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Field Summary Report

Mortandad and Sandia (Chromium Investigation and General Surveillance Monitoring Groups) and Pajarito (TA-54 Monitoring Group) Watershed Quarterly Sampling Event 2, 2014 Interim Facility-Wide Groundwater Monitoring Plan

Other Field Activities from January 7-January 29, 2014

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EXECUTIVE SUMMARY

This report summarizes field activities completed by TerranearPMC, LLC in support of groundwater monitoring at Los Alamos National Laboratory from January 7-January 29, 2014, pursuant to the Interim Facility-Wide Groundwater Monitoring Plan for the 2014 Monitoring Year, October 2013- September 2014 (LANL 2013, 241962).

The Mortandad/Sandia and Pajarito Watershed second quarter sampling activities were scheduled for January 7-January 27, 2014 and were completed on January 24, 2014. The TA-54, Chromium Investigation, and Mortandad/Sandia General Surveillance Monitoring Groups quarterly requirements were met during this event. Locations planned included 3 intermediate wells and 23 regional wells for a total of 26 sites planned. Full sample suites were collected at 2 intermediate wells and 21 regional wells. Sampling at two regional wells was cancelled by the LANL Groundwater Project Manager. Sampling at one intermediate well was cancelled due to mechanical issues

Modifications were made to the sampling requirements outlined in the Interim Plan at 2 sites, per request from the LANL Groundwater Project Manager. Additional samples were collected at R-61 S1 and R-61 S2. Additionally, CDBO-6, MCO-4B, MCO-6, and MCO-7 were scheduled for discharge permit sampling. MCO-4B, MCO-6, and MCO-7 were sampled; CDBO-6 was dry.

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Acronyms and Abbreviations:

CV	casing volume
DOE	Department of Energy (U.S.)
EP	Environmental Programs Directorate
FSR	Field Summary Report
ft msl	feet above mean sea level
ft BGS	feet below ground surface
ft BTOC	feet below top of outer casing
ft BTIC	feet below top of inner casing
ft BTOM	feet below top of manhole
gpm	gallons per minute
GTL	Groundwater Technical Lead
LANL	Los Alamos National Laboratory
LSD	land surface datum
MY	Monitoring Year
NMED	New Mexico Environment Department
NTU	nephelometric turbidity unit
PCB	polychlorinated biphenyl
Q1	Quarter 1 Sampling Event
Q2	Quarter 2 Sampling Event
Q3	Quarter 3 Sampling Event
Q4	Quarter 4 Sampling Event
Q5	Quarter 5 Sampling Event
QA	quality assurance
QC	quality control
RAD	radionuclide
SCLs	sample collection logs
SMO	LANL Sample Management Office
SOP	standard operating procedure
SOP-20032	Standard Operating Procedure for Ground Water Sampling
STR	LANL subcontract technical representative
SVOC	semi-volatile organic compound
TA	technical area
VOC	volatile organic compound

1.0 INTRODUCTION

This field summary report (FSR) details the field activities conducted by TerranearPMC, LLC in support of groundwater monitoring at Los Alamos National Laboratory (LANL) pursuant to the Interim Facility-Wide Groundwater Monitoring Plan for the 2014 Monitoring Year, October 2013- September 2014 (also referred to as the Interim Plan) (LANL 2013, 241962). Sampling under the Interim Plan is implemented by watershed or monitoring group on a quarterly, semiannual, or annual basis. The date range discussed in each FSR is bracketed by the end date of the previous watershed and the end date of the current watershed or start date of the following watershed. The date range for this reporting period is January 7-January 29, 2013.

1.1 Background

Historical and background information for the Chromium Investigation Monitoring Group is provided in section 3.0 of the Interim Plan (LANL 2013, 241962). Historical and background information for the TA-54 Monitoring Group is provided in section 5.0 of the Interim Plan. Historical and background information for the General Surveillance Monitoring Group is provided in section 8.0 of the Interim Plan.

1.2 Objectives

The principal objective of the Mortandad/Sandia and Pajarito Watersheds monitoring year 2014 (MY2014) quarter 2 (Q2) sampling campaign is to fulfill requirements specified in the Interim Plan (LANL 2013, 241962) and secondarily to support supplemental field activities, as needed. Sampling of all watersheds is conducted within a 21-day period, pursuant to the Interim Plan.

2.0 SCOPE OF WORK

All MY2014 Q2 field activities conducted in the Mortandad/Sandia and Pajarito Watersheds are presented in this FSR. Sampling activities were scheduled for January 7- January 27, 2014 and were completed on January 24, 2014 (day 18). Details regarding watershed sampling field results, including any deviations from Interim Plan requirements, are provided in section 4.1.

Occasionally, it is necessary to modify the sampling requirements outlined in the Interim Plan for a specific site or complete supplemental field activities. These requests are made by the LANL Groundwater Technical Lead (GTL) or LANL Groundwater Project Manager. Modifications and supplemental activities are outlined in section 4.2.

Appendix A presents a table of samples taken during the field event; Appendix B summarizes monitoring locations and well completion information for wells within the watershed; Appendix C presents time-series field parameter data collected during well purging; Appendix D summarizes the final field parameters from the last four sampling events; and watershed sampling locations are shown in figures 2.0-1, 2.0-2, and 2.0-3.

3.0 FIELD IMPLEMENTATION

All field activities are conducted in accordance with procedures and methods listed in the Interim Plan.

3.1 Methods and Procedures

In the weeks prior to any field activities, samples are planned and sample collection logs (SCLs) are prepared pursuant to the analytical suites and sampling frequencies detailed in the Interim Plan. Special requests and modifications are discussed with sample team representatives, the GTL, and the LANL Subcontract Technical Representative (STR). Modifications are incorporated into the sampling schedule as needed.

Instruments used to measure field parameters are calibrated on a daily basis, prior to use. All wells are purged and monitored for water quality field parameters before sampling (see section 3.2 for details), with the exception of wells sampled using the Westbay MP System. Monitored field parameters include water level, discharge rate, temperature, pH, specific conductance, oxidation reduction potential, turbidity, and dissolved oxygen. Data are recorded on the Groundwater Sampling Log and logged electronically using the field instruments. Spring and baseflow samples are collected upon arrival at the sites and field parameters are measured at the time of sampling. Samples are prepared, bottled, and preserved according to instructions provided on SCLs. Samples are then relinquished to the LANL Sample Management Office (SMO) for shipment to analytical laboratories. Complete details of sampling protocols are available in the Standard Operating Procedure for Ground Water Sampling (SOP-20032, R2).

3.2 Sampling Criteria

SOP-20032 outlines specific criteria that must be met prior to sampling an alluvial, intermediate, or regional well (with the exception of wells sampled using the Westbay MP System) for both Interim Plan sampling activities and supplemental sampling activities. Per SOP-20032, exceptions may be made to sampling criteria either by a written work plan provided by the GTL prior to sampling or verbal communication with the GTL or STR as issues arise during the sampling event. Compliance with sampling criteria is outlined in table 4.1-1 and details about deviations are in section 4.1.2.

Sampling conducted after September 23, 2013 is pursuant to SOP-20032: Revision 2, which states two main criteria for sampling:

1. A minimum of 1 casing volume (CV) must have been removed from alluvial wells and a minimum of 3 CVs plus drop pipe must have been removed from intermediate and regional wells prior to sampling.

2. Field indicator parameters must have stabilized within their allowable ranges for at least three consecutive measurements taken a minimum of three or five minutes apart prior to sampling. Data manually recorded on the Groundwater Sampling Log are used to determine stability.

Additionally, if 3 CVs have been purged from alluvial wells or 6 CVs have been purged from intermediate or regional wells, proceed with sampling even if field indicator parameters did not stabilize. The STR should be notified if wells were sampled without stable indicator parameters.

4.0 RESULTS

A complete list of analytical suites sampled by location is presented in Appendix A. Analytical results for samples should be accessible through the Intellus New Mexico database within 60 days of sample collection. Time-series data for the field parameters for alluvial, intermediate, and regional monitoring wells are presented in Appendix C. A summary of the final field parameters from the last four sampling events is provided in Appendix D.

4.1 Interim Plan Activities

A total of 26 sites were planned during the Mortandad/Sandia and Pajarito Watersheds MY2014 Q2 sampling campaign conducted from January 7-January 24, 2014. This includes 3 intermediate wells and 23 regional wells. Full sample suites were collected at 2 intermediate wells and 21 regional wells. Sampling at two regional wells was cancelled by the LANL Groundwater Project Manager. Sampling at one intermediate well was cancelled due to mechanical issues. The Samples Taken Table provides further detail (Appendix A).

4.1.1 Well Sampling Observations

Notable observations of well behavior, including deviations from sampling criteria outlined in SOP-20032 R.2, are summarized in table 4.1-1. This section addresses wells visited for routine, interim plan sampling and extra wells visited per request from the LANL Groundwater Project Manager. Wells sampled using the Westbay MP System are not discussed in the section as they are not subject to sampling criteria outlined in SOP-20032 R.2.

4.1.2 Deviations from Sampling Requirements

Three deviations were made from sampling requirements for the Mortandad/Sandia Watershed MY2014 Q1 sampling campaign. See table 4.1-2 for details.

4.1.3 Modifications to the Interim Plan and Supplemental Activities

Modifications were made to the sampling requirements outlined in the Interim Plan at 2 sites, per request from the LANL Groundwater Project Manager.

R-61 S1 was sampled per the work plan provided by the STR. Interim Plan samples were collected per the SOP. The purge was continued until 12 CVs plus drop pipe had been purged. Time-series samples were collected at 1, 3, 6, 9, and 12 CVs. See appendix A for details.

R-61 S2 was sampled per the work plan provided by the STR. Interim Plan samples were collected per the SOP. The purge was continued until 12 CVs plus drop pipe had been purged. Time-series samples were collected at 1, 3, 6, 9, and 12 CVs. See appendix A for details.

CDBO-6, MCO-4B, MCO-6, and MCO-7 were scheduled for discharge permit sampling. CDBO-6 was dry and was not sampled.

5.0 SUMMARY

The Mortandad/Sandia and Pajarito Watersheds MY2014 Q2 (TA-54, Chromium Investigation, and Mortandad/Sandia General Surveillance Monitoring Groups) sampling event, as implemented under the Interim Plan, was completed on January 24, 2013 (day 18). Locations planned included 3 intermediate wells and 23 regional wells for a total of 26 sites planned. Full sample suites were collected at 2 intermediate wells and 21 regional wells. Sampling at R-28 and R-42 was cancelled by the LANL Groundwater Project Manager. Sampling at R-37 S1 was cancelled due to mechanical issues.

Modifications were made to the sampling requirements outlined in the Interim Plan at 2 sites, per request from the LANL Groundwater Project Manager. Additional samples were collected at R-61 S1 and R-61 S2. Additionally, CDBO-6, MCO-4B, MCO-6, and MCO-7 were scheduled for discharge permit sampling. MCO-4B, MCO-6, and MCO-7 were sampled; CDBO-6 was dry.

6.0 REFERENCES

LANL (Los Alamos National Laboratory) May 2013. "Interim Facility-Wide Groundwater Monitoring Plan for the 2014 Monitoring Year, October 2013 – September 2014," Los Alamos National Laboratory document LA-UR-13-23479, Los Alamos, New Mexico. (LANL 2013, 241962)

Table 4.1-1
Well Sampling Observations

Location	Minimum purge volume met?	Parameters stable for three consecutive 3 or 5 minute readings?	SOP requirements met prior to sampling?	Casing Volumes purged before sampling	Comments
Alluvial Wells					
CDBO-6	NA	NA	NA	NA	Dry
MCO-4B	Yes	Yes	Yes	1.25	An extra 0.25 CVs were purged to allow parameters to stabilize. Crew notes a high specific conductance consistent with past sampling events.
MCO-6	Yes	Yes	Yes	1	None
MCO-7	Yes	Yes	Yes	1	None
Regional and Intermediate Wells					
R-37 S1	NA	NA	NA	NA	Sampling not completed due to mechanical issues with well.
R-37 S2	Yes	Yes	Yes	4	An extra 1 CV was purged to allow dissolved oxygen to stabilize.
R-55 S1	Yes	Yes	Yes	3	None
R-23	Yes	Yes	Yes	3.3	None
R-39	Yes	Yes	Yes	3.5	An extra 0.5 CVs was purged to allow dissolved oxygen to stabilize.
R-41 S2	Yes	Yes	Yes	3	None
R-56 S1	Yes	Yes	Yes	3	None
R-57 S1	Yes	Yes	Yes	3	None
MCOI-6	Yes	Yes	Yes	3	None
R-28	NA	NA	NA	NA	Not sampled
R-42	NA	NA	NA	NA	Not sampled
R-44 S1	Yes	Yes	Yes	3	None
R-44 S2	Yes	Yes	Yes	3	None
R-45 S1	Yes	Yes	Yes	3	None
R-45 S2	Yes	Yes	Yes	3	None
R-50 S1	Yes	Yes	Yes	3	None
R-50 S2	Yes	Yes	Yes	3	Flow rate restricted to 1.7 gallons per minute per the work plan provided by the GTL.

