	N/A	**GCAL ID**	1227233			1227234			1227235		
		Sample Type	Method Blank			LCS			LCSD		
		Analytical Date	08/25/2013 12:36			08/25/2013 10:48			08/25/2013 11:10		
		Matrix	Water			Water			Water		
EPA 8260B		**Units**	**Result**	ug/L **RDL**	**Spike Added**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
67-64-1	Acetone		0.193U	0.193	50.0	52.3	105	40 - 140	53.8	108	3	30
74-97-5	Bromochloromethane		0.127U	0.127	50.0	57.9	116	65 - 130	55.7	111	4	30
75-27-4	Bromodichloromethane		0.083U	0.083	50.0	57.6	115	75 - 120	55.8	112	3	30
75-25-2	Bromoform		0.215U	0.215	50.0	59.2	118	70 - 130	57.7	115	3	30
74-83-9	Bromomethane		0.427U	0.427	50.0	43.6	87	30 - 145	54.8	110	23	30
75-15-0	Carbon disulfide		0.190U	0.190	50.0	47.6	95	35 - 160	47.1	94	1	30
56-23-5	Carbon tetrachloride		0.248U	0.248	50.0	57.0	114	65 - 140	54.0	108	5	30
75-00-3	Chloroethane		0.235U	0.235	50.0	56.0	112	60 - 135	55.0	110	2	30
136777-61-2	m,p-Xylene		0.123U	0.123	100	114	114	75 - 130	108	108	5	30
67-66-3	Chloroform		0.155U	0.155	50.0	53.1	106	65 - 135	51.0	102	4	30
74-87-3	Chloromethane		0.144U	0.144	50.0	48.3	97	40 - 125	47.8	96	1	30
74-95-3	Dibromomethane		0.211U	0.211	50.0	56.9	114	75 - 125	55.1	110	3	30
75-71-8	Dichlorodifluoromethane		0.145U	0.145	50.0	47.2	94	30 - 155	45.2	90	4	30
75-34-3	1,1-Dichloroethane		0.171U	0.171	50.0	52.8	106	70 - 135	51.2	102	3	30
107-06-2	1,2-Dichloroethane		0.116U	0.116	50.0	53.0	106	70 - 130	51.7	103	2	30
156-59-2	cis-1,2-Dichloroethene		0.103U	0.103	50.0	52.5	105	70 - 125	51.2	102	3	30
156-60-5	trans-1,2-Dichloroethene		0.077U	0.077	50.0	51.6	103	60 - 140	49.8	100	4	30
75-09-2	Methylene chloride		0.149U	0.149	50.0	50.0	100	55 - 140	48.5	97	3	30
78-87-5	1,2-Dichloropropane		0.150U	0.150	50.0	54.3	109	75 - 125	52.8	106	3	30
10061-01-5	cis-1,3-Dichloropropene		0.124U	0.124	50.0	57.5	115	70 - 130	55.0	110	4	30
10061-02-6	trans-1,3-Dichloropropene		0.128U	0.128	50.0	58.4	117	55 - 140	56.2	112	4	30
100-41-4	Ethylbenzene		0.109U	0.109	50.0	56.9	114	75 - 125	53.8	108	6	30
591-78-6	2-Hexanone		0.122U	0.122	50.0	54.8	110	55 - 130	54.1	108	1	30
98-82-8	Isopropylbenzene (Cumene)		0.130U	0.130	50.0	58.2	116	75 - 125	55.1	110	5	30
78-93-3	2-Butanone		0.142U	0.142	50.0	53.6	107	30 - 150	53.3	107	1	30
108-10-1	4-Methyl-2-pentanone		0.120U	0.120	50.0	50.9	102	60 - 135	50.4	101	1	30
103-65-1	n-Propylbenzene		0.727U	0.727	50.0	55.7	111	70 - 130	51.6	103	8	30
100-42-5	Styrene		0.089U	0.089	50.0	58.0	116	65 - 135	55.5	111	4	30
127-18-4	Tetrachloroethene		0.193U	0.193	50.0	57.9	116	45 - 150	54.9	110	5	30
630-20-6	1,1,1,2-Tetrachloroethane		0.120U	0.120	50.0	60.2	120	80 - 130	58.1	116	4	30
79-34-5	1,1,2,2-Tetrachloroethane		0.109U	0.109	50.0	57.8	116	65 - 130	54.3	109	6	30
120-82-1	1,2,4-Trichlorobenzene		0.105U	0.105	50.0	57.6	115	65 - 135	54.4	109	6	30
71-55-6	1,1,1-Trichloroethane		0.123U	0.123	50.0	54.8	110	65 - 130	52.6	105	4	30

GC/MS Volatiles Quality Control Summary

Analytical Batch	514466	**Client ID**	MB514466			LCS514466			LCSD514466		
Prep Batch	N/A	**GCAL ID**	1227233			1227234			1227235		
		Sample Type	Method Blank			LCS			LCSD		
		Analytical Date	08/25/2013 12:36			08/25/2013 10:48			08/25/2013 11:10		
		Matrix	Water			Water			Water		
EPA 8260B		**Units**	ug/L	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
79-00-5	1,1,2-Trichloroethane	0.159U	0.159	50.0	56.4	113	75 - 125	55.3	111	2	30
75-69-4	Trichlorofluoromethane	0.157U	0.157	50.0	48.5	97	60 - 145	48.7	97	0	30
96-18-4	1,2,3-Trichloropropane	0.065U	0.065	50.0	52.8	106	75 - 125	53.5	107	1	30
95-63-6	1,2,4-Trimethylbenzene	0.084U	0.084	50.0	56.0	112	75 - 130	52.3	105	7	30
108-67-8	1,3,5-Trimethylbenzene	0.066U	0.066	50.0	56.3	113	75 - 130	52.8	106	6	30
75-01-4	Vinyl chloride	0.127U	0.127	50.0	55.0	110	50 - 145	53.0	106	4	30
95-47-6	o-Xylene	0.055U	0.055	50.0	57.7	115	80 - 120	54.9	110	5	30
96-12-8	1,2-Dibromo-3-chloropropane	0.194U	0.194	50.0	56.5	113	50 - 130	55.1	110	3	30
106-93-4	1,2-Dibromoethane	0.102U	0.102	50.0	57.2	114	80 - 120	55.5	111	3	30
1634-04-4	tert-Butyl methyl ether (MTBE)	0.078U	0.078	50.0	50.8	102	65 - 125	50.0	100	2	30
99-87-6	4-Isopropyltoluene	0.070U	0.070	50.0	57.8	116	75 - 130	53.0	106	9	30
594-20-7	2,2-Dichloropropane	0.170U	0.170	50.0	57.3	115	70 - 135	54.0	108	6	30
563-58-6	1,1-Dichloropropene	0.052U	0.052	50.0	52.1	104	75 - 130	49.5	99	5	30
142-28-9	1,3-Dichloropropane	0.059U	0.059	50.0	55.2	110	75 - 125	53.4	107	3	30
108-86-1	Bromobenzene	0.145U	0.145	50.0	54.3	109	75 - 125	50.5	101	7	30
95-49-8	2-Chlorotoluene	0.080U	0.080	50.0	55.6	111	75 - 125	51.9	104	7	30
106-43-4	4-Chlorotoluene	0.124U	0.124	50.0	55.7	111	75 - 130	52.0	104	7	30
98-06-6	tert-Butylbenzene	0.087U	0.087	50.0	55.4	111	70 - 130	51.2	102	8	30
135-98-8	sec-Butylbenzene	0.107U	0.107	50.0	56.9	114	70 - 125	52.0	104	9	30
541-73-1	1,3-Dichlorobenzene	0.138U	0.138	50.0	58.3	117	75 - 125	54.8	110	6	30
106-46-7	1,4-Dichlorobenzene	0.083U	0.083	50.0	57.2	114	75 - 125	52.8	106	8	30
104-51-8	n-Butylbenzene	0.123U	0.123	50.0	56.3	113	70 - 135	51.4	103	9	30
95-50-1	1,2-Dichlorobenzene	0.135U	0.135	50.0	57.6	115	70 - 120	54.4	109	6	30
87-68-3	Hexachlorobutadiene	0.265U	0.265	50.0	58.3	117	50 - 140	55.2	110	5	30
91-20-3	Naphthalene	0.176U	0.176	50.0	54.4	109	55 - 140	53.9	108	1	30
87-61-6	1,2,3-Trichlorobenzene	0.079U	0.079	50.0	56.8	114	55 - 140	54.4	109	4	30
75-35-4	1,1-Dichloroethene	0.200U	0.200	50.0	49.4	99	70 - 130	48.7	97	1	30
71-43-2	Benzene	0.111U	0.111	50.0	52.7	105	80 - 120	50.5	101	4	30
79-01-6	Trichloroethene	0.161U	0.161	50.0	54.6	109	70 - 125	52.8	106	3	30
108-88-3	Toluene	0.122U	0.122	50.0	53.9	108	75 - 120	52.1	104	3	30
108-90-7	Chlorobenzene	0.083U	0.083	50.0	56.5	113	80 - 120	54.0	108	5	30
Surrogate											
460-00-4	4-Bromofluorobenzene	50.3	101	50	51.9	104	75 - 120	53.1	106		

GC/MS Volatiles Quality Control Summary

Analytical Batch	514466	**Client ID**	MB514466			LCS514466			LCSD514466			
Prep Batch	N/A	**GCAL ID**	1227233			1227234			1227235			
		Sample Type	Method Blank			LCS			LCSD			
		Analytical Date	08/25/2013 12:36			08/25/2013 10:48			08/25/2013 11:10			
		Matrix	Water			Water			Water			
EPA 8260B		**Units**	**Result**	ug/L **RDL**	**Spike Added**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
1868-53-7	Dibromofluoromethane		49.4	99	50	50.6	101	85 - 115	50.9	102		
2037-26-5	Toluene d8		52.3	105	50	49.8	100	85 - 120	48.9	98		
17060-07-0	1,2-Dichloroethane-d4		50.2	100	50	49.4	99	70 - 120	49.7	99		

Analytical Batch	514469	**Client ID**	MB514469			LCS514469			LCSD514469			
Prep Batch	N/A	**GCAL ID**	1227245			1227246			1227247			
		Sample Type	Method Blank			LCS			LCSD			
		Analytical Date	08/25/2013 16:12			08/25/2013 14:30			08/25/2013 17:03			
		Matrix	Solid			Solid			Solid			
EPA 8260B		**Units**	**Result**	ug/Kg **RDL**	**Spike Added**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
67-64-1	Acetone		0.296U	0.296	50.0	50.8	102	20 - 160	51.4	103	1	30
74-97-5	Bromochloromethane		0.332U	0.332	50.0	54.3	109	70 - 125	54.1	108	0	30
75-27-4	Bromodichloromethane		0.104U	0.104	50.0	52.5	105	70 - 130	51.3	103	2	30
75-25-2	Bromoform		0.437U	0.437	50.0	49.8	100	55 - 135	46.1	92	8	30
74-83-9	Bromomethane		0.486U	0.486	50.0	53.0	106	30 - 160	54.7	109	3	30
75-15-0	Carbon disulfide		0.187U	0.187	50.0	50.8	102	45 - 160	54.1	108	6	30
56-23-5	Carbon tetrachloride		0.189U	0.189	50.0	54.2	108	65 - 135	54.1	108	0	30
75-00-3	Chloroethane		0.202U	0.202	50.0	51.0	102	40 - 155	53.7	107	5	30
136777-61-2	m,p-Xylene		0.167U	0.167	100	104	104	80 - 125	97.0	97	7	30
67-66-3	Chloroform		0.172U	0.172	50.0	48.8	98	70 - 125	49.9	100	2	30
74-87-3	Chloromethane		0.193U	0.193	50.0	47.1	94	50 - 130	49.7	99	5	30
74-95-3	Dibromomethane		0.182U	0.182	50.0	51.0	102	75 - 130	49.4	99	3	30
75-71-8	Dichlorodifluoromethane		0.224U	0.224	50.0	50.7	101	35 - 135	55.1	110	8	30
75-34-3	1,1-Dichloroethane		0.096U	0.096	50.0	50.8	102	75 - 125	49.8	100	2	30
107-06-2	1,2-Dichloroethane		0.198U	0.198	50.0	49.2	98	70 - 135	48.2	96	2	30
156-59-2	cis-1,2-Dichloroethene		0.114U	0.114	50.0	53.9	108	65 - 125	51.5	103	5	30
156-60-5	trans-1,2-Dichloroethene		0.119U	0.119	50.0	53.0	106	65 - 135	52.6	105	1	30
75-09-2	Methylene chloride		2.75J	0.512	50.0	51.8	104	55 - 140	50.2	100	3	30
78-87-5	1,2-Dichloropropane		0.076U	0.076	50.0	54.8	110	70 - 120	52.3	105	5	30
10061-01-5	cis-1,3-Dichloropropene		0.129U	0.129	50.0	58.3	117	70 - 125	55.7	111	5	30
10061-02-6	trans-1,3-Dichloropropene		0.082U	0.082	50.0	57.0	114	65 - 125	54.9	110	4	30

GC/MS Volatiles Quality Control Summary

Analytical Batch 514469	**Client ID**	MB514469	LCS514469	LCSD514469	
Prep Batch N/A	**GCAL ID**	1227245	1227246	1227247	
	Sample Type	Method Blank	LCS	LCSD	
	Analytical Date	08/25/2013 16:12	08/25/2013 14:30	08/25/2013 17:03	
	Matrix	Solid	Solid	Solid	

EPA 8260B		**Units**	ug/Kg	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
100-41-4	Ethylbenzene	0.183U	0.183	50.0	55.0	110	75 - 125	51.1	102	7	30
591-78-6	2-Hexanone	0.295U	0.295	50.0	51.8	104	45 - 145	46.1	92	12	30
98-82-8	Isopropylbenzene (Cumene)	0.105U	0.105	50.0	49.9	100	75 - 130	48.0	96	4	30
78-93-3	2-Butanone	0.323U	0.323	50.0	49.5	99	30 - 160	47.2	94	5	30
108-10-1	4-Methyl-2-pentanone	0.154U	0.154	50.0	50.1	100	45 - 145	45.8	92	9	30
103-65-1	n-Propylbenzene	0.119U	0.119	50.0	46.2	92	65 - 135	45.4	91	2	30
100-42-5	Styrene	0.083U	0.083	50.0	49.6	99	75 - 125	46.1	92	7	30
127-18-4	Tetrachloroethene	0.296U	0.296	50.0	51.7	103	65 - 140	49.8	100	4	30
630-20-6	1,1,1,2-Tetrachloroethane	0.178U	0.178	50.0	51.4	103	75 - 125	47.4	95	8	30
79-34-5	1,1,2,2-Tetrachloroethane	0.175U	0.175	50.0	46.4	93	55 - 130	45.2	90	3	30
120-82-1	1,2,4-Trichlorobenzene	0.305U	0.305	50.0	53.9	108	65 - 130	51.8	104	4	30
71-55-6	1,1,1-Trichloroethane	0.162U	0.162	50.0	53.8	108	70 - 135	52.8	106	2	30
79-00-5	1,1,2-Trichloroethane	0.064U	0.064	50.0	49.4	99	60 - 125	47.2	94	5	30
75-69-4	Trichlorofluoromethane	0.129U	0.129	50.0	52.2	104	25 - 185	55.8	112	7	30
96-18-4	1,2,3-Trichloropropane	0.291U	0.291	50.0	47.6	95	63 - 130	45.1	90	5	30
95-63-6	1,2,4-Trimethylbenzene	0.144U	0.144	50.0	47.3	95	65 - 135	45.2	90	5	30
108-67-8	1,3,5-Trimethylbenzene	0.132U	0.132	50.0	46.4	93	65 - 135	45.3	91	2	30
75-01-4	Vinyl chloride	0.194U	0.194	50.0	49.4	99	60 - 125	54.7	109	10	30
95-47-6	o-Xylene	0.080U	0.080	50.0	51.3	103	75 - 125	47.0	94	9	30
96-12-8	1,2-Dibromo-3-chloropropane	0.285U	0.285	50.0	52.9	106	40 - 135	49.4	99	7	30
106-93-4	1,2-Dibromoethane	0.206U	0.206	50.0	51.0	102	70 - 125	46.5	93	9	30
1634-04-4	tert-Butyl methyl ether (MTBE)	0.061U	0.061	50.0	56.1	112	50 - 135	50.9	102	10	30
99-87-6	4-Isopropyltoluene	0.119U	0.119	50.0	46.0	92	75 - 135	45.9	92	0	30
594-20-7	2,2-Dichloropropane	0.249U	0.249	50.0	56.9	114	65 - 135	55.3	111	3	30
563-58-6	1,1-Dichloropropene	0.190U	0.190	50.0	58.2	116	70 - 135	58.1	116	0	30
142-28-9	1,3-Dichloropropane	0.117U	0.117	50.0	50.8	102	75 - 125	46.8	94	8	30
108-86-1	Bromobenzene	0.152U	0.152	50.0	47.4	95	65 - 120	45.8	92	3	30
95-49-8	2-Chlorotoluene	0.147U	0.147	50.0	50.0	100	70 - 130	48.8	98	2	30
106-43-4	4-Chlorotoluene	0.154U	0.154	50.0	51.7	103	75 - 125	50.2	100	3	30
98-06-6	tert-Butylbenzene	0.345U	0.345	50.0	45.4	91	65 - 130	44.1	88	3	30
135-98-8	sec-Butylbenzene	0.163U	0.163	50.0	46.2	92	65 - 130	46.1	92	0	30
541-73-1	1,3-Dichlorobenzene	0.196U	0.196	50.0	48.1	96	70 - 125	47.2	94	2	30
106-46-7	1,4-Dichlorobenzene	0.200U	0.200	50.0	47.8	96	70 - 125	46.7	93	2	30

GC/MS Volatiles Quality Control Summary

Analytical Batch	514469	**Client ID**	MB514469			LCS514469			LCSD514469		
Prep Batch	N/A	**GCAL ID**	1227245			1227246			1227247		
		Sample Type	Method Blank			LCS			LCSD		
		Analytical Date	08/25/2013 16:12			08/25/2013 14:30			08/25/2013 17:03		
		Matrix	Solid			Solid			Solid		
EPA 8260B		**Units**	**Result**	ug/Kg **RDL**	**Spike Added**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
104-51-8	n-Butylbenzene		0.173U	0.173	50.0	45.1	90	65 - 140	45.7	91	1	30
95-50-1	1,2-Dichlorobenzene		0.166U	0.166	50.0	48.6	97	75 - 120	46.3	93	5	30
87-68-3	Hexachlorobutadiene		0.367U	0.367	50.0	50.9	102	55 - 140	50.2	100	1	30
91-20-3	Naphthalene		0.388U	0.388	50.0	50.1	100	40 - 125	45.0	90	11	30
87-61-6	1,2,3-Trichlorobenzene		0.360U	0.360	50.0	52.4	105	60 - 135	49.4	99	6	30
75-35-4	1,1-Dichloroethene		0.227U	0.227	50.0	52.5	105	65 - 135	56.5	113	7	30
71-43-2	Benzene		0.051U	0.051	50.0	53.2	106	75 - 125	52.0	104	2	30
79-01-6	Trichloroethene		0.127U	0.127	50.0	54.6	109	75 - 125	52.5	105	4	30
108-88-3	Toluene		0.107U	0.107	50.0	50.4	101	70 - 125	47.4	95	6	30
108-90-7	Chlorobenzene		0.129U	0.129	50.0	51.6	103	75 - 125	47.8	96	8	30
Surrogate												
460-00-4	4-Bromofluorobenzene		54.2	108	50	55.5	111	85 - 120	53.2	106		
1868-53-7	Dibromofluoromethane		51.1	102	50	48.7	97	65 - 130	50.2	100		
2037-26-5	Toluene d8		51.6	103	50	49.2	98	85 - 115	48.1	96		
17060-07-0	1,2-Dichloroethane-d4		49.9	100	50	47.1	94	62 - 125	47.1	94		

General Chromatography Quality Control Summary

Analytical Batch	514524	**Client ID**	MB514232			LCS514232			LCSD514232		
Prep Batch	514232	**GCAL ID**	1226026			1226027			1226028		
Prep Method	SW-846	**Sample Type**	Method Blank			LCS			LCSD		
	3550C	**Prep Date**	08/22/2013 13:00			08/22/2013 13:00			08/22/2013 13:00		
		Analytical Date	08/23/2013 11:50			08/23/2013 12:05			08/23/2013 12:20		
		Matrix	Solid			Solid			Solid		
EPA 8015C		**Units**	**Result**	ug/Kg **RDL**	**Spike Added**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
GCSV-00-4	Diesel Range Organics		1310U	1310	33300	26200	78	50 - 124	26500	80	1	40
Surrogate												
84-15-1	o-Terphenyl		1320	79	1670	1350	81	63 - 120	1370	82		

Analytical Batch	514643	**Client ID**	MB514439			LCS514439			LCSD514439		
Prep Batch	514439	**GCAL ID**	1227084			1227085			1227086		
Prep Method	SW-846	**Sample Type**	Method Blank			LCS			LCSD		
	3510C	**Prep Date**	08/25/2013 15:30			08/25/2013 15:30			08/25/2013 15:30		
		Analytical Date	08/26/2013 18:23			08/26/2013 18:38			08/26/2013 18:53		
		Matrix	Water			Water			Water		
EPA 8015C		**Units**	**Result**	ug/L **RDL**	**Spike Added**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
GCSV-00-4	Diesel Range Organics		44.9U	44.9	1000	870	87	47 - 120	745	74	16	40
Surrogate												
84-15-1	o-Terphenyl		32.1	64	50	43.6	87	59 - 120	38.6	77		

General Chromatography Quality Control Summary

Analytical Batch	514592	**Client ID**	MB514264			LCS514264			LCSD514264			
Prep Batch	514264	**GCAL ID**	1226241			1226242			1226243			
Prep Method	TX 1005	**Sample Type**	Method Blank			LCS			LCSD			
		Prep Date	08/23/2013 12:10			08/23/2013 12:10			08/23/2013 12:10			
		Analytical Date	08/26/2013 12:30			08/26/2013 13:02			08/26/2013 13:35			
		Matrix	Solid			Solid			Solid			
TX1005 Hydrocarbons by Range		**Units**	**Result**	ug/Kg **RDL**	**Spike Added**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
GCSV-05-01	C6-C12		4450U	4450		98600			113000		14	
GCSV-05-02	>C12-C28		4350U	4350		139000			126000		10	
GCSV-05-03	>C28-C35		4350U	4350								
GCSV-05-04	Total TPH (C6-C35)		4350U	4350	200000	238000	119	75 - 125	239000	120	1	20
Surrogate												
84-15-1	o-Terphenyl		54500	109	50000	61100	122	58 - 148	57200	114		

Analytical Batch	514592	**Client ID**	MB514265			LCS514265			LCSD514265			
Prep Batch	514265	**GCAL ID**	1226246			1226247			1226248			
Prep Method	TX 1005	**Sample Type**	Method Blank			LCS			LCSD			
		Prep Date	08/23/2013 09:50			08/23/2013 09:50			08/23/2013 09:50			
		Analytical Date	08/26/2013 10:06			08/26/2013 10:57			08/26/2013 11:27			
		Matrix	Water			Water			Water			
TX1005 Hydrocarbons by Range		**Units**	**Result**	ug/L **RDL**	**Spike Added**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
GCSV-05-01	C6-C12		104U	104		31900			32400		1	
GCSV-05-02	>C12-C28		121U	121		46100			45700		1	
GCSV-05-03	>C28-C35		121U	121		0.00			0.00		0	
GCSV-05-04	Total TPH (C6-C35)		104U	104	63100	78000	124	75 - 125	78100	125	0	20
Surrogate												
84-15-1	o-Terphenyl		18200	118	15800	18200	115	58 - 148	18800	121		