Table 4.1-1, continued
Well Sampling Observations

Location	Minimum purge volume met?	Parameters stable for three consecutive 3 or 5 minute readings?	SOP requirements met prior to sampling?	Casing Volumes purged before sampling	Comments
R-61 S1	Yes	Yes	Yes	3	Interim plan samples collected at 3 CVs. A total of 12 CVs were purged and time-series samples were collected. Temperature fluctuated during the purge due to cold atmospheric temperatures and variable cloud cover affecting the temperature of the water in the flow through cell.
R-61 S2	Yes	Yes	Yes	3	Interim plan samples collected at 3 CVs. A total of 12 CVs were purged and time-series samples were collected.
SCI-2	Yes	Yes	Yes	5	An extra 2 CVs were purged to allow dissolved oxygen to stabilize.
R-11	Yes	Yes	Yes	3	None
R-35a	Yes	Yes	Yes	3	None
R-35b	Yes	Yes	Yes	3	None
R-43 S1	Yes	Yes	Yes	3	None
R-43 S2	Yes	Yes	Yes	3	None
R-34	Yes	Yes	Yes	3.4	An extra 0.4 CVs was purged to allow dissolved oxygen to stabilize.

Table 4.1-2
Sampling Requirements Deviations

Location	Deviation	Cause	Comment
R-28	No field or analytical data will be available for this location	Site visited cancelled by the LANL groundwater project manager	Chromium Interim Measures pumping test activities conflicted with sampling this site during this watershed event
R-48	No field or analytical data will be available for this location	Site visited cancelled by the LANL groundwater project manager	Chromium Interim Measures pumping test activities conflicted with sampling this site during this watershed event
R-37 S1	No field or analytical data will be available for this location	Mechanical issues prevented sampling at this location on two separate site visits. Sampling cancelled.	NA

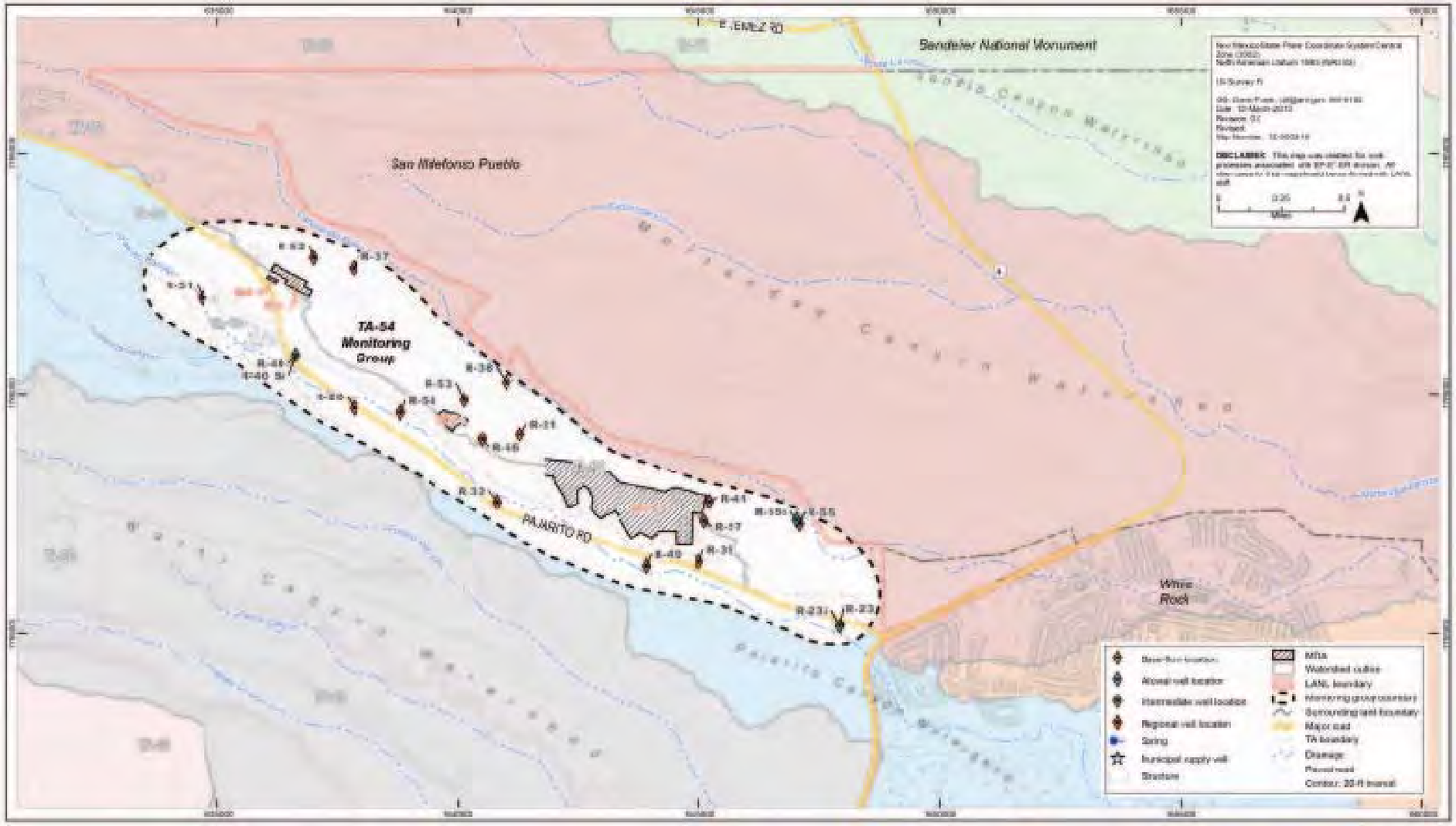

Figure 2.0-1. Sampling locations in the TA-54 Monitoring Group.

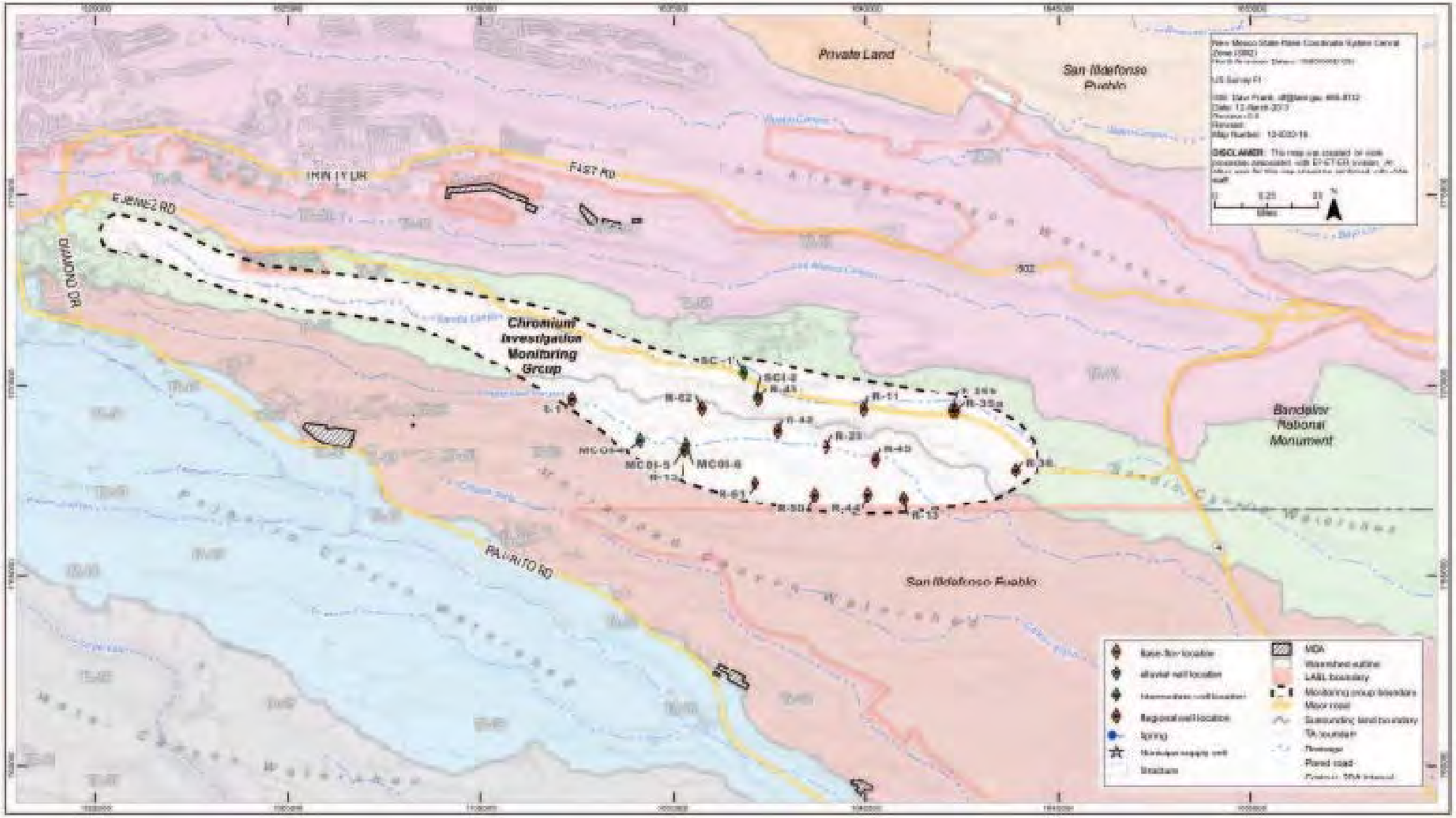

Figure 2.0-2. Sampling locations in the Chromium Investigation Monitoring Group.

Figure 2.0-3. Sampling locations in the General Surveillance Monitoring Group.

Appendix A

Samples Taken Table

Appendix A
Samples Taken Table
Event IDs: 4517, 4518, 4520, 4521, 4525, 4529, 4533
Event Name: Mortandad/Sandia (Chromium Investigation and General Surveillance Monitoring Groups) and Pajarito (TA-54 Monitoring Group) MY2014 Q2 Watershed Sampling