General Chromatography Quality Control Summary

Analytical Batch	514592	**Client ID**	SC-1			1225911MS			1225911MSD		
Prep Batch	514264	**GCAL ID**	21308210202			1226244			1226245		
Prep Method	TX 1005	**Sample Type**	SAMPLE			MS			MSD		
		Prep Date	08/23/2013 12:10			08/23/2013 12:10			08/23/2013 12:10		
		Analytical Date	08/26/2013 14:05			08/26/2013 14:36			08/26/2013 15:06		
		Matrix	Solid			Solid			Solid		
TX1005 Hydrocarbons by Range		**Units**	ug/Kg		**Spike**	**Result**		**Control**	**Result**		**RPD**
		Result	**RDL**		**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
GCSV-05-04	Total TPH (C6-C35)	0.00	4220		198000	245000	124	75 - 125	230000	121	6	20
Surrogate												
84-15-1	o-Terphenyl	62600	129		49500	66200	134	58 - 148	51300	108		

General Chromatography Quality Control Summary

Analytical Batch	514586	**Client ID**	MB514460	LCS514460	LCSD514460
Prep Batch	514460	**GCAL ID**	1227215	1227216	1227217
Prep Method	SW-846	**Sample Type**	Method Blank	LCS	LCSD
	8330A	**Prep Date**	08/26/2013 05:00	08/26/2013 05:00	08/26/2013 05:00
		Analytical Date	08/26/2013 11:27	08/26/2013 12:00	08/26/2013 12:33
		Matrix	Water	Water	Water

EPA 8330A		**Units**	ug/L	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
2691-41-0	HMX	0.212U	0.212	2.00	1.78	89	80 - 115	1.86	93	4	30
121-82-4	RDX	0.189U	0.189	2.00	1.21	61	50 - 160	1.29	65	6	30
99-35-4	1,3,5-Trinitrobenzene	0.240U	0.240	2.00	1.33	67	65 - 140	1.54	77	15	30
99-65-0	1,3-Dinitrobenzene	0.167U	0.167	2.00	0.915	46	45 - 160	0.922	46	1	30
479-45-8	Tetryl	0.241U	0.241	2.00	0.678	34	20 - 175	0.773	39	13	30
98-95-3	Nitrobenzene	0.267U	0.267	2.00	1.05	53	50 - 140	1.11	56	6	30
118-96-7	2,4,6-Trinitrotoluene	0.483U	0.483	2.00	1.05	53	50 - 145	1.15	58	9	30
1946-51-0	4-Amino-2,6-dinitrotoluene	0.489U	0.489	2.00	1.53	77	55 - 155	1.38	69	10	30
355-72-78-2	2-Amino-4,6-dinitrotoluene	0.576U	0.576	2.00	1.95	98	50 - 155	1.65	83	17	30
121-14-2	2,4-Dinitrotoluene	0.501U	0.501	2.00	1.50	75	60 - 135	1.71	86	13	30
606-20-2	2,6-Dinitrotoluene	0.283U	0.283	2.00	1.72	86	60 - 135	1.52	76	12	30
88-72-2	2-Nitrotoluene	0.120U	0.120	2.00	1.13	57	45 - 135	1.12	56	1	30
99-08-1	3-Nitrotoluene	0.369U	0.369	2.00	1.39	70	50 - 130	1.54	77	10	30
99-99-0	4-Nitrotoluene	0.417U	0.417	2.00	1.64	82	50 - 130	1.20	60	**31***	30
55-63-0	Nitroglycerin	0.369U	0.369	2.00	1.32	66	40 - 140	1.88	94	**35***	30
78-11-5	Pentaerythritol Tetranitrate	0.502U	0.502	2.00	1.34	67	40 - 140	1.24	62	8	30
Surrogate											
528-29-0	1,2-Dinitrobenzene	.942	94	1	.885	89	60 - 140	.963	96		

Analytical Batch	515352	**Client ID**	MB514470	LCS514470	LCSD514470
Prep Batch	514470	**GCAL ID**	1227248	1227249	1227250
Prep Method	SW-846	**Sample Type**	Method Blank	LCS	LCSD
	8330A	**Prep Date**	08/27/2013 11:00	08/27/2013 11:00	08/27/2013 11:00
		Analytical Date	09/07/2013 22:36	09/07/2013 23:43	09/08/2013 00:50
		Matrix	Solid	Solid	Solid

EPA 8330A		**Units**	ug/Kg	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
2691-41-0	HMX	36.0U	36.0	400	389	97	75 - 125	383	96	2	30
121-82-4	RDX	38.2U	38.2	400	398	100	70 - 135	403	101	1	30
99-35-4	1,3,5-Trinitrobenzene	42.4U	42.4	400	311	78	75 - 125	360	90	15	30
99-65-0	1,3-Dinitrobenzene	24.6U	24.6	400	450	113	80 - 125	421	105	7	30

General Chromatography Quality Control Summary

Analytical Batch	515352	**Client ID**	MB514470	LCS514470	LCSD514470
Prep Batch	514470	**GCAL ID**	1227248	1227249	1227250
Prep Method	SW-846	**Sample Type**	Method Blank	LCS	LCSD
	8330A	**Prep Date**	08/27/2013 11:00	08/27/2013 11:00	08/27/2013 11:00
		Analytical Date	09/07/2013 22:36	09/07/2013 23:43	09/08/2013 00:50
		Matrix	Solid	Solid	Solid

EPA 8330A		**Units**	ug/Kg	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
479-45-8	Tetryl	112U	112	400	336	84	10 - 150	316	79	6	30
98-95-3	Nitrobenzene	24.6U	24.6	400	445	111	75 - 125	426	107	4	30
118-96-7	2,4,6-Trinitrotoluene	72.8U	72.8	400	479	120	55 - 140	355	89	30	30
1946-51-0	4-Amino-2,6-dinitrotoluene	45.7U	45.7	400	348	87	80 - 125	360	90	3	30
355-72-78-2	2-Amino-4,6-dinitrotoluene	65.0U	65.0	400	379	95	80 - 125	382	96	1	30
121-14-2	2,4-Dinitrotoluene	45.5U	45.5	400	346	87	80 - 125	378	95	9	30
606-20-2	2,6-Dinitrotoluene	83.2U	83.2	400	481	120	80 - 120	366	92	27	30
88-72-2	2-Nitrotoluene	24.8U	24.8	400	485	121	80 - 125	402	101	19	30
99-08-1	3-Nitrotoluene	82.9U	82.9	800	830	104	75 - 120	847	106	2	30
99-99-0	4-Nitrotoluene	50.3U	50.3	400	409	102	75 - 125	376	94	8	30
Surrogate											
528-29-0	1,2-Dinitrobenzene	355	89	400	361	90	50 - 150	345	86		

Analytical Batch	515352	**Client ID**	SC-1	1225911MS	1225911MSD
Prep Batch	514470	**GCAL ID**	21308210202	1227251	1227252
Prep Method	SW-846	**Sample Type**	SAMPLE	MS	MSD
	8330A	**Prep Date**	08/27/2013 11:00	08/27/2013 11:00	08/27/2013 11:00
		Analytical Date	09/08/2013 01:57	09/08/2013 03:04	09/08/2013 04:10
		Matrix	Solid	Solid	Solid

EPA 8330A		**Units**	ug/Kg	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
2691-41-0	HMX	0.00	36.0	400	367	92	75 - 125	397	99	8	30
121-82-4	RDX	0.00	38.2	400	346	87	70 - 135	359	90	4	30
99-35-4	1,3,5-Trinitrobenzene	0.00	42.4	400	378	95	75 - 125	386	97	2	30
99-65-0	1,3-Dinitrobenzene	0.00	24.6	400	417	104	80 - 125	412	103	1	30
479-45-8	Tetryl	0.00	112	400	141	35	10 - 150	114	29	21	30
98-95-3	Nitrobenzene	0.00	24.6	400	380	95	75 - 125	387	97	2	30
118-96-7	2,4,6-Trinitrotoluene	0.00	72.8	400	342	86	55 - 140	356	89	4	30
1946-51-0	4-Amino-2,6-dinitrotoluene	0.00	45.7	400	345	86	80 - 125	354	89	3	30
355-72-78-2	2-Amino-4,6-dinitrotoluene	0.00	65.0	400	376	94	80 - 125	385	96	2	30
121-14-2	2,4-Dinitrotoluene	0.00	45.5	400	417	104	80 - 125	353	88	17	30

General Chromatography Quality Control Summary

Analytical Batch	515352	**Client ID**	SC-1	1225911MS	1225911MSD
Prep Batch	514470	**GCAL ID**	21308210202	1227251	1227252
Prep Method	SW-846	**Sample Type**	SAMPLE	MS	MSD
	8330A	**Prep Date**	08/27/2013 11:00	08/27/2013 11:00	08/27/2013 11:00
		Analytical Date	09/08/2013 01:57	09/08/2013 03:04	09/08/2013 04:10
		Matrix	Solid	Solid	Solid

EPA 8330A		**Units**	ug/Kg	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
606-20-2	2,6-Dinitrotoluene	0.00	83.2	400	376	94	80 - 120	386	97	3	30
88-72-2	2-Nitrotoluene	0.00	24.8	400	421	105	80 - 125	395	99	6	30
99-08-1	3-Nitrotoluene	0.00	82.9	800	847	106	75 - 120	884	111	4	30
99-99-0	4-Nitrotoluene	0.00	50.3	400	417	104	75 - 125	444	111	6	30
Surrogate											
528-29-0	1,2-Dinitrobenzene	371	93	400	351	88	50 - 150	358	90		

Inorganics Quality Control Summary

Analytical Batch	515002	**Client ID**	MB514289		LCS514289		
Prep Batch	514289	**GCAL ID**	1226306		1226308		
Prep Method	SW-846	**Sample Type**	Method Blank		LCS		
	3010A	**Prep Date**	08/24/2013 07:30		08/24/2013 07:30		
		Analytical Date	09/03/2013 15:26		09/03/2013 15:55		
		Matrix	Water		Water		
EPA 6020A		**Units**	ug/L	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
7440-38-2	Arsenic	0.25U	0.25	50.0	48.9	98	80 - 120
7440-28-0	Thallium	0.25U	0.25	50.0	50.4	101	80 - 120

Analytical Batch	515002	**Client ID**	MW-6		MW-6 MS			MW-6 MSD				
Prep Batch	514289	**GCAL ID**	21308233805		21308233810			21308233811				
Prep Method	SW-846	**Sample Type**	SAMPLE		MS			MSD				
	3010A	**Prep Date**	08/24/2013 07:30		08/24/2013 07:30			08/24/2013 07:30				
		Analytical Date	09/03/2013 17:45		09/03/2013 19:13			09/03/2013 19:28				
		Matrix	Water		Water			Water				
EPA 6020A		**Units**	ug/L	**Spike**	**Result**		**Control**	**Result**				**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**		**Limit**
7440-38-2	Arsenic	1.05	0.50	50.0	55.0	108	80 - 120	55.5	109	1		20
7440-28-0	Thallium	0.0	0.50	50.0	50.4	101	80 - 120	50.6	101	0		20

Analytical Batch	515375	**Client ID**	MB514307		LCS514307		
Prep Batch	514307	**GCAL ID**	1226381		1226382		
Prep Method	SW-846	**Sample Type**	Method Blank		LCS		
	3050B	**Prep Date**	09/04/2013 12:30		09/04/2013 12:30		
		Analytical Date	09/09/2013 14:13		09/09/2013 14:21		
		Matrix	Solid		Solid		
EPA 6020A		**Units**	ug/Kg	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
7440-38-2	Arsenic	10.0U	10.0	2000	1850	93	80 - 120
7440-28-0	Thallium	10.0U	10.0	2000	2070	103	80 - 120

Inorganics Quality Control Summary

Analytical Batch	515375	**Client ID**	SC-1	1225911MS	1225911MSD
Prep Batch	514307	**GCAL ID**	21308210202	1229729	1229730
Prep Method	SW-846	**Sample Type**	SAMPLE	MS	MSD
	3050B	**Prep Date**	09/04/2013 12:30	09/04/2013 12:30	09/04/2013 12:30
		Analytical Date	09/09/2013 14:28	09/09/2013 14:35	09/09/2013 14:43
		Matrix	Solid	Solid	Solid

EPA 6020A		**Units**	ug/Kg	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
7440-38-2	Arsenic	1390	100	2000	2950	**78***	80 - 120	2720	**67***	8	20
7440-28-0	Thallium	56.3	100	2000	1990	97	80 - 120	2090	102	5	20

Inorganics Quality Control Summary

Analytical Batch	514375	**Client ID**	MB514304	LCS514304
Prep Batch	514304	**GCAL ID**	1226371	1226372
Prep Method	SW-846	**Sample Type**	Method Blank	LCS
	7470A	**Prep Date**	08/22/2013 13:45	08/22/2013 13:45
		Analytical Date	08/23/2013 11:36	08/23/2013 11:38
		Matrix	Water	Water

EPA 7470A		**Units**	ug/L	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
7439-97-6	Mercury	0.068U	0.068	5.00	5.72	114	80 - 120

Inorganics Quality Control Summary

Analytical Batch	514406	**Client ID**	MB514309		LCS514309		
Prep Batch	514309	**GCAL ID**	1226383		1226384		
Prep Method	SW-846	**Sample Type**	Method Blank		LCS		
	7471B	**Prep Date**	08/23/2013 11:30		08/23/2013 11:30		
		Analytical Date	08/26/2013 17:24		08/26/2013 17:26		
		Matrix	Solid		Solid		
EPA 7471B		**Units**	mg/kg	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
7439-97-6	Mercury	0.0033U	0.0033	0.25	0.22	88	80 - 120

Analytical Batch	514406	**Client ID**	SB-4-2-4		1226315MS			1226315MSD			
Prep Batch	514309	**GCAL ID**	21308220106		1226385			1226386			
Prep Method	SW-846	**Sample Type**	SAMPLE		MS			MSD			
	7471B	**Prep Date**	08/23/2013 11:30		08/23/2013 11:30			08/23/2013 11:30			
		Analytical Date	08/26/2013 17:28		08/26/2013 17:30			08/26/2013 17:31			
		Matrix	Solid		Solid			Solid			
EPA 7471B		**Units**	mg/kg	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
7439-97-6	Mercury	0.0	0.0033	0.25	0.26	103	80 - 120	0.23	94	10	20

Inorganics Quality Control Summary

Analytical Batch	514314	**Client ID**	MB514236	LCS514236
Prep Batch	514236	**GCAL ID**	1226037	1226038
Prep Method	SW-846	**Sample Type**	Method Blank	LCS
	3010A	**Prep Date**	08/22/2013 10:40	08/22/2013 10:40
		Analytical Date	08/22/2013 16:45	08/22/2013 16:52
		Matrix	Water	Water

EPA 6010C		**Units**	ug/L	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
7429-90-5	Aluminum	60.0U	60.0	5000	5110	102	80 - 120
7440-36-0	Antimony	15.0U	15.0	500	508	102	80 - 120
7440-39-3	Barium	2.50U	2.50	500	512	102	80 - 120
7440-41-7	Beryllium	1.00U	1.00	500	504	101	80 - 120
7440-43-9	Cadmium	0.20U	0.20	500	510	102	80 - 120
7440-70-2	Calcium	50.0U	50.0	5000	5150	103	80 - 120
7440-47-3	Chromium	1.00U	1.00	500	508	102	80 - 120
7440-48-4	Cobalt	1.00U	1.00	500	511	102	80 - 120
7440-50-8	Copper	5.00U	5.00	500	495	99	80 - 120
7439-89-6	Iron	40.0U	40.0	5000	5110	102	80 - 120
7439-92-1	Lead	3.75U	3.75	500	521	104	80 - 120
7439-95-4	Magnesium	50.0U	50.0	5000	5180	104	80 - 120
7439-96-5	Manganese	2.00U	2.00	500	506	101	80 - 120
7439-98-7	Molybdenum	3.75U	3.75	500	502	100	80 - 120
7440-02-0	Nickel	10.0U	10.0	500	518	104	80 - 120
7440-09-7	Potassium	100U	100	10000	9890	99	80 - 120
7782-49-2	Selenium	10.0U	10.0	500	523	105	80 - 120
7440-22-4	Silver	2.50U	2.50	500	501	100	80 - 120
7440-23-5	Sodium	200U	200	20000	19900	99	80 - 120
7440-62-2	Vanadium	3.75U	3.75	500	500	100	80 - 120
7440-66-6	Zinc	5.00U	5.00	500	502	100	80 - 120
7440-32-6	Titanium	1.20U	1.20	500	500	100	80 - 120

Inorganics Quality Control Summary

Analytical Batch	514391	**Client ID**	MB514237	LCS514237
Prep Batch	514237	**GCAL ID**	1226039	1226040
Prep Method	SW-846	**Sample Type**	Method Blank	LCS
	3050B	**Prep Date**	08/22/2013 15:30	08/22/2013 15:30
		Analytical Date	08/23/2013 21:15	08/23/2013 21:22
		Matrix	Solid	Solid

EPA 6010C		**Units**	mg/kg	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
7429-90-5	Aluminum	2.00U	2.00	200	211	106	80 - 120
7440-36-0	Antimony	0.60U	0.60	20.0	19.4	97	80 - 120
7440-39-3	Barium	0.12J	0.10	20.0	20.2	101	80 - 120
7440-41-7	Beryllium	0.040U	0.040	20.0	19.7	98	80 - 120
7440-43-9	Cadmium	0.050U	0.050	20.0	19.5	97	80 - 120
7440-70-2	Calcium	38.1	8.00	200	216	108	80 - 120
7440-47-3	Chromium	0.10U	0.10	20.0	20.2	101	80 - 120
7440-48-4	Cobalt	0.10U	0.10	20.0	19.6	98	80 - 120
7440-50-8	Copper	0.20U	0.20	20.0	20.3	102	80 - 120
7439-89-6	Iron	2.00U	2.00	200	208	104	80 - 120
7439-92-1	Lead	0.15U	0.15	20.0	19.7	98	80 - 120
7439-95-4	Magnesium	2.45J	2.00	200	206	103	80 - 120
7439-96-5	Manganese	0.15U	0.15	20.0	20.1	101	80 - 120
7439-98-7	Molybdenum	0.30U	0.30	20.0	20.3	101	80 - 120
7440-02-0	Nickel	0.40U	0.40	20.0	20.6	103	80 - 120
7440-09-7	Potassium	6.53J	5.00	400	420	105	80 - 120
7782-49-2	Selenium	0.40U	0.40	20.0	19.1	95	80 - 120
7440-22-4	Silver	0.10U	0.10	20.0	20.4	102	80 - 120
7440-23-5	Sodium	25.0J	10.0	800	880	110	80 - 120
7440-62-2	Vanadium	0.20U	0.20	20.0	19.9	100	80 - 120
7440-66-6	Zinc	0.49J	0.20	20.0	19.6	98	80 - 120
7440-32-6	Titanium	0.10U	0.10	20.0	20.6	103	80 - 120

Inorganics Quality Control Summary

Analytical Batch	514391	**Client ID**	MB514138	LCS514138
Prep Batch	514138	**GCAL ID**	1225521	1225522
Prep Method	SW-846 3005	**Sample Type**	Method Blank	LCS
	Dissolved	**Prep Date**	08/22/2013 10:40	08/22/2013 10:40
		Analytical Date	08/23/2013 19:19	08/23/2013 19:26
		Matrix	Water	Water

EPA 6010C Dissolved		**Units**	ug/L	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
7429-90-5	Aluminum	60.0U	60.0	5000	5450	109	80 - 120
7440-36-0	Antimony	15.0U	15.0	500	525	105	80 - 120
7440-39-3	Barium	2.50U	2.50	500	530	106	80 - 120
7440-41-7	Beryllium	1.00U	1.00	500	529	106	80 - 120
7440-43-9	Cadmium	0.20U	0.20	500	523	105	80 - 120
7440-70-2	Calcium	50.0U	50.0	5000	5400	108	80 - 120
7440-47-3	Chromium	1.00U	1.00	500	527	105	80 - 120
7440-48-4	Cobalt	1.00U	1.00	500	522	104	80 - 120
7440-50-8	Copper	5.00U	5.00	500	527	105	80 - 120
7439-89-6	Iron	40.0U	40.0	5000	5350	107	80 - 120
7439-92-1	Lead	3.75U	3.75	500	526	105	80 - 120
7439-95-4	Magnesium	50.0U	50.0	5000	5410	108	80 - 120
7439-96-5	Manganese	6.23J	2.00	500	529	106	80 - 120
7439-98-7	Molybdenum	3.75U	3.75	500	527	105	80 - 120
7440-02-0	Nickel	10.0U	10.0	500	535	107	80 - 120
7440-09-7	Potassium	100U	100	10000	10900	109	80 - 120
7782-49-2	Selenium	10.0U	10.0	500	532	106	80 - 120
7440-22-4	Silver	2.50U	2.50	500	542	108	80 - 120
7440-23-5	Sodium	1110	200	20000	23000	115	80 - 120
7440-62-2	Vanadium	3.75U	3.75	500	524	105	80 - 120
7440-66-6	Zinc	5.00U	5.00	500	531	106	80 - 120
7440-32-6	Titanium	1.20U	1.20	500	533	107	80 - 120

General Chemistry Quality Control Summary

Analytical Batch 514198	**Client ID**	MB514198			LCS514198		
Prep Batch N/A	**GCAL ID**	1225845			1225846		
	Sample Type	Method Blank			LCS		
	Analytical Date	08/21/2013 12:07			08/21/2013 12:07		
	Matrix	Water			Water		
SM 2540 C-2011		**Units**	mg/L	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
WET-035	Total Dissolved Solids(TDS)	4.39U	4.39	1000	818	82	80 - 120

Analytical Batch 514198	**Client ID**	U43010B		1225560DUP		
Prep Batch N/A	**GCAL ID**	21308201503		1225848		
	Sample Type	SAMPLE		DUP		
	Analytical Date	08/21/2013 12:07		08/21/2013 12:07		
	Matrix	Water		Water		
SM 2540 C-2011		**Units**	mg/L	**Result**		**RPD**
		Result	**RDL**		**RPD**	**Limit**
WET-035	Total Dissolved Solids(TDS)	2680	4.39	2610	3	5

General Chemistry Quality Control Summary

Analytical Batch 514228	**Client ID**	MB514228			LCS514228		
Prep Batch N/A	**GCAL ID**	1226015			1226016		
	Sample Type	Method Blank			LCS		
	Analytical Date	08/21/2013 17:13			08/21/2013 17:32		
	Matrix	Water			Water		
EPA 353.2 Rev. 2		**Units**	mg/L-N	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
14797-55-8	Nitrate	0.008U	0.008	0.500	0.480	96	89.5 -110.5

Analytical Batch 514228	**Client ID**	PLANT EFF			1225587MS			1225587MSD			
Prep Batch N/A	**GCAL ID**	21308202701			1226017			1226018			
	Sample Type	SAMPLE			MS			MSD			
	Analytical Date	08/21/2013 17:17			08/21/2013 17:18			08/21/2013 17:19			
	Matrix	Water			Water			Water			
EPA 353.2 Rev. 2		**Units**	mg/L-N	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
14797-55-8	Nitrate	56.9	1.64	100	165	108	89.5 -110.5	165	108	0	25