Monitoring Group	Field Matrix	Media	Location ID	Field Sample ID	Analytical Group	Sample Purpose*	Field Prep Code**	Date Collected***	Comments
Chromium Monitoring - Mortandad Canyon	WG (Groundwater)	WGI (Intermediate Groundwater)	MCOI-6	CAMO-14-49663	MSGP-Hg	INV	UF	1/17/2014	Sampled within 50' of running diesel generator
				CAMO-14-49663	WSP-CN(T)	INV	UF	1/17/2014	
				CAMO-14-49663	WSP-TKN+TOC	INV	UF	1/17/2014	
				CAMO-14-49674	WSP-All Metals	INV	F	1/17/2014	
				CAMO-14-49674	WSP-CR52/53	INV	F	1/17/2014	
				CAMO-14-49674	WSP-GENINORG+PerChlorate	INV	F	1/17/2014	
				CAMO-14-49674	WSP-NH3+NO3/NO2+PO4	INV	F	1/17/2014	
Chromium Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-28	~~CAMO-14-49664~~	~~MSGP-Hg~~	~~INV~~	~~UF~~	Not Collected	Cancelled by Project Lead
				~~CAMO-14-49664~~	~~WSP-CN(T)~~	~~INV~~	~~UF~~	Not Collected	
				~~CAMO-14-49664~~	~~WSP-TKN+TOC~~	~~INV~~	~~UF~~	Not Collected	
				~~CAMO-14-49675~~	~~WSP-All Metals~~	~~INV~~	~~F~~	Not Collected	
				~~CAMO-14-49675~~	~~WSP-GENINORG+PerChlorate~~	~~INV~~	~~F~~	Not Collected	
				~~CAMO-14-49675~~	~~WSP-NH3+NO3/NO2+PO4~~	~~INV~~	~~F~~	Not Collected	
Chromium Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-42	~~CAMO-14-49665~~	~~MSGP-Hg~~	~~INV~~	~~UF~~	Not Collected	Cancelled by Project Lead
				~~CAMO-14-49665~~	~~WSP-CN(T)~~	~~INV~~	~~UF~~	Not Collected	
				~~CAMO-14-49665~~	~~WSP-TKN+TOC~~	~~INV~~	~~UF~~	Not Collected	
				~~CAMO-14-49676~~	~~WSP-All Metals~~	~~INV~~	~~F~~	Not Collected	
				~~CAMO-14-49676~~	~~WSP-GENINORG+PerChlorate~~	~~INV~~	~~F~~	Not Collected	
				~~CAMO-14-49676~~	~~WSP-NH3+NO3/NO2+PO4~~	~~INV~~	~~F~~	Not Collected	
Chromium Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-44 S1	CAMO-14-49666	MSGP-Hg	INV	UF	1/13/2014	Sampled within 50' of running diesel generator
				CAMO-14-49666	WSP-CN(T)	INV	UF	1/13/2014	
				CAMO-14-49666	WSP-TKN+TOC	INV	UF	1/13/2014	
				CAMO-14-49677	WSP-All Metals	INV	F	1/13/2014	
				CAMO-14-49677	WSP-GENINORG+PerChlorate	INV	F	1/13/2014	
				CAMO-14-49677	WSP-NH3+NO3/NO2+PO4	INV	F	1/13/2014	
Chromium Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-44 S2	CAMO-14-49667	MSGP-Hg	INV	UF	1/13/2014	Sampled within 50' of running diesel generator
				CAMO-14-49667	WSP-CN(T)	INV	UF	1/13/2014	
				CAMO-14-49667	WSP-TKN+TOC	INV	UF	1/13/2014	
				CAMO-14-49678	WSP-All Metals	INV	F	1/13/2014	
				CAMO-14-49678	WSP-GENINORG+PerChlorate	INV	F	1/13/2014	
				CAMO-14-49678	WSP-NH3+NO3/NO2+PO4	INV	F	1/13/2014	
Chromium Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-45 S1	CAMO-14-49679	WSP-CR52/53	INV	F	1/14/2013	Sampled near running diesel generator
				CAMO-14-49660	MSGP-Hg	PEB	UF	1/14/2013	
				CAMO-14-49660	WSP-8260B-VOA	PEB	UF	1/14/2013	
				CAMO-14-49660	WSP-All Metals	PEB	UF	1/14/2013	
				CAMO-14-49660	WSP-CN(T)	PEB	UF	1/14/2013	
				CAMO-14-49660	WSP-CR52/53	PEB	UF	1/14/2013	
				CAMO-14-49660	WSP-GENINORG+PerChlorate	PEB	UF	1/14/2013	
				CAMO-14-49660	WSP-LL-H-3	PEB	UF	1/14/2013	
				CAMO-14-49660	WSP-NH3+NO3/NO2+PO4	PEB	UF	1/14/2013	
				CAMO-14-49660	WSP-TKN+TOC	PEB	UF	1/14/2013	

Appendix A
Samples Taken Table
Event IDs: 4517, 4518, 4520, 4521, 4525, 4529, 4533
Event Name: Mortandad/Sandia (Chromium Investigation and General Surveillance Monitoring Groups) and Pajarito (TA-54 Monitoring Group) MY2014 Q2 Watershed Sampling

Monitoring Group	Field Matrix	Media	Location ID	Field Sample ID	Analytical Group	Sample Purpose*	Field Prep Code**	Date Collected***	Comments
Chromium Monitoring - Mortandad Canyon	**WG (Groundwater)**	**WGR (Regional Groundwater)**	**R-45 S2**	CAMO-14-49680	WSP-CR52/53	INV	F	1/14/2014	Sampled within 50' of running diesel generator
Chromium Monitoring - Mortandad Canyon	**WG (Groundwater)**	**WGR (Regional Groundwater)**	**R-50 S1**	CAMO-14-49670	MSGP-Hg	INV	UF	1/15/2014	Sampled near running diesel generator
				CAMO-14-49670	WSP-CN(T)	INV	UF	1/15/2014	
				CAMO-14-49670	WSP-TKN+TOC	INV	UF	1/15/2014	
				CAMO-14-49681	WSP-All Metals	INV	F	1/15/2014	
				CAMO-14-49681	WSP-CR52/53	INV	F	1/15/2014	
				CAMO-14-49681	WSP-GENINORG+PerChlorate	INV	F	1/15/2014	
				CAMO-14-49681	WSP-NH3+NO3/NO2+PO4	INV	F	1/15/2014	
				CAMO-14-49661	MSGP-Hg	FD	UF	1/15/2014	
				CAMO-14-49661	WSP-CN(T)	FD	UF	1/15/2014	
				CAMO-14-49661	WSP-TKN+TOC	FD	UF	1/15/2014	
				CAMO-14-49662	WSP-All Metals	FD	F	1/15/2014	
				CAMO-14-49662	WSP-CR52/53	FD	F	1/15/2014	
				CAMO-14-49662	WSP-GENINORG+PerChlorate	FD	F	1/15/2014	
				CAMO-14-49662	WSP-NH3+NO3/NO2+PO4	FD	F	1/15/2014	
Chromium Monitoring - Mortandad Canyon	**WG (Groundwater)**	**WGR (Regional Groundwater)**	**R-50 S2**	CAMO-14-49671	MSGP-Hg	INV	UF	1/15/2014	Sampled near running diesel generator
				CAMO-14-49671	WSP-CN(T)	INV	UF	1/15/2014	
				CAMO-14-49671	WSP-TKN+TOC	INV	UF	1/15/2014	
				CAMO-14-49682	WSP-All Metals	INV	F	1/15/2014	
				CAMO-14-49682	WSP-CR52/53	INV	F	1/15/2014	
				CAMO-14-49682	WSP-GENINORG+PerChlorate	INV	F	1/15/2014	
				CAMO-14-49682	WSP-NH3+NO3/NO2+PO4	INV	F	1/15/2014	

Appendix A
Samples Taken Table
Event IDs: 4517, 4518, 4520, 4521, 4525, 4529, 4533
Event Name: Mortandad/Sandia (Chromium Investigation and General Surveillance Monitoring Groups) and Pajarito (TA-54 Monitoring Group) MY2014 Q2 Watershed Sampling

Monitoring Group	Field Matrix	Media	Location ID	Field Sample ID	Analytical Group	Sample Purpose*	Field Prep Code**	Date Collected***	Comments
Chromium Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-61 S1	CAMO-14-49672	MSGP-Hg	INV	UF	1/23/2014	Sampled within 50' of running diesel generator
				CAMO-14-49672	WSP-CN(T)	INV	UF	1/23/2014	
				CAMO-14-49672	WSP-TKN+TOC	INV	UF	1/23/2014	
				CAMO-14-49683	WSP-CR52/53	INV	F	1/23/2014	
				CAMO-14-49683	WSP-GENINORG+PerChlorate	INV	F	1/23/2014	
				CAMO-14-49683	WSP-NH3+NO3/NO2+PO4	INV	F	1/23/2014	
				CAMO-14-49683	WSP-All Metals	INV	F	1/23/2014	
				CAMO-14-53833	WSP-DRO	TEST	UF	1/23/2014	Sample collected at DP + 1CV
				CAMO-14-53834	WSP-DRO	TEST	UF	1/23/2014	Sample collected at 3 CV
				CAMO-14-53834	WSP-EES6-ALK	TEST	UF	1/23/2014	Sample collected at 3 CV
				CAMO-14-53834	WSP-EES6-MET	TEST	UF	1/23/2014	Sample collected at 3 CV
				CAMO-14-53834	WSP-EES6-TOC	TEST	UF	1/23/2014	Sample collected at 3 CV
				CAMO-14-53835	WSP-DRO	TEST	UF	1/23/2014	Sample collected at 6 CV
				CAMO-14-53835	WSP-EES6-ALK	TEST	UF	1/23/2014	Sample collected at 6 CV
				CAMO-14-53835	WSP-EES6-MET	TEST	UF	1/23/2014	Sample collected at 6 CV
				CAMO-14-53835	WSP-EES6-TOC	TEST	UF	1/23/2014	Sample collected at 6 CV
				CAMO-14-53836	WSP-DRO	TEST	UF	1/23/2014	Sample collected at 9 CV
				CAMO-14-53836	WSP-EES6-ALK	TEST	UF	1/23/2014	Sample collected at 9 CV
				CAMO-14-53836	WSP-EES6-MET	TEST	UF	1/23/2014	Sample collected at 9 CV
				CAMO-14-53836	WSP-EES6-TOC	TEST	UF	1/23/2014	Sample collected at 9 CV
				CAMO-14-53837	WSP-DRO	TEST	UF	1/23/2014	Sample collected at 12 CV
				CAMO-14-53837	WSP-EES6-ALK	TEST	UF	1/23/2014	Sample collected at 12 CV
				CAMO-14-53837	WSP-EES6-MET	TEST	UF	1/23/2014	Sample collected at 12 CV
				CAMO-14-53837	WSP-EES6-TOC	TEST	UF	1/23/2014	Sample collected at 12 CV
				CAMO-14-53843	WSP-CR52/53	TEST	F	1/23/2014	Sample collected at DP + 1CV
				CAMO-14-53844	WSP-CR52/53	TEST	F	1/23/2014	Sample collected at 3 CV
				CAMO-14-53844	WSP-EES6-ANIONS	TEST	F	1/23/2014	Sample collected at 3 CV
				CAMO-14-53844	WSP-EES6-MET	TEST	F	1/23/2014	Sample collected at 3 CV
				CAMO-14-53845	WSP-CR52/53	TEST	F	1/23/2014	Sample collected at 6 CV
				CAMO-14-53845	WSP-EES6-ANIONS	TEST	F	1/23/2014	Sample collected at 6 CV
				CAMO-14-53845	WSP-EES6-MET	TEST	F	1/23/2014	Sample collected at 6 CV
				CAMO-14-53846	WSP-CR52/53	TEST	F	1/23/2014	Sample collected at 9 CV
				CAMO-14-53845	WSP-EES6-ANIONS	TEST	F	1/23/2014	Sample collected at 9 CV
				CAMO-14-53846	WSP-EES6-MET	TEST	F	1/23/2014	Sample collected at 9 CV
				CAMO-14-53847	WSP-CR52/53	TEST	F	1/23/2014	Sample collected at 12 CV
				CAMO-14-53847	WSP-EES6-ANIONS	TEST	F	1/23/2014	Sample collected at 12 CV
				CAMO-14-53847	WSP-EES6-MET	TEST	F	1/23/2014	Sample collected at 12 CV

Appendix A
Samples Taken Table
Event IDs: 4517, 4518, 4520, 4521, 4525, 4529, 4533
Event Name: Mortandad/Sandia (Chromium Investigation and General Surveillance Monitoring Groups) and Pajarito (TA-54 Monitoring Group) MY2014 Q2 Watershed Sampling