Analytical Batch 514229	**Client ID**	MB514229			LCS514229		
Prep Batch N/A	**GCAL ID**	1226019			1226020		
	Sample Type	Method Blank			LCS		
	Analytical Date	08/21/2013 15:55			08/21/2013 15:56		
	Matrix	Water			Water		
EPA 353.2 Rev. 2		**Units**	mg/L-N	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
14797-65-0	Nitrite	0.006U	0.006	0.500	0.464	93	89.5 -110.5

Analytical Batch 514229	**Client ID**	PLANT EFF			1225587MS			1225587MSD			
Prep Batch N/A	**GCAL ID**	21308202701			1226021			1226022			
	Sample Type	SAMPLE			MS			MSD			
	Analytical Date	08/21/2013 15:58			08/21/2013 15:59			08/21/2013 16:00			
	Matrix	Water			Water			Water			
EPA 353.2 Rev. 2		**Units**	mg/L-N	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
14797-65-0	Nitrite	0.016	0.006	0.500	0.481	93	89.5 -110.5	0.479	93	0	25

General Chemistry Quality Control Summary

Analytical Batch 514650	**Client ID**	MB514649			LCS514649		
Prep Batch 514649	**GCAL ID**	1227838			1227839		
Prep Method EPA 353.2	**Sample Type**	Method Blank			LCS		
	Prep Date	08/27/2013 15:00			08/27/2013 15:00		
	Analytical Date	08/28/2013 09:40			08/28/2013 09:41		
	Matrix	Solid			Solid		
EPA 353.2 Rev. 2		**Units**	mg/kg-N	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
14797-55-8 Nitrate		0.026U	0.026	5.00	4.68	94	90 - 110

Analytical Batch 514650	**Client ID**	SC-1			1225911MS		
Prep Batch 514649	**GCAL ID**	21308210202			1227841		
Prep Method EPA 353.2	**Sample Type**	SAMPLE			MS		
	Prep Date	08/27/2013 15:00			08/27/2013 15:00		
	Analytical Date	08/28/2013 09:42			08/28/2013 09:45		
	Matrix	Solid			Solid		
EPA 353.2 Rev. 2		**Units**	mg/kg-N	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
14797-55-8 Nitrate		0.404	0.130	5.00	5.74	107	90 - 110

Analytical Batch 514650	**Client ID**	SC-1		1225911DUP		
Prep Batch 514649	**GCAL ID**	21308210202		1227840		
Prep Method EPA 353.2	**Sample Type**	SAMPLE		DUP		
	Prep Date	08/27/2013 15:00		08/27/2013 15:00		
	Analytical Date	08/28/2013 09:42		08/28/2013 09:43		
	Matrix	Solid		Solid		
EPA 353.2 Rev. 2		**Units**	mg/kg-N	**Result**		**RPD**
		Result	**RDL**		**RPD**	**Limit**
14797-55-8 Nitrate		0.404	0.130	0.370	9	25

General Chemistry Quality Control Summary

Analytical Batch	514652	**Client ID**	MB514651		LCS514651		
Prep Batch	514651	**GCAL ID**	1227842		1227843		
Prep Method	EPA 353.2	**Sample Type**	Method Blank		LCS		
		Prep Date	08/27/2013 15:00		08/27/2013 15:00		
		Analytical Date	08/28/2013 10:08		08/28/2013 10:09		
		Matrix	Solid		Solid		
EPA 353.2 Rev. 2		**Units**	mg/kg-N	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
14797-65-0	Nitrite	0.033U	0.033	5.00	4.98	100	90 - 110

Analytical Batch	514652	**Client ID**	SC-1		1225911MS		
Prep Batch	514651	**GCAL ID**	21308210202		1227845		
Prep Method	EPA 353.2	**Sample Type**	SAMPLE		MS		
		Prep Date	08/27/2013 15:00		08/27/2013 15:00		
		Analytical Date	08/28/2013 10:11		08/28/2013 10:13		
		Matrix	Solid		Solid		
EPA 353.2 Rev. 2		**Units**	mg/kg-N	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
14797-65-0	Nitrite	0.895	0.165	5.00	6.32	108	90 - 110

Analytical Batch	514652	**Client ID**	SC-1		1225911DUP		
Prep Batch	514651	**GCAL ID**	21308210202		1227844		
Prep Method	EPA 353.2	**Sample Type**	SAMPLE		DUP		
		Prep Date	08/27/2013 15:00		08/27/2013 15:00		
		Analytical Date	08/28/2013 10:11		08/28/2013 10:12		
		Matrix	Solid		Solid		
EPA 353.2 Rev. 2		**Units**	mg/kg-N		**Result**		**RPD**
		Result	**RDL**			**RPD**	**Limit**
14797-65-0	Nitrite	0.895	0.165		0.935	4	25

General Chemistry Quality Control Summary

Analytical Batch	514449	**Client ID**	SC-1		1225911DUP		
Prep Batch	N/A	**GCAL ID**	21308210202		1227186		
		Sample Type	SAMPLE		DUP		
		Analytical Date	08/25/2013 12:30		08/25/2013 12:30		
		Matrix	Solid		Solid		
EPA 9045D			**Units**	pH unit	**Result**		**RPD**
			Result	**RDL**		**RPD**	**Limit**
pH	pH		8.83	1.00	8.84	0	6

General Chemistry Quality Control Summary

Analytical Batch 514381	**Client ID**	MB514381			LCS514381		
Prep Batch N/A	**GCAL ID**	1226695			1226696		
	Sample Type	Method Blank			LCS		
	Analytical Date	08/24/2013 14:50			08/24/2013 15:07		
	Matrix	Water			Water		
EPA 300.0		**Units**	mg/L	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
16887-00-6	Chloride	0.010U	0.010	2.50	2.35	94	79 - 109
14808-79-8	Sulfate	0.020U	0.020	2.50	2.36	95	82 - 110

Analytical Batch 514381	**Client ID**	OXY #2			1226102MS			1226102MSD			
Prep Batch N/A	**GCAL ID**	21308213804			1226699			1226700			
	Sample Type	SAMPLE			MS			MSD			
	Analytical Date	08/24/2013 22:57			08/24/2013 23:14			08/24/2013 23:32			
	Matrix	Water			Water			Water			
EPA 300.0		**Units**	mg/L	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
14808-79-8	Sulfate	0.000	0.400	50.0	48.1	96	82 - 110	48.6	97	1	15

Analytical Batch 514381	**Client ID**	OXY #2			1226102MS			1226102MSD			
Prep Batch N/A	**GCAL ID**	21308213804			1226699			1226700			
	Sample Type	SAMPLE			MS			MSD			
	Analytical Date	08/24/2013 21:30			08/24/2013 22:22			08/24/2013 22:40			
	Matrix	Water			Water			Water			
EPA 300.0		**Units**	mg/L	**Spike**	**Result**		**Control**	**Result**			**RPD**
		Result	**RDL**	**Added**		**% R**	**Limits % R**		**% R**	**RPD**	**Limit**
16887-00-6	Chloride	2120	20.0	5000	7110	100	79 - 109	7040	98	1	15

General Chemistry Quality Control Summary

Analytical Batch	514337	**Client ID**	LCS514337
Prep Batch	N/A	**GCAL ID**	1226543
		Sample Type	LCS
		Analytical Date	08/22/2013 14:42
		Matrix	Water

SM 2320 B-2011		**Spike Added**	**Result**	**% R**	**Control Limits % R**
000000-00-5	Total Alkalinity	200	204	102	80 - 120

General Chemistry Quality Control Summary

Analytical Batch	514776	**Client ID**	LCS514776
Prep Batch	N/A	**GCAL ID**	1228599
		Sample Type	LCS
		Analytical Date	08/29/2013 10:00
		Matrix	Water

EPA 1010A		**Spike Added**	**Result**	**% R**	**Control Limits % R**
000000-01-3	FlashPoint	90	91	101	97.8 -102.2

General Chemistry Quality Control Summary

Analytical Batch	514741	**Client ID**	MB514740	LCS514740
Prep Batch	514740	**GCAL ID**	1228307	1228308
Prep Method	SW-846 5050	**Sample Type**	Method Blank	LCS
		Prep Date	08/28/2013 13:00	08/28/2013 13:00
		Analytical Date	08/30/2013 18:59	08/30/2013 19:16
		Matrix	Solid	Solid

EPA 9056A		**Units**	mg/kg	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
14808-79-8	Sulfate	0.790U	0.790	25.0	24.7	99	80 - 120
16887-00-6	Chloride	0.210U	0.210	25.0	23.8	95	80 - 120

Analytical Batch	514741	**Client ID**	SC-1	1225911MS
Prep Batch	514740	**GCAL ID**	21308210202	1228310
Prep Method	SW-846 5050	**Sample Type**	SAMPLE	MS
		Prep Date	08/28/2013 13:00	08/28/2013 13:00
		Analytical Date	08/30/2013 19:34	08/30/2013 20:09
		Matrix	Solid	Solid

EPA 9056A		**Units**	mg/kg	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
14808-79-8	Sulfate	215	3.95	125	337	98	75 - 125
16887-00-6	Chloride	93.1	1.05	125	219	101	75 - 125

Analytical Batch	514741	**Client ID**	SC-1	1225911DUP
Prep Batch	514740	**GCAL ID**	21308210202	1228309
Prep Method	SW-846 5050	**Sample Type**	SAMPLE	DUP
		Prep Date	08/28/2013 13:00	08/28/2013 13:00
		Analytical Date	08/30/2013 19:34	08/30/2013 19:51
		Matrix	Solid	Solid

EPA 9056A		**Units**	mg/kg	**Result**		**RPD**
		Result	**RDL**		**RPD**	**Limit**
14808-79-8	Sulfate	215	3.95	216	1	25
16887-00-6	Chloride	93.1	1.05	94.2	1	25

General Chemistry Quality Control Summary

Analytical Batch	514542	**Client ID**	MB514444		LCS514444		
Prep Batch	514444	**GCAL ID**	1227118		1227119		
Prep Method	SW-846	**Sample Type**	Method Blank		LCS		
	3060A	**Prep Date**	08/26/2013 10:50		08/26/2013 10:50		
		Analytical Date	08/26/2013 15:14		08/26/2013 15:15		
		Matrix	Solid		Solid		
EPA 7196A		**Units**	mg/kg	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
18540-29-9	Chromium VI	0.310U	0.310	25.0	23.4	94	80 - 120

Analytical Batch	514542	**Client ID**	SC-1		1225911MS		
Prep Batch	514444	**GCAL ID**	21308210202		1227120		
Prep Method	SW-846	**Sample Type**	SAMPLE		MS		
	3060A	**Prep Date**	08/26/2013 10:50		08/26/2013 10:50		
		Analytical Date	08/26/2013 15:16		08/26/2013 15:17		
		Matrix	Solid		Solid		
EPA 7196A		**Units**	mg/kg	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
18540-29-9	Chromium VI	0.000	0.310	25.0	14.5	**58***	80 - 120

Analytical Batch	514542	**Client ID**	SC-1		1225911DUP		
Prep Batch	514444	**GCAL ID**	21308210202		1227121		
Prep Method	SW-846	**Sample Type**	SAMPLE		DUP		
	3060A	**Prep Date**	08/26/2013 10:50		08/26/2013 10:50		
		Analytical Date	08/26/2013 15:16		08/26/2013 15:19		
		Matrix	Solid		Solid		
EPA 7196A		**Units**	mg/kg		**Result**		**RPD**
		Result	**RDL**			**RPD**	**Limit**
18540-29-9	Chromium VI	0.000	0.310		0.000	0	20

General Chemistry Quality Control Summary

Analytical Batch	514329	**Client ID**	MB514245		LCS514245		
Prep Batch	514245	**GCAL ID**	1226059		1226060		
Prep Method	SW-846	**Sample Type**	Method Blank		LCS		
	9012B	**Prep Date**	08/22/2013 09:30		08/22/2013 09:30		
		Analytical Date	08/22/2013 14:36		08/22/2013 14:37		
		Matrix	Water		Water		
EPA 9012B		**Units**	mg/L	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
57-12-5	Cyanide	0.0011J	0.00050	0.020	0.019	95	80 - 120