Monitoring Group	Field Matrix	Media	Location ID	Field Sample ID	Analytical Group	Sample Purpose*	Field Prep Code**	Date Collected***	Comments
Chromium Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-61 S2	CAMO-14-49673	MSGP-Hg	INV	UF	1/22/2014	Sampled near running diesel generator
				CAMO-14-49673	WSP-CN(T)	INV	UF	1/22/2014	
				CAMO-14-49673	WSP-TKN+TOC	INV	UF	1/22/2014	
				CAMO-14-49684	WSP-All Metals	INV	F	1/22/2014	
				CAMO-14-49684	WSP-CR52/53	INV	F	1/22/2014	
				CAMO-14-49684	WSP-GENINORG+PerChlorate	INV	F	1/22/2014	
				CAMO-14-49684	WSP-NH3+NO3/NO2+PO4	INV	F	1/22/2014	
				CAMO-14-53838	WSP-DRO	TEST	UF	1/22/2014	Sample collected at DP + 1CV
				CAMO-14-53839	WSP-DRO	TEST	UF	1/22/2014	Sample collected at 3 CV
				CAMO-14-53839	WSP-EES6-ALK	TEST	UF	1/22/2014	Sample collected at 3 CV
				CAMO-14-53839	WSP-EES6-MET	TEST	UF	1/22/2014	Sample collected at 3 CV
				CAMO-14-53839	WSP-EES6-TOC	TEST	UF	1/22/2014	Sample collected at 3 CV
				CAMO-14-53840	WSP-DRO	TEST	UF	1/22/2014	Sample collected at 6 CV
				CAMO-14-53840	WSP-EES6-ALK	TEST	UF	1/22/2014	Sample collected at 6 CV
				CAMO-14-53840	WSP-EES6-MET	TEST	UF	1/22/2014	Sample collected at 6 CV
				CAMO-14-53840	WSP-EES6-TOC	TEST	UF	1/22/2014	Sample collected at 6 CV
				CAMO-14-53841	WSP-DRO	TEST	UF	1/22/2014	Sample collected at 9 CV
				CAMO-14-53841	WSP-EES6-ALK	TEST	UF	1/22/2014	Sample collected at 9 CV
				CAMO-14-53841	WSP-EES6-MET	TEST	UF	1/22/2014	Sample collected at 9 CV
				CAMO-14-53841	WSP-EES6-TOC	TEST	UF	1/22/2014	Sample collected at 9 CV
				CAMO-14-53842	WSP-DRO	TEST	UF	1/22/2014	Sample collected at 12 CV
				CAMO-14-53842	WSP-EES6-ALK	TEST	UF	1/22/2014	Sample collected at 12 CV
				CAMO-14-53842	WSP-EES6-MET	TEST	UF	1/22/2014	Sample collected at 12 CV
				CAMO-14-53842	WSP-EES6-TOC	TEST	UF	1/22/2014	Sample collected at 12 CV
				CAMO-14-53848	WSP-CR52/53	TEST	F	1/22/2014	Sample collected at DP + 1CV
				CAMO-14-53849	WSP-CR52/53	TEST	F	1/22/2014	Sample collected at 3 CV
				CAMO-14-53849	WSP-EES6-ANIONS	TEST	F	1/22/2014	Sample collected at 3 CV
				CAMO-14-53849	WSP-EES6-MET	TEST	F	1/22/2014	Sample collected at 3 CV
				CAMO-14-53850	WSP-CR52/53	TEST	F	1/22/2014	Sample collected at 6 CV
				CAMO-14-53850	WSP-EES6-ANIONS	TEST	F	1/22/2014	Sample collected at 6 CV
				CAMO-14-53850	WSP-EES6-MET	TEST	F	1/22/2014	Sample collected at 6 CV
				CAMO-14-53851	WSP-CR52/53	TEST	F	1/22/2014	Sample collected at 9 CV
				CAMO-14-53851	WSP-EES6-ANIONS	TEST	F	1/22/2014	Sample collected at 9 CV
				CAMO-14-53851	WSP-EES6-MET	TEST	F	1/22/2014	Sample collected at 9 CV
				CAMO-14-53852	WSP-CR52/53	TEST	F	1/22/2014	Sample collected at 12 CV
				CAMO-14-53852	WSP-EES6-ANIONS	TEST	F	1/22/2014	Sample collected at 12 CV
				CAMO-14-53852	WSP-EES6-MET	TEST	F	1/22/2014	Sample collected at 12 CV

Appendix A
Samples Taken Table
Event IDs: 4517, 4518, 4520, 4521, 4525, 4529, 4533
Event Name: Mortandad/Sandia (Chromium Investigation and General Surveillance Monitoring Groups) and Pajarito (TA-54 Monitoring Group) MY2014 Q2 Watershed Sampling

Monitoring Group	Field Matrix	Media	Location ID	Field Sample ID	Analytical Group	Sample Purpose*	Field Prep Code**	Date Collected***	Comments
Chromium Monitoring - Sandia Canyon	WG (Groundwater)	WGI (Intermediate Groundwater)	SCI-2	CASA-14-49692	MSGP-Hg	INV	UF	1/13/2014	None
				CASA-14-49692	WSP-CN(T)	INV	UF	1/13/2014	
				CASA-14-49692	WSP-TKN+TOC	INV	UF	1/13/2014	
				CASA-14-49698	WSP-All Metals	INV	F	1/13/2014	
				CASA-14-49698	WSP-GENINORG+PerChlorate	INV	F	1/13/2014	
				CASA-14-49698	WSP-NH3+NO3/NO2+PO4	INV	F	1/13/2014	
Chromium Monitoring - Sandia Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-11	CASA-14-49687	MSGP-Hg	INV	UF	1/9/2014	Sampled near running diesel generator
				CASA-14-49687	WSP-CN(T)	INV	UF	1/9/2014	
				CASA-14-49687	WSP-TKN+TOC	INV	UF	1/9/2014	
				CASA-14-49693	WSP-All Metals	INV	F	1/9/2014	
				CASA-14-49693	WSP-GENINORG+PerChlorate	INV	F	1/9/2014	
				CASA-14-49693	WSP-NH3+NO3/NO2+PO4	INV	F	1/9/2014	
Chromium Monitoring - Sandia Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-35a	CASA-14-49688	MSGP-Hg	INV	UF	1/16/2014	Sampled near running diesel generator
				CASA-14-49688	WSP-CN(T)	INV	UF	1/16/2014	
				CASA-14-49688	WSP-TKN+TOC	INV	UF	1/16/2014	
				CASA-14-49694	WSP-All Metals	INV	F	1/16/2014	
				CASA-14-49694	WSP-GENINORG+PerChlorate	INV	F	1/16/2014	
				CASA-14-49694	WSP-NH3+NO3/NO2+PO4	INV	F	1/16/2014	
Chromium Monitoring - Sandia Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-35b	CASA-14-49689	MSGP-Hg	INV	UF	1/15/2014	Sampled within 50' of running diesel generator
				CASA-14-49689	WSP-CN(T)	INV	UF	1/15/2014	
				CASA-14-49689	WSP-TKN+TOC	INV	UF	1/15/2014	
				CASA-14-49695	WSP-All Metals	INV	F	1/15/2014	
				CASA-14-49695	WSP-GENINORG+PerChlorate	INV	F	1/15/2014	
				CASA-14-49695	WSP-NH3+NO3/NO2+PO4	INV	F	1/15/2014	
Chromium Monitoring - Sandia Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-43 S1	CASA-14-49690	MSGP-Hg	INV	UF	1/21/2014	Sampled within 50' of running diesel generator
				CASA-14-49690	WSP-CN(T)	INV	UF	1/21/2014	
				CASA-14-49690	WSP-TKN+TOC	INV	UF	1/21/2014	
				CASA-14-49696	WSP-All Metals	INV	F	1/21/2014	
				CASA-14-49696	WSP-CR52/53	INV	F	1/21/2014	
				CASA-14-49696	WSP-GENINORG+PerChlorate	INV	F	1/21/2014	
				CASA-14-49696	WSP-NH3+NO3/NO2+PO4	INV	F	1/21/2014	
				CASA-14-49685	MSGP-Hg	FD	UF	1/21/2014	
				CASA-14-49685	WSP-CN(T)	FD	UF	1/21/2014	
				CASA-14-49685	WSP-TKN+TOC	FD	UF	1/21/2014	
				CASA-14-49686	WSP-All Metals	FD	F	1/21/2014	
				CASA-14-49686	WSP-CR52/53	FD	F	1/21/2014	
				CASA-14-49686	WSP-GENINORG+PerChlorate	FD	F	1/21/2014	
				CASA-14-49686	WSP-NH3+NO3/NO2+PO4	FD	F	1/21/2014	

Appendix A
Samples Taken Table
Event IDs: 4517, 4518, 4520, 4521, 4525, 4529, 4533
Event Name: Mortandad/Sandia (Chromium Investigation and General Surveillance Monitoring Groups) and Pajarito (TA-54 Monitoring Group) MY2014 Q2 Watershed Sampling

Monitoring Group	Field Matrix	Media	Location ID	Field Sample ID	Analytical Group	Sample Purpose*	Field Prep Code**	Date Collected***	Comments
Chromium Monitoring - Sandia Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-43 S2	CASA-14-49691	MSGP-Hg	INV	UF	1/21/2014	Sampled within 50' of running diesel generator
				CASA-14-49691	WSP-CN(T)	INV	UF	1/21/2014	
				CASA-14-49691	WSP-TKN+TOC	INV	UF	1/21/2014	
				CASA-14-49697	WSP-All Metals	INV	F	1/21/2014	
				CASA-14-49697	WSP-CR52/53	INV	F	1/21/2014	
				CASA-14-49697	WSP-GENINORG+PerChlorate	INV	F	1/21/2014	
				CASA-14-49697	WSP-NH3+NO3/NO2+PO4	INV	F	1/21/2014	
General Surveillance Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-34	CAMO-14-53218	WSP-TKN+TOC	INV	UF	1/17/2014	Sampled near running diesel generator
				CAMO-14-53218	MSGP-Hg	INV	UF	1/17/2014	
				CAMO-14-53218	WSP-CN(T)	INV	UF	1/17/2014	
				CAMO-14-53219	WSP-NH3+NO3/NO2+PO4	INV	F	1/17/2014	
				CAMO-14-53219	WSP-GENINORG+PerChlorate	INV	F	1/17/2014	
				CAMO-14-53219	WSP-All Metals	INV	F	1/17/2014	
TA-54 Monitoring - Mortandad Canyon	WG (Groundwater)	WGI (Intermediate Groundwater)	R-37 S1	~~CAMO-14-49723~~	~~WSP-8260B-VOA~~	~~INV~~	~~UF~~	Not Collected	Mechanical issue with well pump prevented sampling
				~~CAMO-14-49723~~	~~WSP-LL-H-3~~	~~INV~~	~~UF~~	Not Collected	
				~~CAMO-14-49719~~	~~WSP-8260B-VOA~~	~~FB~~	~~UF~~	Not Collected	
				~~CAMO-14-49720~~	~~WSP-8260B-VOA~~	~~FTB~~	~~UF~~	Not Collected	
TA-54 Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-37 S2	CAMO-14-49724	WSP-8260B-VOA	INV	UF	1/7/2014	Sampled within 50' of running diesel generator
				CAMO-14-49724	WSP-LL-H-3	INV	UF	1/7/2014	
				CAMO-14-49721	WSP-8260B-VOA	FTB	UF	1/7/2014	
TA-54 Monitoring - Mortandad Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-55 S1	CAMO-14-49725	WSP-8260B-VOA	INV	UF	1/8/2014	Sampled within 50' of running diesel generator
				CAMO-14-49725	WSP-LL-H-3	INV	UF	1/8/2014	
				CAMO-14-49722	WSP-8260B-VOA	FTB	UF	1/8/2014	
TA-54 Monitoring - Pajarito Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-23	CAPA-14-49709	WSP-8260B-VOA	INV	UF	1/7/2014	Sampled within 50' of running diesel generator
				CAPA-14-49709	WSP-LL-H-3	INV	UF	1/7/2014	
				CAPA-14-49702	WSP-8260B-VOA	FD	UF	1/7/2014	
				CAPA-14-49702	WSP-LL-H-3	FD	UF	1/7/2014	
				CAPA-14-49700	WSP-8260B-VOA	FB	UF	1/7/2014	
				CAPA-14-49704	WSP-8260B-VOA	FTB	UF	1/7/2014	
TA-54 Monitoring - Pajarito Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-39	CAPA-14-49710	WSP-8260B-VOA	INV	UF	1/24/2014	Sampled within 50' of running diesel generator
				CAPA-14-49710	WSP-LL-H-3	INV	UF	1/24/2014	
				CAPA-14-49705	WSP-8260B-VOA	FTB	UF	1/24/2014	
TA-54 Monitoring - Pajarito Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-41 S2	CAPA-14-49711	WSP-8260B-VOA	INV	UF	1/16/2014	Sampled within 50' of running diesel generator
				CAPA-14-49711	WSP-LL-H-3	INV	UF	1/16/2014	
				CAPA-14-49706	WSP-8260B-VOA	FTB	UF	1/16/2014	
TA-54 Monitoring - Pajarito Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-56 S1	CAPA-14-49712	WSP-8260B-VOA	INV	UF	1/23/2014	Sampled within 40' of running diesel generator
				CAPA-14-49712	WSP-LL-H-3	INV	UF	1/23/2014	
				CAPA-14-49707	WSP-8260B-VOA	FTB	UF	1/23/2014	
TA-54 Monitoring - Pajarito Canyon	WG (Groundwater)	WGR (Regional Groundwater)	R-57 S1	CAPA-14-49713	WSP-8260B-VOA	INV	UF	1/8/2014	Sampled near of running diesel generator
				CAPA-14-49713	WSP-LL-H-3	INV	UF	1/8/2014	
				CAPA-14-49701	WSP-8260B-VOA	FB	UF	1/8/2014	
				CAPA-14-49708	WSP-8260B-VOA	FTB	UF	1/8/2014	