Analytical Batch	514329	**Client ID**	MB514245		LCSHI514245		
Prep Batch	514245	**GCAL ID**	1226059		1226061		
Prep Method	SW-846	**Sample Type**	Method Blank		LCSHI		
	9012B	**Prep Date**	08/22/2013 09:30		08/22/2013 09:30		
		Analytical Date	08/22/2013 14:36		08/22/2013 14:38		
		Matrix	Water		Water		
EPA 9012B		**Units**	mg/L	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
57-12-5	Cyanide	0.0011J	0.00050	0.10	0.10	100	80 - 120

Analytical Batch	514329	**Client ID**	MWQ-24		1225865MS		
Prep Batch	514245	**GCAL ID**	21308210201		1226062		
Prep Method	SW-846	**Sample Type**	SAMPLE		MS		
	9012B	**Prep Date**	08/22/2013 09:30		08/22/2013 09:30		
		Analytical Date	08/22/2013 14:39		08/22/2013 14:40		
		Matrix	Water		Water		
EPA 9012B		**Units**	mg/L	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
57-12-5	Cyanide	0.0033	0.00050	0.050	0.048	90	80 - 120

General Chemistry Quality Control Summary

Analytical Batch	514329	**Client ID**	OUTFALL 001	1226046DUP		
Prep Batch	514245	**GCAL ID**	21308212401	1226063		
Prep Method	SW-846	**Sample Type**	SAMPLE	DUP		
	9012B	**Prep Date**	08/22/2013 09:30	08/22/2013 09:30		
		Analytical Date	08/22/2013 14:41	08/22/2013 14:42		
		Matrix	Water	Water		
EPA 9012B		**Units**	mg/L	**Result**		**RPD**
		Result	**RDL**		**RPD**	**Limit**
57-12-5	Cyanide	0.0026	0.00050	0.0030	14	25

Analytical Batch	514330	**Client ID**	MB514234		LCS514234			
Prep Batch	514234	**GCAL ID**	1226032		1226033			
Prep Method	SW-846	**Sample Type**	Method Blank		LCS			
	9012B	**Prep Date**	08/22/2013 09:30		08/22/2013 09:30			
		Analytical Date	08/22/2013 14:43		08/22/2013 14:44			
		Matrix	Solid		Solid			
EPA 9012B		**Units**	mg/kg	**Spike**	**Result**		**Control**	
		Result	**RDL**	**Added**		**% R**	**Limits % R**	
57-12-5	Cyanide	0.055J	0.0048	1.0	0.93	93	80 - 120	

Analytical Batch	514330	**Client ID**	MB514234		LCSHI514234			
Prep Batch	514234	**GCAL ID**	1226032		1226034			
Prep Method	SW-846	**Sample Type**	Method Blank		LCSHI			
	9012B	**Prep Date**	08/22/2013 09:30		08/22/2013 09:30			
		Analytical Date	08/22/2013 14:43		08/22/2013 14:45			
		Matrix	Solid		Solid			
EPA 9012B		**Units**	mg/kg	**Spike**	**Result**		**Control**	
		Result	**RDL**	**Added**		**% R**	**Limits % R**	
57-12-5	Cyanide	0.055J	0.0048	5.0	5.0	100	79.5 -120.4	

General Chemistry Quality Control Summary

Analytical Batch	514330	**Client ID**	79D-75 STORM WATER BTMS	1223701MS
Prep Batch	514234	**GCAL ID**	21308141602	1226035
Prep Method	SW-846	**Sample Type**	SAMPLE	MS
	9012B	**Prep Date**	08/22/2013 09:30	08/22/2013 09:30
		Analytical Date	08/22/2013 15:00	08/22/2013 15:01
		Matrix	Solid	Solid

EPA 9012B		**Units**	mg/kg	**Spike**	**Result**		**Control**
		Result	**RDL**	**Added**		**% R**	**Limits % R**
57-12-5	Cyanide	0.0	0.024	5.0	4.3	86	60 - 120

Analytical Batch	514330	**Client ID**	79D-75 STORM WATER BTMS	1223701DUP
Prep Batch	514234	**GCAL ID**	21308141602	1226036
Prep Method	SW-846	**Sample Type**	SAMPLE	DUP
	9012B	**Prep Date**	08/22/2013 09:30	08/22/2013 09:30
		Analytical Date	08/22/2013 15:00	08/22/2013 15:02
		Matrix	Solid	Solid

EPA 9012B		**Units**	mg/kg	**Result**		**RPD**
		Result	**RDL**		**RPD**	**Limit**
57-12-5	Cyanide	0.0	0.024	0.0	0	25

General Chemistry Quality Control Summary

Analytical Batch 514253	**Client ID**	131 U-FW-H-0011		1226093DUP		
Prep Batch N/A	**GCAL ID**	21308213401		1226141		
	Sample Type	SAMPLE		DUP		
	Analytical Date	08/21/2013 16:30		08/21/2013 16:30		
	Matrix	Water		Water		
SM 4500-H+ B-2011/EPA 9040C		**Units**	pH unit	**Result**	**RPD**	**RPD Limit**
		Result	**RDL**			
pH	pH	8.51	1.00	8.50	0	6

CHAIN OF CUSTODY RECORD

GCAL ANALYTICAL LABORATORIES, LLC
7979 GSRI Ave., Baton Rouge, LA 70820-7402
Phone: 225.769.4900 • Fax: 225.767.5717 • www.gcal.com

Client ID: 4747 - TRINITY Analysis & Development Corp.
SDG: 213082102
Due Date: 08/28/13

Report to:
Client: Trinity ADC
Address: 1002 N Eglin Parkway, Shalimar FL 32459
Contact: Jonathan Kramer
Phone: 850 613 6800
E-mail: jkramer@trinityadc.com

Bill to:
Client: Same
Address:
Contact:
Phone:
E-mail:

P.O. Number:
Project Name/Number: A006-003 Melrose LTM
Sampled By: Ben Stewart Jonathan Kramer

GCAL use only:
Custody Seal used ☑ yes ☐ no
intact ☑ yes ☐ no
Temperature °C 4.2 E22

☑ Dissolved Analysis Requested
☑ Field filtered
☐ Lab filtered

Analytical Requests & Method

Matrix[1]	Date	Time (2400)	Comp	Grab	Sample Description	No Containers	VOCs 8260B	Explosives 8330	Metals (Total/Diss) (6010C)	Chromium VI 7196	Cyanide 9012A	Mercury 7470A	Nitrate, Nitrite, Chloride, Sulfate 300.0	Perchlorate (6860) Arsenic/Thallium 6020A	Alkalinity 2320B	TDS 8540C	pH, Flashpoint, TPH TX1005	Preservative	
WG	8/20/13	1101		X	MWQ-24	17	X	X	X		X	X	X	X	X	X	X		1
SO	8/20/13	1105	X		SC-1	7	X	X	X	X	X	X	X	X	X	X	X	* no TDS, Dissolved Metals 8/21 (SH)	2
WQ	8/20/13	1101			TB-1	3	X												3
WQ					TEMP BLANK	1													

Air Bill No: 8027 1733 7943

Turn Around Time (Business Days): ☐ 24h* ☐ 48h* ☐ 3 days* ☐ 1 week* ☑ Standard (Per Contract/Quote)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
[signature]	8/20/13	1530			
[signature] Fed Ex	8/21/13	955	[signature]	8/21/13	955

Note:

By submitting these samples, you agree to GCAL's terms and conditions contained in our most recent schedule of services.

Matrix[1]: W = water, S = solid, L = liquid, T = tissue
*Requires prior approval, rush charges may apply.
We cannot accept verbal changes. Please email written changes to your PM.

WHITE: CLIENT FINAL REPORT - CANARY: CLIENT

GCAL ANALYTICAL LABORATORIES, LLC

SAMPLE RECEIVING CHECKLIST

213082102

SAMPLE DELIVERY GROUP 213082102

Client 4747 - TRINITY Analysis & Development Corp.	**Transport Method** FEDEX
Profile Number 195817	**Received By** Saucier, Charlotte
Line Item(s) 1 - Waters 2 - Soils	**Receive Date(s)** 08/21/13

CHECKLIST	YES	NO	NA
Were all samples received using proper thermal preservation?	☑	☐	☐
When used, were all custody seals intact?	☑	☐	☐
Were all samples received in proper containers?	☑	☐	☐
Were all samples received using proper chemical preservation?	☑	☐	☐
Was preservative added to any container at the lab?	☐	☑	☐
Were all containers received in good condition?	☑	☐	☐
Were all VOA vials received with no head space?	☑	☐	☐
Do all sample labels match the Chain of Custody?	☑	☐	☐
Did the Chain of Custody list the sampling technician?	☑	☐	☐
Was the COC maintained i.e. all signatures, dates and time of receipt included?	☑	☐	☐

COOLERS

Airbill	Thermometer ID: E22	Temp(°C)
8027 1733 7943		4.2

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

September 11, 2013

Service Request No: R1306085

Mr. Sean Hardin
Gulf Coast Analytical Labs
7979 GSRI Avenue
Baton Rouge, LA 70820

Laboratory Results for: Melrose LTM A006-003/213082102

Dear Mr. Hardin:

Enclosed are the results of the sample(s) submitted to our laboratory on August 22, 2013. For your reference, these analyses have been assigned our service request number **R1306085**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7473. You may also contact me via email at Deb.Patton@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Deb Patton
Project Manager

ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623 PHONE 585-288-5380 | FAX 585-288-8475
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental | www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental

Client:	Gulf Coast Analytical Labs	**Service Request No.:**	R1306085
Project:	LTM A006-003 213082102	**Date Received:**	8/22/13
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses.

Sample Receipt

One water sample was received for analysis at ALS Environmental on 8/22/13. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator between 1°C and 6°C upon receipt at the laboratory.

Inorganics

Site specific QC was not requested but was analyzed. All exceedences have been flagged with a "*".

The sample was analyzed within the appropriate holding times for the method.

No other analytical or quality control problems were encountered during analysis.