Appendix A
Samples Taken Table
Event IDs: 4529
Event Name: Mortandad/Sandia MY 2014 Q2 Discharge Permit Sampling

Other Field Activities	Field Matrix	Media	Location ID	Field Sample ID	Analytical Group	Sample Purpose*	Field Prep Code**	Date Collected	Comments
Discharge Permit Sampling	WG (Groundwater)	WGA (Alluvial Groundwater)	CDBO-6	CAMO-14-53813	Anions-W	INV	UF	Not Collected	Dry
				CAMO-14-53813	GrossA	INV	UF	Not Collected	
				CAMO-14-53813	MSGP-Hg	INV	UF	Not Collected	
				CAMO-14-53813	NH3+NO2NO3+TKN	INV	UF	Not Collected	
				CAMO-14-53813	Ra226+228	INV	UF	Not Collected	
				CAMO-14-53813	TDS	INV	UF	Not Collected	
				CAMO-14-53813	WSP-8082-PCB	INV	UF	Not Collected	
				CAMO-14-53813	WSP-8260B-VOA	INV	UF	Not Collected	
				CAMO-14-53813	WSP-8270C-SVOA	INV	UF	Not Collected	
				CAMO-14-53813	WSP-CL04	INV	UF	Not Collected	
				CAMO-14-53817	Tal Metals	INV	F	Not Collected	
				CAMO-14-53817	WSP-CN(T)	INV	F	Not Collected	
				CAMO-14-53817	WSP-Molybdenum	INV	F	Not Collected	
				CAMO-14-53810	Anions-W	FD	UF	Not Collected	
				CAMO-14-53810	GrossA	FD	UF	Not Collected	
				CAMO-14-53810	MSGP-Hg	FD	UF	Not Collected	
				CAMO-14-53810	NH3+NO2NO3+TKN	FD	UF	Not Collected	
				CAMO-14-53810	Ra226+228	FD	UF	Not Collected	
				CAMO-14-53810	TDS	FD	UF	Not Collected	
				CAMO-14-53810	WSP-8082-PCB	FD	UF	Not Collected	
				CAMO-14-53810	WSP-8260B-VOA	FD	UF	Not Collected	
				CAMO-14-53810	WSP-8270C-SVOA	FD	UF	Not Collected	
				CAMO-14-53810	WSP-CL04	FD	UF	Not Collected	
				CAMO-14-53811	Tal Metals	FD	F	Not Collected	
				CAMO-14-53811	WSP-CN(T)	FD	F	Not Collected	
				CAMO-14-53811	WSP-Molybdenum	FD	F	Not Collected	
				CAMO-14-53812	WSP-8260B-VOA	FTB	UF	Not Collected	
				CAMO-14-53821	NH3+NO2NO3+TKN	INV	F	Not Collected	
				CAMO-14-53821	NPDES-TDS+Cl	INV	F	Not Collected	
			MCO-4B	CAMO-14-53818	NH3+NO2NO3+TKN	INV	F	1/21/2014	None
				CAMO-14-53818	TDS	INV	F	1/21/2014	
				CAMO-14-53818	WSP-CL04	INV	F	1/21/2014	
				CAMO-14-53818	WSP-Fluoride	INV	F	1/21/2014	
			MCO-6	CAMO-14-53819	NH3+NO2NO3+TKN	INV	F	1/21/2014	None
				CAMO-14-53819	TDS	INV	F	1/21/2014	
				CAMO-14-53819	WSP-CL04	INV	F	1/21/2014	
				CAMO-14-53819	WSP-Fluoride	INV	F	1/21/2014	
			MCO-7	CAMO-14-53820	NH3+NO2NO3+TKN	INV	F	1/29/2014	None
				CAMO-14-53820	TDS	INV	F	1/29/2014	
				CAMO-14-53820	WSP-CL04	INV	F	1/29/2014	
				CAMO-14-53820	WSP-Fluoride	INV	F	1/29/2014	

Appendix B

Well Completion and Pump Information

Appendix B
Well Completion and Pump Information
Mortandad /Sandia and Pajarito Watersheds MY2014 Q1 and other FIeld Activities from January 7-January 29, 2014

Watershed	Location Name	Land Surface Datum (ft msl)	Completion Depth (ft bgs)	Screen Top Depth (ft bgs)	Screen Bottom Depth (ft bgs)	Screen Length (ft)	Inner Diameter (in)	Pump Type
Mortandad	CDBO-6	6817.20	49.0	34.0	44.0	10	2	Bladder
Mortandad	MCO-4B	6886.75	33.9	8.9	28.9	20	2	Bladder
Mortandad	MCO-6	6849.48	47	27	47	20	4	Bladder
Mortandad	MCO-7	6827.31	69	39	69	30	3	Bladder
Mortandad	MCOI-6	6811.1	713.2	686	708.3	22.3	4.5	Gear Driven Submersible
Mortandad	R-28	6728.61	980.3	934.3	958.1	23.8	4.47	Gear Driven Submersible
Mortandad	R-42	6759.02	973.5	931.8	952.9	21.1	5	Gear Driven Submersible
Mortandad	R-50 S1	6904.11	1217.5	1077	1087	10	5	Gear Driven Submersible
Mortandad	R-50 S2	6904.11	1217.5	1185.0	1205.6	20.6	5	Gear Driven Submersible
Mortandad	R-61 S1	6940.12	1162.3	1125.0	1135.0	10	5	Gear Driven Submersible
Mortandad	R-61 S2	6940.12	1251.6	1220.4	1241	20.6	5	Gear Driven Submersible
Mortandad	R-44 S1	6714.91	1016	895	905	10	5	Gear Driven Submersible
Mortandad	R-44 S2	6714.91	1016	985.3	995.2	9.9	5	Gear Driven Submersible
Mortandad	R-45 S1	6704.02	1016	880	890	10	5	Gear Driven Submersible
Mortandad	R-45 S 2	6704.02	1016	974.9	994.9	20	5	Gear Driven Submersible
Mortandad	R-34	6629.99	920.7	883.7	906.6	22.9	4.5	Gear Driven Submersible
Pajarito	R-23	6527.75	886.3	816	873.2	57.2	4.5	Gear Driven Submersible
Pajarito	R-37 S1	6870.59	1068.8	929.3	950	20.7	5	Bennet
Pajarito	R-37 S2	6870.59	1068.8	1026	1046.6	20.6	5	Gear Driven Submersible
Pajarito	R-39	6580.86	875.6	859	869	10	5	Gear Driven Submersible
Pajarito	R-41 S1	6660.53	997.1	965.3	975	9.7	5	Gear Driven Submersible
Pajarito	R-55 S1	6533.86	1021.0	860.0	880.6	20.6	5	Gear Driven Submersible
Pajarito	R-56 S1	6780.88	1078.8	945.0	965.6	20.6	5	Gear Driven Submersible
Pajarito	R-57 S1	6648.04	1013.8	5738.04	5717.54	20.5	5	Gear Driven Submersible
Sandia	R-11	6673.72	901.7	855	877.9	22.9	4.46	Gear Driven Submersible
Sandia	R-43 S1	6732.65	990.4	903.9	924.6	20.7	5	Gear Driven Submersible
Sandia	R-43 S2	6732.65	990.4	969.1	979.1	10	5	Gear Driven Submersible
Sandia	SCI-2	6735.7	570	548	568	20	2	Bennet

Watershed	Location Name	Land Surface Datum (ft msl)	Completion Depth (ft bgs)	Screen Top Depth (ft bgs)	Screen Bottom Depth (ft bgs)	Screen Length (ft)	Inner Diameter (in)	Pump Type
Sandia	R-35a	6623.06	1086.2	1013.1	1062.2	49.1	4.375	Gear Driven Submersible
Sandia	R-35b	6625.21	872.2	825.4	848.5	23.1	4.375	Gear Driven Submersible

Appendix C
Time-Series Purge Data

NOTES:

* Unless otherwise noted, The following parameters have been logged on the YSI meters and digitally imported into Appendix C: time, pH, temperature, specific conductance, dissolved oxygen, and oxidation reduction potential (ORP).

* The following parameters are manually entered from data recorded on the Groundwater Sampling Log and reviewed by field team members: turbidity, water level, discharge, and notes.

* Parameters are recorded on the YSI meters in 5 minute intervals. Manually entered data is recorded in 5, 10, 15, 30, or 60 minute intervals on the groundwater sampling log, per SOPs. Dashes (-) indicate times when YSI data were recorded but not

ABBREVIATIONS:

* CV = casing volume
* °C = degrees Celsius
* DO = Dissolved Oxygen
* DST = Daylight Savings Time
* ft BGS = feet below ground surface
* ft BTIC = feet below top of inner casing
* ft BTOC = feet below top of casing
* ft BTOM = feet below top of manhole
* ft MSL = feet above mean sea level
* Gal = gallons
* gpm = gallons per minute
* in = inches
* mg/L = milligrams per liter
* MST = Mountain Standard Time
* mV = millivolts
* NA = parameters are not applicable
* NC = parameters were not collected, see notes for details
* ND = YSI initializing, no valid data available
* NTU = nephelometric turbidity units
* pH = pH in standard units
* SC = Specific Conductance
* TIC= top of inner casing
* TOC = top of outer casing
* µS/cm = microSiemens per centimeter

Well Name:	MCO-4B	**1 Casing Volume (Gal):**	1.6	**Pump On:**	11:05; 11:07; 11:26
Well Inside Diameter (in):	2	**3 Casing Volume (Gal):**	4.8	**Water at Surface:**	11:05
Well Depth (ft BGS):	33.9	**Drop Pipe (Gal):**	NA	**Begin Sampling:**	11:26
Casing/Tubing Type:	PVC	**3 CVs plus DP (Gal):**	4.8	**End Sampling:**	11:30
Date:	1/21/2014	**Total Purge Water (Gal):**	2	**Pump Off:**	11:08; 11:23; 11:30
Initial Water Level (ft BTOC):	25.94			**Final Water Level (ft BTOC):**	25.96
Brass Cap (ft MSL):	6886.75	**Measuring point height (f**	2.47	**Total Waste Water (Gal):**	2.2

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft BTOC)	Discharge Rate (gpm)	Notes
11:10:22	NC	NC	NC	NC	NC	Nc	25.96	0.11	slightly cloudy
11:13:00	6.02	9.10	1262	6.30	12.0	-37.0	25.98	0.11	YSI display frozen, water slightly cloudy
11:16:21	6.03	10.61	1306	5.51	6.0	-34.0	25.95	0.11	YSI fixed, less cloudy
11:19:21	6.08	11.00	1314	5.30	2.6	-38.0	26.00	0.11	clear, odorless
11:22:21	6.09	11.13	1316	5.27	1.2	-38.0	26.00	0.11	clear, odorless

Additional Notes
Specific conductance is very high, but is consistent with high historical values

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: MCO-6
Well Inside Diameter (in): 4
Well Depth (ft BGS): 47
Casing/Tubing Type: PVC
Date: 1/21/2014
Initial Water Level (ft BTOC): 38.16
Brass Cap (ft MSL): 6849.48

1 Casing Volume (Gal): 4.6
3 Casing Volume (Gal): 13.9
Drop Pipe (Gal): NA
3 CVs plus DP (Gal): 13.9
Total Purge Water (Gal): 4.6
Measuring point height (ft BTOC): 2.66

Pump On: 12:03
Water at Surface: 12:04
Begin Sampling: 12:32
End Sampling: 12:37
Pump Off: 12:37
Final Water Level (ft BTOC): 38.25
Total Waste Water (Gal): 5

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft BTOC)	Discharge Rate (gpm)	Notes
12:06	NC	NC	NC	NC	NC	NC	38.25	0.20	clear, odorless
12:11	6.56	10.27	1080	7.68	0.0	-68	38.21	0.20	clear, odorless
12:16	6.52	10.25	1084	7.63	0.45	-57	38.21	0.20	clear, odorless
12:21	6.50	10.22	1083	7.55	0.65	-51	38.25	0.20	clear, odorless
12:26	6.48	10.23	1082	7.54	0.40	-48	38.25	0.20	clear, odorless

Additional Notes
Hach turbidimeter used at 12:16 and all following turbidity readings.

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: MCO-7
Well Inside Diameter (in): 3
Well Depth (ft BGS): 69
Casing/Tubing Type: PVC
Date: 1/29/2014
Initial Water Level (ft BTOC): 41.13
Brass Cap (ft MSL): 6827.31

1 Casing Volume (Gal): 11.03
3 Casing Volume (Gal): 33.1
Drop Pipe (Gal): NA
3 CVs plus DP (Gal): 33.1
Total Purge Water (Gal): 11.7
Measuring point height (ft BTOC): 2.18

Pump On: 10:33; 11:42
Water at Surface: 10:33
Begin Sampling: 11:42
End Sampling: 11:44
Pump Off: 11:44
Final Water Level (ft BTOC): 41.25
Total Waste Water (Gal): 11.7

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft BTOC)	Discharge Rate (gpm)	Notes
10:35:00	NC	NC	NC	NC	NC	NC	41.31	0.18	clear, odorless
10:40:00	6.17	9.85	513	9.09	14.8	-13	-	-	-
10:45:00	6.08	9.89	514	9.08	18.1	-7	-	-	-
10:50:00	6.05	9.93	513	8.95	18.2	-5	-	-	-
10:55:00	6.04	9.96	512	8.73	11.6	-5	-	-	-
11:00:00	6.04	9.99	512	8.61	7.6	-4	-	-	-
11:05:00	6.04	10.05	511	8.52	5.9	-3	41.43	0.17	clear, odorless
11:10:00	6.05	10.04	511	8.48	4.4	-2	-	-	-
11:15:00	6.06	10.04	511	8.47	3.5	-2	-	-	-
11:20:00	6.07	10.07	511	8.47	3.0	-2	41.45	0.18	clear, odorless
11:25:00	6.08	10.09	511	8.45	2.7	-2	41.41	0.18	clear, odorless
11:30:00	6.08	10.07	511	8.45	2.3	-2	41.43	0.18	clear, odorless
11:35:00	6.10	10.11	511	8.43	2.0	-2	41.42	0.18	clear, odorless
11:40:00	6.11	10.13	511	8.42	1.9	-2	41.45	0.18	clear, odorless

Additional Notes

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: MCOI-6
Well Inside Diameter (in): 4.5
Well Depth (ft BGS): 713.2
Casing/Tubing Type: SS
Date: 1/17/2014
Initial Water Level (ft MSL): 6152.34
Measuring Point (ft MSL): 6811.10

1 Casing Volume (Gal): 45
3 Casing Volume (Gal): 135.0
Drop Pipe (Gal): 27.0
3 CVs plus DP (Gal): 162.0
Total Purge Water (Gal): 135.5

Pump On: 9:12
Water at Surface: 9:13
Begin Sampling: 11:06
End Sampling: 11:14
Pump Off: 11:14
Final Water Level (ft MSL): 6136.79
Total Waste Water (Gal): 170

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
9:32:00	NC	NC	NC	NC	NC	NC	6135.63	1.44	clear, odorless
9:37:00	6.89	9.20	586	2.98	10.9	164	-	-	-
9:42:00	6.94	11.80	567	5.37	9.7	163	-	-	-
9:47:00	7.23	13.39	581	6.65	3.6	152	6134.78	1.44	clear, odorless
9:52:00	7.28	14.05	585	6.85	3.1	151	-	-	-
9:57:00	7.23	14.30	587	6.86	2.6	151	-	-	-
10:02:00	7.17	14.39	586	6.87	2.8	152	6134.48	1.44	clear, odorless
10:07:00	7.14	14.47	586	6.87	2.2	153	-	-	-
10:12:00	7.11	14.47	586	6.89	1.7	154	-	-	-
10:17:00	7.09	14.53	586	6.89	1.1	154	6134.31	1.44	clear, odorless
10:22:00	7.07	14.52	585	6.89	0.8	156	-	-	-
10:27:00	7.05	14.49	586	6.89	0.6	157	-	-	-
10:32:00	7.04	14.58	585	6.91	0.5	158	6134.25	1.44	86.5gal purged
10:37:00	7.06	14.63	586	6.91	0.4	157	-	-	-
10:42:00	7.04	14.59	586	6.90	0.3	158	-	-	-
10:47:00	7.03	14.63	585	6.90	0.3	159	6134.21	1.44	clear, odorless
10:52:00	7.03	14.64	585	6.91	0.2	159	6134.22	1.44	clear, odorless
10:57:00	7.03	14.66	585	6.90	0.2	159	6134.20	1.44	clear, odorless
11:02:00	7.03	14.76	585	6.90	0.1	159	6134.20	1.44	clear, odorless

Additional Notes

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: SCI-2
Well Inside Diameter (in): 2
Well Depth (ft BGS): 570
Casing/Tubing Type: SS
Date: 1/13/2014
Initial Water Level (ft MSL): 6207.45
Measuring Point (ft MSL): 6735.85

1 Casing Volume (Gal): 6.78
3 Casing Volume (Gal): 20.34
Drop Pipe (Gal): 3.17
3 CVs plus DP (Gal): 23.51
Total Purge Water (Gal): 35

Pump On: 10:23
Water at Surface: 10:23
Begin Sampling: 11:06
End Sampling: 11:11
Pump Off: 11:12
Final Water Level (ft MSL): 6200.14
Total Waste Water (Gal): 38.6

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
10:26:10	NC	NC	NC	NC	NC	NC	NC	NC	NC
10:28:36	7.34	11.26	608	3.79	3.2	162	6201.95	0.75	clear, no odor
10:33:36	7.37	13.45	604	7.12	3.9	152	6201.67	0.75	clear, no odor
10:38:36	7.41	13.67	606	8.19	12.6	150	6201.27	0.75	clear, no odor
10:43:36	7.43	13.76	612	8.83	8.3	151	6200.95	0.75	clear, no odor
10:48:36	7.46	13.84	614	9.12	4.2	152	6200.85	0.70	clear, no odor
10:53:36	7.38	13.88	615	9.38	3.1	157	6200.46	0.70	clear, no odor, 3CVs purged
10:58:36	7.43	13.96	616	9.32	2.1	155	6200.51	0.70	clear, no odor
11:03:36	7.45	13.97	617	9.58	1.8	155	6200.53	0.70	clear, no odor

Additional Notes:

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-11
Well Inside Diameter (in): 4.5
Well Depth (ft BGS): 901.7
Casing/Tubing Type: SS
Date: 1/9/2014
Initial Water Level (ft MSL): 5834.62
Measuring Point (ft MSL): 6673.72

1 Casing Volume (Gal): 51.7
3 Casing Volume (Gal): 155.1
Drop Pipe (Gal): 34.4
3 CVs plus DP (Gal): 189.5
Total Purge Water (Gal): 159

Pump On: 11:46
Water at Surface: 11:46
Begin Sampling: 12:51
End Sampling: 12:58
Pump Off: 12:58
Final Water Level (ft MSL): 5834.54
Total Waste Water (Gal): 195

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
11:58:01	NC	NC	NC	NC	NC	NC	5834.49	3.0	clear, odorless
12:01:01	7.72	14.95	231	6.97	1.3	19	-	-	-
12:04:01	7.72	15.77	228	7.21	1.0	10	5834.39	3.0	clear, odorless
12:07:01	7.76	16.64	225	7.36	0.8	0	5834.51	3.0	clear, odorless
12:10:01	7.84	17.50	224	7.28	0.7	-8	-	-	-
12:13:01	7.89	17.35	225	7.30	0.6	-15	5834.53	3.0	clear, odorless
12:16:01	7.94	18.86	225	7.29	0.6	-19	-	-	-
12:19:01	7.98	19.60	226	7.20	0.5	-29	5834.52	3.0	clear, odorless
12:22:01	8.01	20.14	227	7.20	0.5	-38	5834.53	3.0	clear, odorless
12:25:01	8.05	20.33	229	7.16	0.4	-46	-	-	-
12:28:01	8.07	20.45	229	7.18	0.4	-46	5834.53	3.0	clear, odorless
12:31:01	8.04	20.59	230	7.15	0.4	-45	-	-	-
12:34:01	8.03	20.51	230	7.06	0.4	-44	5834.54	3.0	clear, odorless
12:37:01	8.02	20.70	230	7.17	0.4	-42	5834.51	3.0	clear, odorless
12:38:01	8.02	20.68	231	7.17	0.4	-41	5834.51	3.0	clear, odorless
12:43:01	8.01	20.68	230	7.18	0.4	-40	5834.53	3.0	clear, odorless
12:48:01	8.00	20.87	230	7.17	0.4	-38	5834.53	3.0	clear, odorless

Additional Notes:
The final three parameters were entered manually from the groundwater sampling log. The YSI recorded parameters in 3 minutes intervals, but 5 minute intervals were recorded on the groundwater sampling log to calculate stability.

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-35a
Well Inside Diameter (in): 4.5
Well Depth (ft BGS): 1086.2
Casing/Tubing Type: SS
Date: 1/16/2014
Initial Water Level (ft MSL): 5829.23
Measuring Point (ft MSL): 6623.06

1 Casing Volume (Gal): 241.5
3 Casing Volume (Gal): 724.5
Drop Pipe (Gal): 33
3 CVs plus DP (Gal): 757.5
Total Purge Water (Gal): 729.3

Pump On: 11:42
Water at Surface: 11:44
Begin Sampling: 15:00
End Sampling: 15:02
Pump Off: 15:04
Final Water Level (ft MSL): 5821.86
Total Waste Water (Gal): 764.4

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
11:53:00	NC	NC	NC	NC	NC	NC	5821.51	3.9	clear, odorless
11:58:00	8.11	20.67	241	1.81	59.5	154	-	-	-
12:03:00	8.43	22.39	242	2.97	11.4	154	-	-	-
12:08:00	8.37	22.85	243	3.84	5.7	157	-	-	-
12:13:00	8.28	23.15	245	4.23	2.4	159	-	-	-
12:18:00	8.19	23.31	245	4.57	1.2	160	-	-	-
12:23:00	8.15	23.56	245	4.66	1.1	162	5821.57	3.9	clear, odorless
12:28:00	8.13	23.52	245	4.71	0.7	163	-	-	-
12:33:00	8.12	23.65	245	4.74	0.7	163	-	-	-
12:38:00	8.09	23.67	245	4.73	0.7	165	-	-	-
12:43:00	8.09	23.81	245	4.71	1.3	165	-	-	-
12:48:00	8.09	23.82	245	4.71	2.3	166	-	-	-
12:53:00	8.05	23.81	244	4.72	3.5	168	5821.59	3.9	clear, odorless
12:58:00	8.05	23.85	245	4.71	3.2	167	-	-	-
13:03:00	8.05	23.86	245	4.73	3.5	168	-	-	-
13:08:00	8.06	23.92	245	4.72	3.0	167	-	-	-
13:13:00	8.05	23.99	245	4.73	2.3	168	-	-	-
13:18:00	8.06	24.05	245	4.72	1.6	168	-	-	-
13:23:00	8.05	24.13	245	4.74	0.4	168	5821.57	3.9	clear, odorless
13:28:00	8.03	24.04	245	4.75	0.0	170	-	-	-
13:33:00	8.01	24.14	245	4.76	-	171	-	-	-
13:38:00	8.00	24.07	245	4.76	-	172	-	-	-
13:43:00	8.03	24.21	245	4.78	-	170	-	-	-
13:48:00	8.04	24.21	245	4.77	-	170	-	-	-
13:53:00	8.03	24.11	245	4.78	0.4	170	5821.63	3.9	clear, odorless
13:58:00	7.99	24.04	245	4.80	-	172	-	-	-