Approved by _____ Date 9/11/13

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1306085

Lab ID	Client ID
R1306085-001	MWQ-24

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

\# Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Gulf Coast Analytical Labs	**Service Request:**	R1306085
Project:	Melrose LTM A006-003/213082102	**Date Collected:**	8/20/13 1101
Sample Matrix:	Water	**Date Received:**	8/22/13
Sample Name:	MWQ-24		
Lab Code:	R1306085-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	**0.076**		µg/L	0.020	0.010	1	NA	9/9/13 15:31	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Gulf Coast Analytical Labs	**Service Request:**	R1306085
Project:	Melrose LTM A006-003/213082102	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1306085-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	0.020	U	µg/L	0.020	0.010	1	NA	9/9/13 12:34	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Gulf Coast Analytical Labs	**Service Request:**	R1306085
Project:	Melrose LTM A006-003/213082102	**Date Collected:**	8/20/13
Sample Matrix:	Water	**Date Received:**	8/22/13
		Date Analyzed:	9/ 9/13

Matrix Spike Summary
General Chemistry Parameters

Sample Name: MWQ-24
Lab Code: R1306085-001

Units: µg/L
Basis: NA

Analytical Method: 218.6 LL

		MWQ-24MS Matrix Spike R1306085-001MS				MWQ-24DMS Duplicate Matrix Spike R1306085-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
Chromium, Hexavalent, Dissolved	0.076	0.300	0.200	112	*	0.316	0.200	120	*	90 - 110	5	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Gulf Coast Analytical Labs
Project: Melrose LTM A006-003/213082102
Sample Matrix: Water

Service Request: R1306085
Date Analyzed: 9/ 9/13

Lab Control Sample Summary
General Chemistry Parameters

Units: µg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1306085-LCS Result	Spike Amount	% Rec	% Rec Limits
Chromium, Hexavalent, Dissolved	218.6 LL	0.192	0.200	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 09930

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: Melrose LTM	Project Number: A006-003
Project Manager: Jonathan Kramer	Report CC:
Company/Address: 1002 N Eglin Parkway, Shalimar FL 32459	
Phone #: 850 636 800	Email: jkramer@trinityaok.com
Sampler's Signature:	Sampler's Printed Name: Benjamin Stewart

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GCMS VOAs • 8260 • 624 • CLP	GCMS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	Ammonia (NH4)							REMARKS/ ALTERNATE DESCRIPTION
PRESERVATIVE																				
MWQ-24	-001	8/20/13	1101	WG	1								X							NH4 2SO4, HNO4H

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetete
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day

REQUESTED REPORT DATE
_____

REPORT REQUIREMENTS
____ I. Results Only
X II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata ____ Yes

INVOICE INFORMATION
PO #
BILL TO: Trinity AOC
1002 N Eglin Parkway
Shalimar, FL 32459

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	
Signature	Signature Daniel Ward	Signature	Signature	Signature	
Printed Name Ben Stewart	Printed Name ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm Trinity	Firm 8/21/13 ~~1530~~ 0925	Firm	Firm	Firm	Firm
Date/Time 8/20/13 1530	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

R1306085 5
Gulf Coast Analytical Labs
Melrose LTM A006-003

Distribution: White - Lab Copy; Yellow - Return to Originator

© 2012 by ALS Group

Cooler Receipt and Preservation Check Form

Project/Client GulfCoast Folder Number R1301085

Cooler received on 8/21/13 by: DW COURIER: ALS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	NO	
2.	Were custody papers properly filled out (ink, signed, etc.)?	YES	NO	
3.	Did all bottles arrive in good condition (unbroken)?	YES	NO	
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO	N/A
5.	Were Ice or **Ice packs** present?	YES	NO	
6.	Where did the bottles originate?	ALS/ROC, CLIENT		
7.	Soil VOA samples received as:	Bulk Jar	Encore	TerraCore Lab5035set N/A
8.	Temperature of cooler(s) upon receipt:	1.5°		

Is the temperature within 0° - 6° C?: Y N Y N Y N Y N Y N

If No, Explain Below Date/Time Temperatures Taken: 8/21/13/0958

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition &Client Approval to Run Samples:

All Samples held in storage location R-002 by DW on 8/21/13 at 0958

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: SWA 8/21/13

Cooler Breakdown: Date: 8/22/13 Time: 1046 by: JFS

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated		N/A

Explain any discrepancies:

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 060313-2V

Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

September 06, 2013

Sean Hardin
GCAL LAB
7979 GSRI AVENUE
BATON ROUGE, LA 70820
TEL: (225) 769-4900
FAX (225) 767-5717

Order No.: 1308224

RE: 213082102

Dear Sean Hardin:

DHL Analytical, Inc. received 2 sample(s) on 8/22/2013 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of DoD QSM Ver 4.2 and NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. This report shall not be reproduced except in full without the written approval of DHL Analytical, Inc. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas & DoD Laboratory Certification Number: T104704211-13-11 & DoD ELAP #ADE-1416 v2

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GCAL

GULF COAST ANALYTICAL LABORATORIES, INC
7979 GSRI AVE, BATON ROUGE LA 70820-7402
(225) 769-4900 FAX (225) 767-5717

Chain of Custody Record

#1308224

Submitted by		Bill to	
Client:	Gulf Coast Analytical Labs	Client:	Gulf Coast Analytical Labs
Address:	7979 GSRI Avenue	Address:	7979 GSRI Avenue
	Baton Rouge, LA 70820		Baton Rouge, LA 70820
Contact:	Sean Hardin	Contact:	Sean Hardin
Phone:	(225)769-4900	Phone:	(225)769-4900
Fax:	(225)767-5717	Fax:	(225)767-5717

Analysis Requested

* Our P. O. Number must appear on the Invoice.

* Our Project Number must appear on the final report.

P.O. Number: 13-0712

Project Name/Number: 213082102

Sampled By:

Matrix	Date	Time (2400)	Comp	Grab	Sample Description	Pre-serva-tives	No. Con-tainers	PERCHLORATE (6860)									Remarks:	Lab ID
W	8/20/2013	11:01		X	MWQ-24		1	X									21308210201	
S	8/20/2013	11:05	X		SC-1		1	X									21308210202	

Turn Around Time: ___ 24 - 48 hrs ___ 3 days ___ 1 week X standard other ___

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
[illegible]	Fed Ex	8/21/13	1700
[illegible]	[illegible]	8/22/13	830

Note: Rec temp 1.2° Therm #57

Please fax results to (225)767-5717 custody seal intact

PLEASE RETURN ICE CHESTS TO 7979 GSRI AVE.

Matrix: W = water, S=Soil, SD=Solid, L=Liquid, SL=Sludge, O=Oil, CT=Charcoal Tube, OVM=Organic Vapor Monitor, XT=XAD Tube, A=Air Bag, SUM=Summa Canister

ORIGIN ID: OPLA (225) 769-4900
CHARLOTTE SAUCIER
GULF COAST ANALYTICAL LABS LLC
7979 G S R I RD

BATON ROUGE, LA 70820
UNITED STATES US

SHIP DATE: 21AUG13
ACTWGT: 10.0 LB MAN
CAD: 0140953/CAFE2606

BILL SENDER

TO SAMPLE RECEIVING
DHL
2300 DOUBLE CREEK DRIVE

ROUND ROCK TX 78664
(512) 388-6222 REF:
INV:
PO: DEPT:

FedEx Express

THU - 22 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 0201 5674 4268 0152

A8 BSMA

78664
TX-US AUS

GULF COAST ANALYTICAL LABORATORIES, LLC

CUSTODY SEAL

Date Sealed: 8-21-13

Sealed By: SCO

GCAL-17

This package confirms to the conditions and limitations specified in 49 CFR 173.4

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name GCAL LAB

Date Received: 8/22/2013

Work Order Number 1308224

Received by JB

Checklist completed by: Signature 8/22/2013 Date

Reviewed by Initials 8/22/2013 Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.2 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

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

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

DHL Analytical, Inc.

Laboratory Review Checklist: Reportable Data

Project Name: 213082102	**Date:** 9/6/13
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1308224
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

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

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

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: 213082102	**Date:** 9/6/13
Reviewer Name: Carlos Castro	**Laboratory Work Order:** 1308224

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

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

Laboratory Data Package Signature Page

This data package consists of:

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

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

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

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

John DuPont – General Manager

Scott Schroeder – Technical Director

Signature	09/06/13
	Date

DHL Analytical, Inc. **Date:** *06-Sep-13*

CLIENT: GCAL LAB
Project: 213082102
Lab Order: 1308224

CASE NARRATIVE

This case narrative describes abnormalities and deviations that may affect the results and summarizes all known issues that need to be highlighted for the data user to assess the results. This case narrative and the report contents are compliant with DoD QSM Ver 4.2 and NELAC. The "U" flag , in the Analytical Report, indicates the results for that sample are nondetect.

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

Method E332.0 or SW6860 - Perchlorate Analysis (Parameter is ELAP Accredited but not NELAC Certified)

Exception Report R1-01

The samples were received on and log-in performed on 8/22/13. A total of 2 samples were received and all were analyzed. The samples arrived in good condition and were properly packaged.

Exception Report R7-03

For Perchlorate analysis performed on 9/6/13 (batch 59352) the matrix spike duplicate recovery was slightly above control limits. This is flagged accordingly in the QC summary report. The sample selected for the matrix spike and matrix spike duplicate was from this work order. The LCS was within control limits. No further corrective actions were taken.

Exception Report R10-01

For Perchlorate analysis (batch 59353) an MS/MSD was not performed due to insufficient sample volume. An LCS/LCSD was run instead.

A summary of project communication follows:

Request for quote was sent to DHL Analytical from the client, via email on 5/5/11 and the quote was sent to client via email on 5/5/11. Email for work approved by both parties on 5/18/11 with P.O number 12-0969.

Client sent samples in own containers.

This sample delivery group arrived at DHL Analytical 8/22/13.

DHL Analytical, Inc.

Date: *06-Sep-13*

CLIENT: GCAL LAB
Project: 213082102
Lab Order: 1308224

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1308224-01	MWQ-24		08/20/13 11:01 AM	8/22/2013
1308224-02	SC-1		08/20/13 11:05 AM	8/22/2013

DHL Analytical, Inc.

06-Sep-13

Lab Order: 1308224
Client: GCAL LAB
Project: 213082102

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1308224-01A	MWQ-24	08/20/13 11:01 AM	Aqueous	SW6860	Perchlorate Prep	09/05/13 02:17 PM	59353
1308224-02A	SC-1	08/20/13 11:05 AM	Soil	D2216	Moisture Preparation	08/23/13 04:37 PM	59142
	SC-1	08/20/13 11:05 AM	Soil	SW6860	Perchlorate Soil Prep	09/05/13 02:17 PM	59352

DHL Analytical, Inc.

06-Sep-13

Lab Order: 1308224
Client: GCAL LAB
Project: 213082102

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1308224-01A	MWQ-24	Aqueous	SW6860	Perchlorate - Water	59353	1	09/06/13 02:29 PM	ICMS_130906B
1308224-02A	SC-1	Soil	D2216	Percent Moisture	59142	1	08/23/13 04:37 PM	PMOIST_130823B
	SC-1	Soil	SW6860	Perchlorate - Soil	59352	1	09/06/13 01:36 PM	ICMS_130906A

DHL Analytical, Inc.

Date: *06-Sep-13*

CLIENT:	GCAL LAB	**Client Sample ID:**	MWQ-24
Project:	213082102	**Lab ID:**	1308224-01
Project No:	213082102	**Collection Date:**	08/20/13 11:01 AM
Lab Order:	1308224	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
PERCHLORATE - WATER		**SW6860**					Analyst: **CZ**
Perchlorate	0.000214	0.000100	0.000300	JN	mg/L	1	09/06/13 02:29 PM

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

DHL Analytical, Inc.

Date: *06-Sep-13*

CLIENT:	GCAL LAB	**Client Sample ID:**	SC-1
Project:	213082102	**Lab ID:**	1308224-02
Project No:	213082102	**Collection Date:**	08/20/13 11:05 AM
Lab Order:	1308224	**Matrix:**	SOIL

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
PERCHLORATE - SOIL		**SW6860**					Analyst: **CZ**
Perchlorate	0.00200	0.00200	0.0100	NU	mg/Kg-dry	1	09/06/13 01:36 PM
PERCENT MOISTURE		**D2216**					Analyst: **JCG**
Percent Moisture	49.8	0	0		WT%	1	08/23/13 04:37 PM

Qualifiers:

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

DHL Analytical, Inc.