Well Name: R-35a continued

Time (MST)	pH	Temperature (ºC)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
14:03:00	8.00	24.19	245	4.80	-	172	-	-	-
14:08:00	8.04	24.14	245	4.81	-	170	-	-	-
14:13:00	7.97	24.04	245	4.82	-	174	-	-	-
14:18:00	7.99	24.14	246	4.82	-	173	-	-	-
14:23:00	7.99	24.12	245	4.81	1.04	173	5821.64	3.9	clear, odorless
14:28:00	8.00	24.04	246	4.82	-	173	-	-	-
14:33:00	7.96	24.06	246	4.83	0.91	175	5821.70	3.9	clear, odorless
14:38:00	7.99	24.12	246	4.83	-	173	-	-	-
14:43:00	7.97	24.10	246	4.83	0.94	175	5821.66	3.9	clear, odorless
14:48:00	7.95	24.09	246	4.82	1.10	176	5821.73	3.9	clear, odorless
14:53:00	7.95	24.00	246	4.84	1.95	176	5821.67	3.9	clear, odorless
14:58:00	7.96	24.02	245	4.83	0.83	175	5821.69	3.9	clear, odorless

Additional Notes:

At 14:23, YSI began reading negative turbidity, start recording turbidity on HACH turbidimeter #2

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-35b
Well Inside Diameter (in): 4.5
Well Depth (ft BGS): 872.2
Casing/Tubing Type: SS
Date: 1/15/2014
Initial Water Level (ft MSL): 5833.63
Measuring Point (ft MSL): 6625.21

1 Casing Volume (Gal): 66.6
3 Casing Volume (Gal): 199.8
Drop Pipe (Gal): 32.5
3 CVs plus DP (Gal): 232.3
Total Purge Water (Gal): 202

Pump On: 10:57
Water at Surface: 10:57
Begin Sampling: 12:17
End Sampling: 12:24
Pump Off: 12:24
Final Water Level (ft MSL): NC
Total Waste Water (Gal): 245

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
11:09:00	NC	NC	NC	NC	NC	NC	5833.36	2.97	clear, odorless
11:14:00	7.09	16.48	170	6.46	1.4	-53	-	-	-
11:19:00	7.48	19.10	169	6.74	0.7	-62	5833.38	2.97	clear, odorless
11:24:00	7.74	19.94	170	6.74	0.6	-70	-	-	-
11:29:00	7.84	20.00	170	6.75	0.6	-70	5833.41	2.97	clear, odorless
11:34:00	7.90	20.05	170	6.73	0.6	-69	-	-	-
11:39:00	7.84	20.09	171	6.65	1.0	-66	5833.42	2.97	clear, odorless
11:44:00	7.70	20.20	171	6.49	1.2	-63	-	-	-
11:49:00	7.56	20.24	172	6.33	1.1	-57	5833.44	2.97	clear, odorless
11:54:00	7.49	20.25	171	6.30	0.9	-53	-	-	-
11:59:00	7.45	20.33	171	6.26	0.7	-51	5833.43	2.97	clear, odorless
12:04:00	7.44	20.47	171	6.25	0.7	-50	5833.44	2.97	clear, odorless
12:09:00	7.44	20.50	171	6.24	0.6	-50	5833.44	2.97	clear, odorless
12:14:00	7.44	20.66	172	6.17	0.6	-49	5833.45	2.97	clear, odorless

Additional Notes:

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-43 S1
Well Inside Diameter (in): 5
Well Depth (ft BGS): 960.7
Casing/Tubing Type: SS
Date: 1/21/2014
Initial Water Level (ft MSL): 5836.23
Measuring Point (ft MSL): 6732.65

1 Casing Volume (Gal): 65.6
3 Casing Volume (Gal): 196.8
Drop Pipe (Gal): 36.8
3 CVs plus DP (Gal): 233.6
Total Purge Water (Gal): 198

Pump On: 9:04
Water at Surface: 9:04
Begin Sampling: 12:20
End Sampling: 12:36
Pump Off: 12:36
Final Water Level (ft MSL): 5835.41
Total Waste Water (Gal): 240

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
9:35:00	NC	NC	NC	NC	1.04	NC	5835.13	1.2	clear, odorless
9:40:00	8.66	11.51	191	2.91	-	170	-	-	-
9:45:00	8.58	12.09	192	2.78	-	168	-	-	-
9:50:00	8.54	12.58	191	2.72	-	167	-	-	-
9:55:00	8.47	12.98	189	4.18	0.41	165	5835.15	1.2	clear, odorless
10:00:00	8.40	13.53	186	4.08	-	164	-	-	-
10:05:00	8.40	14.00	184	5.04	-	163	-	-	-
10:10:00	8.41	14.60	182	5.45	-	162	-	-	-
10:15:00	8.39	14.94	182	5.73	0.31	162	5835.15	1.2	clear, odorless
10:20:00	8.40	15.35	181	6.23	-	162	-	-	-
10:25:00	8.40	15.57	181	6.13	-	162	-	-	-
10:30:00	8.4	15.93	181	6.47	-	162	-	-	-
10:35:00	8.4	16.39	181	6.49	0.11	162	5835.17	1.2	clear, odorless
10:40:00	8.4	16.48	182	6.53	-	162	-	-	-
10:45:00	8.38	16.57	182	6.68	-	164	-	-	-
10:50:00	8.36	16.55	183	6.72	-	165	-	-	-
10:55:00	8.34	16.59	183	6.72	0.16	166	5835.16	1.2	clear, odorless
11:00:00	8.34	16.60	183	6.72	-	166	-	-	-
11:05:00	8.33	16.65	183	6.72	-	166	-	-	-
11:10:00	8.35	16.78	183	6.71	-	166	-	-	-
11:15:00	8.34	16.78	183	6.71	0.30	166	5835.16	1.2	clear, odorless
11:20:00	8.34	16.85	184	6.66	-	166	-	-	-
11:25:00	8.35	16.97	184	6.74	-	166	-	-	-
11:30:00	8.35	17.02	184	6.76	-	166	-	-	-
11:35:00	8.32	17.12	184	6.77	0.30	167	5835.17	1.2	144 gal purged, clear, odorless
11:40:00	8.35	17.30	184	6.78	-	166	-	-	-
11:45:00	8.34	17.42	185	6.72	-	166	-	-	-

R-43 S1 continued									
11:50:00	8.32	17.34	185	6.78	-	167	-	-	-
11:55:00	8.31	17.51	185	6.77	0.13	167	5835.18	1.2	clear, odorless
12:00:00	8.31	17.58	186	6.78	-	167	-	-	-
12:05:00	8.3	17.71	186	6.78	-	168	-	-	-
12:10:00	8.29	17.72	186	6.79	0.30	168	5835.19	1.2	clear, odorless
12:15:00	8.26	17.68	187	6.76	0.27	170	5835.22	1.2	clear, odorless
12:20:00	8.27	18.19	186	6.79	0.27	169	5835.21	1.2	198 gal purged, clear, odorless

Additional Notes

HACH turbidimeter #2 used for all turbidity measurements

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-23
Well Inside Diameter (in): 4.5
Well Depth (ft BGS): 886.3
Casing/Tubing Type(s): SS
Date: 1/7/2014
Initial Water Level (ft MSL): 5695.99
Measuring Point (ft MSL): 6527.75

1 Casing Volume (Gal): 45.1
3 Casing Volume (Gal): 135.3
Drop Pipe (Gal): 34.1
3 CVs plus DP (Gal): 169.4
Total Purge Water (Gal): 150

Pump On: 10:16
Water at Surface: 10:17
Begin Sampling: 10:36
End Sampling: 10:42
Pump Off: 10:42
Final Water Level (ft MSL): 5695.24
Total Waste Water (Gal): 250

Time	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
10:21:00	NC	NC	NC	NC	NC	NC	5695.21	10	clear, no odor, very little effervescence
10:24:00	7.52	14.47	166	4.15	1.0	134	5695.20	10	clear, no odor
10:27:00	7.94	20.95	167	6.60	1.0	124	5695.20	10	clear, no odor
10:30:00	8.09	21.33	168	6.69	0.4	123	5695.21	10	clear, no odor
10:33:00	8.12	21.52	169	6.68	0.1	124	5695.23	10	clear, no odor
10:36:00	8.12	21.50	169	6.69	0.0	125	5695.24	10	clear, no odor

Additional notes:

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-34
Well Inside Diameter (in): 4.5
Well Depth (ft BGS): 920.7
Casing/Tubing Type: SS
Date: 1/17/2014
Initial Water Level (ft MSL): 5831.35
Measuring Point (ft MSL): 6629.99

1 Casing Volume (Gal): 100.8
3 Casing Volume (Gal): 302.5
Drop Pipe (Gal): 32.7
3 CVs plus DP (Gal): 335.2
Total Purge Water (Gal): 344.4

Pump On: 9:49
Water at Surface: 9:49
Begin Sampling: 12:04
End Sampling: 12:10
Pump Off: 12:10
Final Water Level (ft MSL): 5828.58
Total Waste Water (GAL): 378

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
10:01:01	NC	NC	NC	NC	NC	NC	5828.25	2.8	effervescent, odorless
10:06:01	7.67	14.38	-	6.47	3.3	-44	-	-	-
10:11:01	7.60	14.96	-	6.66	3.7	-51	-	-	-
10:16:01	7.68	17.37	151	5.37	4.4	-59	5828.20	2.8	effervescent, odorless
10:21:01	7.87	18.79	-	5.19	7.5	-72	-	-	-
10:26:01	8.03	19.32	-	5.32	7.9	-80	-	-	-
10:31:01	8.14	19.80	154	5.29	6.5	-84	5828.16	2.8	effervescent, odorless
10:36:01	8.21	20.09	-	5.33	4.7	-86	-	-	-
10:41:01	8.24	20.08	-	5.48	4.0	-84	-	-	-
10:46:01	8.27	20.16	153	5.38	4.0	-82	5828.20	2.8	effervescent, odorless
10:51:01	8.28	20.39	-	5.32	3.4	-83	-	-	-
10:56:01	8.28	20.35	-	5.49	2.9	-84	-	-	-
11:01:01	8.28	20.28	154	5.50	2.3	-79	5828.23	2.8	effervescent, odorless
11:06:01	8.29	20.45	-	5.85	2.2	-81	-	-	-
11:11:01	8.29	20.38	-	5.62	2.0	-78	-	-	-
11:16:01	8.29	20.31	153	5.78	2.0	-76	5828.17	2.8	effervescent, odorless
11:21:01	8.27	20.27	-	6.71	1.7	-73	-	-	-
11:26:01	8.28	20.31	-	5.94	1.2	-72	-	-	-
11:31:01	8.28	20.50	153	5.72	1.0	-73	5828.15	2.8	effervescent, odorless
11:36:01	8.30	20.71	152	7.51	0.8	-70	5828.16	2.8	effervescent, odorless
11:41:01	8.30	20.62	153	6.79	0.7	-69	5828.18	2.8	effervescent, odorless
11:46:01	8.28	20.53	154	7.03	0.9	-66	5828.14	2.8	effervescent, odorless
11:51:01	8.29	20.45	154	7.99	0.8	-67	5828.19	2.8	effervescent, odorless
11:56:01	8.29	20.54	154	7.95	1.0	-67	5828.15	2.8	effervescent, odorless
12:01:01	8.28	20.56	153	8.01	0.8	-68	5828.18	2.8	effervescent, odorless

Additional Notes:
Specific Conductance measured manually in a secondary YSI #40 per Work Plan

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-37 S2
Well Inside Diameter (in): 5
Well Depth (ft BGS): 1068.8
Casing/Tubing Type(s): SS
Date: 1/7/2014
Initial Water Level (ft MSL): 5853.23
Measuring Point (ft MSL): 6870.59

1 Casing Volume (Gal): 52.45
3 Casing Volume (Gal): 157.35
Drop Pipe (Gal): 41.71
3 CVs plus DP (Gal): 199.06
Total Purge Water (Gal): 224.88

Pump On: 10:44
Water at Surface: 10:44
Begin Sampling: 11:14
End Sampling: 11:15
Pump Off: 11:15
Final Water Level (ft MSL): 5851.74
Total Waste Water (Gal): 290

Time	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
10:49:01	NC	NC	NC	NC	NC	NC	5851.92	9.37	clear, no odor, no effervescence
10:52:01	7.49	16.11	134	6.64	1.9	-18	5851.86	9.37	clear, no odor, no effervescence
10:55:01	7.48	16.74	134	7.05	1.3	-25	5851.81	9.37	clear, no odor, no effervescence
10:58:01	7.54	17.14	134	6.94	1.2	-33	5851.80	9.37	clear, no odor, no effervescence
11:01:01	7.58	17.47	134	7.33	1.3	-34	5851.78	9.37	clear, no odor, no effervescence
11:04:01	7.63	17.89	134	6.82	1.0	-37	5851.77	9.37	clear, no odor, effervescent
11:07:01	7.69	18.24	133	7.36	0.7	-38	5851.75	9.37	clear, no odor, effervescent
11:10:01	7.75	18.31	134	7.39	0.6	-37	5851.74	9.37	clear, no odor, effervescent
11:13:01	7.78	18.38	133	7.51	0.6	-36	5851.72	9.37	clear, no odor, effervescent