Date: *06-Sep-13*

CLIENT: GCAL LAB
Work Order: 1308224
Project: 213082102

ANALYTICAL QC SUMMARY REPORT

RunID: **ICMS_130906A**

The QC data in batch 59352 applies to the following samples: 1308224-02A

Sample ID	**LCS-59352**	Batch ID:	**59352**	TestNo:	**SW6860**	Units:	**mg/Kg**
SampType:	**LCS**	Run ID:	**ICMS_130906A**	Analysis Date:	**9/6/2013 11:50:00 AM**	Prep Date:	**9/5/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.00483	0.00500	0.00450	0	107	85	115			N

Sample ID	**MB-59352**	Batch ID:	**59352**	TestNo:	**SW6860**	Units:	**mg/Kg**
SampType:	**MBLK**	Run ID:	**ICMS_130906A**	Analysis Date:	**9/6/2013 12:43:00 PM**	Prep Date:	**9/5/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.00100	0.00500								NU

Sample ID	**1308224-02AMS**	Batch ID:	**59352**	TestNo:	**SW6860**	Units:	**mg/Kg-dry**
SampType:	**MS**	Run ID:	**ICMS_130906A**	Analysis Date:	**9/6/2013 1:53:00 PM**	Prep Date:	**9/5/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.0107	0.0101	0.00905	0	118	75	125			N

Sample ID	**1308224-02AMSD**	Batch ID:	**59352**	TestNo:	**SW6860**	Units:	**mg/Kg-dry**
SampType:	**MSD**	Run ID:	**ICMS_130906A**	Analysis Date:	**9/6/2013 2:11:00 PM**	Prep Date:	**9/5/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.0110	0.00940	0.00846	0	131	75	125	3.20	20	SN

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

CLIENT: GCAL LAB
Work Order: 1308224
Project: 213082102

ANALYTICAL QC SUMMARY REPORT

RunID: ICMS_130906A

Sample ID	**ICV-130906**	Batch ID:	**R68501**	TestNo:	**SW6860**	Units:	**mg/Kg**
SampType:	**ICV**	Run ID:	**ICMS_130906A**	Analysis Date:	**9/6/2013 10:47:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.00202	0.00500	0.00200	0	101	85	115			N

Sample ID	**LCVL1-130906**	Batch ID:	**R68501**	TestNo:	**SW6860**	Units:	**mg/Kg**
SampType:	**LCVL**	Run ID:	**ICMS_130906A**	Analysis Date:	**9/6/2013 11:11:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.000208	0.00500	0.000200	0	104	70	130			N

Sample ID	**ICS-130906**	Batch ID:	**R68501**	TestNo:	**SW6860**	Units:	**mg/Kg**
SampType:	**ICS**	Run ID:	**ICMS_130906A**	Analysis Date:	**9/6/2013 11:29:00 AM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.000270	0.00500	0.000300	0	90.1	70	130			N

Sample ID	**CCV1-130906**	Batch ID:	**R68501**	TestNo:	**SW6860**	Units:	**mg/Kg**
SampType:	**CCV**	Run ID:	**ICMS_130906A**	Analysis Date:	**9/6/2013 2:46:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.00505	0.00500	0.00500	0	101	80	120			N

Sample ID	**LCVL2-130906**	Batch ID:	**R68501**	TestNo:	**SW6860**	Units:	**mg/Kg**
SampType:	**LCVL**	Run ID:	**ICMS_130906A**	Analysis Date:	**9/6/2013 3:22:00 PM**	Prep Date:	

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.000225	0.00500	0.000200	0	113	70	130			N

Qualifiers:

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

CLIENT: GCAL LAB
Work Order: 1308224
Project: 213082102

ANALYTICAL QC SUMMARY REPORT

RunID: **ICMS_130906B**

The QC data in batch 59353 applies to the following samples: 1308224-01A

Sample ID	**LCS-59353**	Batch ID:	**59353**	TestNo:	**SW6860**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**ICMS_130906B**	Analysis Date:	**9/6/2013 12:07:00 PM**	Prep Date:	**9/5/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.000324	0.000300	0.000300	0	108	85	115			N

Sample ID	**LCSD-59353**	Batch ID:	**59353**	TestNo:	**SW6860**	Units:	**mg/L**
SampType:	**LCSD**	Run ID:	**ICMS_130906B**	Analysis Date:	**9/6/2013 12:25:00 PM**	Prep Date:	**9/5/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.000287	0.000300	0.000300	0	95.8	85	115	11.9	20	N

Sample ID	**MB-59353**	Batch ID:	**59353**	TestNo:	**SW6860**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**ICMS_130906B**	Analysis Date:	**9/6/2013 1:00:00 PM**	Prep Date:	**9/5/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.000100	0.000300								NU

Qualifiers:

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

CLIENT: GCAL LAB
Work Order: 1308224
Project: 213082102

ANALYTICAL QC SUMMARY REPORT

RunID: **ICMS_130906B**

Sample ID **ICV-130906** Batch ID: **R68503** TestNo: **SW6860** Units: **mg/L**
SampType: **ICV** Run ID: **ICMS_130906B** Analysis Date: **9/6/2013 10:47:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.00202	0.000300	0.00200	0	101	85	115			N

Sample ID **LCVL1-130906** Batch ID: **R68503** TestNo: **SW6860** Units: **mg/L**
SampType: **LCVL** Run ID: **ICMS_130906B** Analysis Date: **9/6/2013 11:11:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.000208	0.000300	0.000200	0	104	70	130			N

Sample ID **ICS-130906** Batch ID: **R68503** TestNo: **SW6860** Units: **mg/L**
SampType: **ICS** Run ID: **ICMS_130906B** Analysis Date: **9/6/2013 11:29:00 AM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.000270	0.000300	0.000300	0	90.1	85	115			N

Sample ID **CCV1-130906** Batch ID: **R68503** TestNo: **SW6860** Units: **mg/L**
SampType: **CCV** Run ID: **ICMS_130906B** Analysis Date: **9/6/2013 2:46:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.00505	0.000300	0.00500	0	101	85	115			N

Sample ID **LCVL2-130906** Batch ID: **R68503** TestNo: **SW6860** Units: **mg/L**
SampType: **LCVL** Run ID: **ICMS_130906B** Analysis Date: **9/6/2013 3:22:00 PM** Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Perchlorate	0.000225	0.000300	0.000200	0	113	70	130			N

Qualifiers:

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

CLIENT: GCAL LAB
Work Order: 1308224
Project: 213082102

ANALYTICAL QC SUMMARY REPORT

RunID: PMOIST_130823B

The QC data in batch 59142 applies to the following samples: 1308224-02A

Sample ID	**1308233-05A-DUP**	Batch ID:	**59142**	TestNo:	**D2216**	Units:	**WT%**
SampType:	**DUP**	Run ID:	**PMOIST_130823B**	Analysis Date:	**8/23/2013 4:37:00 PM**	Prep Date:	**8/23/2013**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Percent Moisture	15.9	0	0	17.28				8.54	30	

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

DHL Analytical, Inc.

06-Sep-13

Lab Order: 1308224
Client: GCAL LAB
Project: 213082102

Sequence Report

Run ID: ICMS_130906A

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
INITIAL CALIBRATION SUMMARY	-----	SW6860	R68501	1	9/6/2013		S
INTERNAL STANDARD SUMMARY	-----	SW6860	R68501	1	9/6/2013		S
ICB1-130906	-----	SW6860	R68501	1	9/6/2013 10:29:00 AM		S
ICV-130906	-----	SW6860	R68501	1	9/6/2013 10:47:00 AM		S
LCVL1-130906	-----	SW6860	R68501	1	9/6/2013 11:11:00 AM		S
ICS-130906	-----	SW6860	R68501	1	9/6/2013 11:29:00 AM		S
LCS-59352	-----	SW6860	59352	1	9/6/2013 11:50:00 AM	9/5/2013 2:17:19 PM	S
MB-59352	-----	SW6860	59352	1	9/6/2013 12:43:00 PM	9/5/2013 2:17:19 PM	S
1308224-02A	SC-1	SW6860	59352	1	9/6/2013 1:36:00 PM	9/5/2013 2:17:19 PM	S
1308224-02AMS	SC-1MS	SW6860	59352	1	9/6/2013 1:53:00 PM	9/5/2013 2:17:19 PM	S
1308224-02AMSD	SC-1MSD	SW6860	59352	1	9/6/2013 2:11:00 PM	9/5/2013 2:17:19 PM	S
CCV1-130906	-----	SW6860	R68501	1	9/6/2013 2:46:00 PM		S
ICB2-130906	-----	SW6860	R68501	1	9/6/2013 3:04:00 PM		S
LCVL2-130906	-----	SW6860	R68501	1	9/6/2013 3:22:00 PM		S

Run ID: ICMS_130906B

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
INITIAL CALIBRATION SUMMARY	-----	SW6860	R68503	1	9/6/2013		A
INTERNAL STANDARD SUMMARY	-----	SW6860	R68503	1	9/6/2013		A
ICB1-130906	-----	SW6860	R68503	1	9/6/2013 10:29:00 AM		A
ICV-130906	-----	SW6860	R68503	1	9/6/2013 10:47:00 AM		A
LCVL1-130906	-----	SW6860	R68503	1	9/6/2013 11:11:00 AM		A
ICS-130906	-----	SW6860	R68503	1	9/6/2013 11:29:00 AM		A
LCS-59353	-----	SW6860	59353	1	9/6/2013 12:07:00 PM	9/5/2013 2:17:58 PM	A
LCSD-59353	-----	SW6860	59353	1	9/6/2013 12:25:00 PM	9/5/2013 2:17:58 PM	A
MB-59353	-----	SW6860	59353	1	9/6/2013 1:00:00 PM	9/5/2013 2:17:58 PM	A
1308224-01A	MWQ-24	SW6860	59353	1	9/6/2013 2:29:00 PM	9/5/2013 2:17:58 PM	A
CCV1-130906	-----	SW6860	R68503	1	9/6/2013 2:46:00 PM		A
ICB2-130906	-----	SW6860	R68503	1	9/6/2013 3:04:00 PM		A
LCVL2-130906	-----	SW6860	R68503	1	9/6/2013 3:22:00 PM		A

Run ID: PMOIST_130823B

Sample ID	Client Sample ID	Test Number	Batch ID	Dilution	Analysis Date	Prep Date	Matrix
1308224-02A	SC-1	D2216	59142	1	8/23/2013 4:37:00 PM	8/23/2013 4:37:00 PM	S
1308233-05A-DUP	-----	D2216	59142	1	8/23/2013 4:37:00 PM	8/23/2013 4:37:00 PM	S

Initial Calibration Summary

Control Program:	**ClO4PGM_120523**
Quantif. Method:	**ClO4_120523**
Recording Time:	**9/6/2013 10:47**
Injection Volume:	**200.0**
Test:	**Perchlorate**

Sample Name	Area counts*min Perchlorate_99 SIM_01B	Area counts*min Perchlorate_101 SIM_02B	Area counts*min ISTD_03 SIM_03B
ClO4_0.3_1	1791.7867	563.726	5436.564
ClO4_0.5_1	2777.5900	986.143	5348.597
ClO4_1.0_1	5438.7688	1872.185	5146.176
ClO4_2.0_1	10500.8775	3551.445	4846.137
ClO4_5.0_1	23057.9375	7750.806	4119.919
ClO4_7.0_1	32852.6700	10680.790	4111.039
ClO4_10.0_1	41377.9633	14451.121	3857.373

Peak	Cal Type	Offset	Slope	Curve	Coeff. Det.
Perchlorate_99	XQOff	-4.150	115.178	-0.579	99.915
Perchlorate_101	XQOff	-0.657	37.261	0.024	99.993

Internal Standard Summary

Sequence Name:	**130906_CLO4**
Control Program:	**ClO4PGM_120523**
Quantif. Method:	**ClO4_120523**
Injection Volume:	**200.0**
Test:	**Perchlorate**

	Area Counts
ISTD 107 Cal Average	4695
Low Limit (50%)	2348
High Limit (150%)	7043

Sample Name	**Area counts*min ISTD_03 SIM_03B**
LRB1-130611	5650.902
ClO4_0.3_1	5436.564
ClO4_0.5_1	5348.597
ClO4_1.0_1	5146.176
ClO4_2.0_1	4846.137
ClO4_5.0_1	4119.919
ClO4_7.0_1	4111.039
ClO4_10.0_1	3857.373
LRB2-130611	5748.228
SSCV-130611	4634.312
SSCV2-130611	4779.290
ICB1-130906	3154.651
ICV-130906	2664.170
LCVL1-130906	3050.773
ICS-130906	2884.489
LCS-59352	3040.938
LCS-59353	3045.378
LCSD-59353	2992.313
MB-59352	3042.448
MB-39353	3004.400
1308224-01A	2911.730
1308224-02A	3000.978
1308224-02AMS	2793.947
1308224-02AMSD	2756.639
1308224-01A	3009.888
CCV1-130906	2649.061

ICB2-130906	2944.383
LCVL2-130906	3061.133