Additional notes:

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-39
Well Inside Diameter (in): 5.0
Well Depth (ft BGS): 875.6
Casing/Tubing Type(s): SS
Date: 1/24/2014
Initial Water Level (ft MSL): 5753.14
Measuring Point (ft MSL): 6580.86

1 Casing Volume (Gal): 48.8
3 Casing Volume (Gal): 146.4
Drop Pipe (Gal): 33.93
3 CVs plus DP (Gal): 180.33
Total Purge Water (Gal): 170

Pump On: 9:21
Water at Surface: 9:22
Begin Sampling: 10:24
End Sampling: 10:25
Pump Off: 10:25
Final Water Level (ft MSL): 5724.54
Total Waste Water (Gal): 175

Time	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
9:33:01	NC	NC	NC	NC	NC	NC	5730.73	3.15	clear, no odor, no effervescence
9:38:01	8.15	17.05	143	4.38	0.4	132	5728.42	3.15	clear, no odor, no effervescence
9:43:01	8.23	18.87	147	4.68	0.82	134	5726.35	3.15	HACH #2 used for turbidity reading
9:48:01	8.28	20.32	146	5.55	1.81	136	5724.90	3.00	HACH #2 used for turbidity reading
9:53:01	8.23	20.82	145	6.14	1.6	137	5724.54	3.00	Turbidity positive, YSI used
9:58:01	8.18	21.10	145	6.40	1.9	140	5724.55	3.00	Turbidity positive, YSI used
10:03:01	8.16	21.25	144	6.55	0.9	141	5724.54	2.80	Turbidity positive, YSI used
10:08:01	8.13	21.39	144	6.72	0.6	144	5724.54	2.80	Water level dropped below bottom of access tube
10:13:01	8.13	21.51	143	6.77	0.5	145	NC	2.80	Water level dropped below bottom of access tube
10:18:01	8.10	21.52	144	6.89	0.3	148	NC	2.80	Water level dropped below bottom of access tube
10:23:01	8.08	21.60	144	6.95	0.2	150	NC	2.80	Water level dropped below bottom of access tube

Additional notes:
Water level was measured manually because the transducer installed in this well is not functioning (this issue was reported during Q1). All measurements were converted to ft msl for this table. Water level readings are not available after 10:13 because the water level dropped below the bottom of the access tube that is used for the water level tape.

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-41 S2
Well Inside Diameter (in): 5
Well Depth (ft BGS): 997.10
Casing/Tubing Type(s): SS
Date: 1/16/2014
Initial Water Level (ft MSL): 5698.47
Measuring Point (ft MSL): 6660.53

1 Casing Volume (Gal): 35.7
3 Casing Volume (Gal): 107.2
Drop Pipe (Gal): 39.4
3 CVs plus DP (Gal): 146.6
Total Purge Water (Gal): 107

Pump On: 9:52
Water at Surface: 9:53
Begin Sampling: 10:46
End Sampling: 10:48
Pump Off: 10:48
Final Water Level (ft MSL): 5698.47
Total Waste Water (Gal): 145

Time	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
10:07:04	NC	NC	NC	NC	NC	NC	5698.47	2.8	clear, no odor
10:12:04	7.46	13.95	160	5.20	1.7	-81	5698.47	2.8	clear, no odor
10:17:04	7.58	15.88	161	5.41	1.2	-82	5698.47	2.8	clear, no odor
10:22:04	7.71	17.50	162	5.77	1.0	-88	5698.47	2.8	clear, no odor
10:27:04	7.78	18.87	162	5.91	0.8	-90	5698.47	2.8	clear, no odor
10:32:04	7.84	19.47	162	6.08	0.8	-93	5698.47	2.8	clear, no odor
10:37:04	7.88	19.82	162	6.13	0.7	-92	5698.47	2.8	clear, no odor
10:42:04	7.90	20.07	162	6.23	0.7	-90	5698.47	2.8	clear, no odor

Additional notes:

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-43 S2
Well Inside Diameter (in): 5
Well Depth (ft BGS): 990.4
Casing/Tubing Type: SS
Date: 1/21/2014
Initial Water Level (ft MSL): 5835.39
Measuring Point (ft MSL): 6732.65

1 Casing Volume (Gal): 25.5
3 Casing Volume (Gal): 76.5
Drop Pipe (Gal): 39.6
3 CVs plus DP (Gal): 116.1
Total Purge Water (Gal): 77

Pump On: 12:44
Water at Surface: 12:44
Begin Sampling: 14:11
End Sampling: 14:15
Pump Off: 14:15
Final Water Level (ft MSL): 5834.67
Total Waste Water (Gal): 120

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
13:14:00	NC	NC	NC	NC	0.70	NC	5834.43	1.35	clear, odorless
13:19:00	8.57	19.52	187	5.36	-	166	-	-	-
13:24:00	9.09	19.66	189	1.83	0.35	164	5834.43	1.35	clear, odorless
13:29:00	9.08	19.69	190	1.80	-	165	-	-	-
13:34:00	8.97	19.68	190	1.95	0.49	167	5834.42	1.35	clear, odorless
13:39:00	8.89	19.69	194	2.36	-	169	-	-	-
13:44:00	8.84	19.75	198	2.80	0.34	168	5834.46	1.35	clear, odorless
13:49:00	8.78	19.80	200	3.12	-	169	-	-	-
13:54:00	8.76	19.84	200	3.21	0.45	168	5834.45	1.35	clear, odorless
13:59:00	8.74	19.93	200	3.25	0.21	169	5834.46	1.35	clear, odorless
14:04:00	8.70	19.86	199	3.30	0.32	170	5834.47	1.35	clear, odorless
14:09:00	8.65	19.94	199	3.28	0.35	172	5834.45	1.35	clear, odorless

Additional Notes:
HACH Turbidimeter #2 used for all readings due to negative turbidity on YSI

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-44 S1
Well Inside Diameter (in): 5
Well Depth (ft BGS): 936.3
Casing/Tubing Type: SS
Date: 1/13/2014
Initial Water Level (ft MSL): 5833.60
Measuring Point (ft MSL): 6714.90

1 Casing Volume (Gal): 56.1
3 Casing Volume (Gal): 168.3
Drop Pipe (Gal): 36.1
3 CVs plus DP (Gal): 204.4
Total Purge Water (Gal): 168.5

Pump On: 11:40
Water at Surface: 11:40
Begin Sampling: 12:41
End Sampling: 12:50
Pump Off: 12:50
Final Water Level (ft MSL): 5833.35
Total Waste Water (Gal): 210

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
11:51:00	NC	NC	NC	NC	NC	NC	5833.30	3.37	clear, odorless
11:56:00	7.68	19.84	137	5.17	0.5	-66	-	-	-
12:01:00	7.65	20.28	135	5.69	0.4	-62	5833.31	3.37	clear, odorless
12:06:00	7.67	20.66	134	6.31	0.1	-58	-	-	-
12:11:00	7.67	20.80	134	6.43	0.1	-56	5833.32	3.37	clear, odorless
12:16:00	7.68	20.62	134	6.48	0.1	-54	-	-	-
12:21:00	7.67	20.65	134	6.51	0.1	-52	5833.32	3.37	clear, odorless
12:26:00	7.68	20.52	134	6.62	0.1	-51	-	-	-
12:31:00	7.67	20.68	134	6.61	0.1	-48	5833.33	3.37	clear, odorless
12:36:00	7.68	20.64	134	6.71	0.1	-47	5833.33	3.37	clear, odorless
12:41:00	7.68	20.50	134	6.79	0.1	-46	5833.33	3.37	clear, odorless

Additional Notes:

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-44 S2
Well Inside Diameter (in): 5
Well Depth (ft BGS): 1016
Casing/Tubing Type: SS
Date: 1/13/2014
Initial Water Level (ft MSL): 5833.45
Measuring Point (ft MSL): 6714.91

1 Casing Volume (Gal): 76.4
3 Casing Volume (Gal): 229.2
Drop Pipe (Gal): 38.6
3 CVs plus DP (Gal): 267.8
Total Purge Water (Gal): 232.5

Pump On: 9:50
Water at Surface: 9:50
Begin Sampling: 11:11
End Sampling: 11:16
Pump Off: 11:16
Final Water Level (ft MSL): 5832.52
Total Waste Water (Gal): 275

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
10:02:00	NC	NC	NC	NC	NC	NC	5832.47	3.37	clear, odorless
10:07:00	7.16	16.11	140	5.5	0.4	2.0	-	-	-
10:12:00	7.27	17.50	142	6.6	0.2	-17.0	5832.47	3.37	clear, odorless
10:17:00	7.40	18.89	143	7.0	0.1	-30.0	-	-	-
10:22:00	7.55	19.39	144	7.1	0.1	-40.0	5832.50	3.37	clear, odorless
10:27:00	7.64	19.80	144	7.2	0.1	-45.0	-	-	-
10:32:00	7.69	19.87	143	7.2	0.1	-47.0	5832.51	3.37	clear, odorless
10:37:00	7.71	20.18	143	7.2	0.1	-47.0	-	-	-
10:42:00	7.75	20.11	143	7.2	0.1	-49.0	5832.49	3.37	clear, odorless
10:47:00	7.77	20.09	143	7.2	0.0	-49.0	-	-	-
10:52:00	7.78	20.38	143	7.2	0.0	-48.0	5832.51	3.37	clear, odorless
10:57:00	7.79	20.33	143	7.2	0.0	-48.0	5832.51	3.37	clear, odorless
11:02:00	7.79	20.31	143	7.2	0.1	-47.0	5832.51	3.37	clear, odorless
11:07:00	7.80	20.26	143	7.2	0.1	-46.0	5832.50	3.37	clear, odorless

Additional Notes:

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-45 S1
Well Inside Diameter (in): 5
Well Depth (ft BGS): 921.3
Casing/Tubing Type: SS
Date: 1/14/2014
Initial Water Level (ft MSL): 5833.22
Measuring Point (ft MSL): 6704.02

1 Casing Volume (Gal): 51.5
3 Casing Volume (Gal): 155
Drop Pipe (Gal): 35.7
3 CVs plus DP (Gal): 190.7
Total Purge Water (Gal): 169.2

Pump On: 11:20
Water at Surface: 11:20
Begin Sampling: 12:17
End Sampling: 12:17
Pump Off: 12:21
Final Water Level (ft MSL): 5832.81
Total Waste Water (Gal): 205.2

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
11:30:00	NC	NC	NC	NC	0.60	NC	5832.78	3.6	clear, odorless
11:35:00	7.82	18.61	168	4.69	0.45	118	5832.78	3.6	clear, odorless
11:40:00	7.91	19.63	178	6.26	0.25	112	5832.79	3.6	clear, odorless
11:45:00	7.91	20.43	180	6.82	0.32	115	5832.79	3.6	clear, odorless
11:50:00	7.89	20.39	182	7.09	0.34	117	5832.79	3.6	clear, odorless
11:55:00	7.85	20.45	182	7.13	0.61	121	5832.80	3.6	clear, odorless
12:00:00	7.83	20.46	182	7.18	0.32	123	5832.79	3.6	clear, odorless
12:05:00	7.80	20.35	182	7.20	0.30	125	5832.80	3.6	clear, odorless
12:10:00	7.78	20.41	182	7.20	0.29	128	5832.81	3.6	clear, odorless
12:15:00	7.78	20.33	182	7.21	0.21	128	5832.81	3.6	clear, odorless

Additional Notes:
HACH Turbidimeter used for all readings due to negative turbidity on YSI

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-45 S2
Well Inside Diameter (in): 5
Well Depth (ft BGS): 1016
Casing/Tubing Type: SS
Date: 1/14/2014
Initial Water Level (ft MSL): 5833.38
Measuring Point (ft MSL): 6704.02

1 Casing Volume (Gal): 92
3 Casing Volume (Gal): 276
Drop Pipe (Gal): 38.0
3 CVs plus DP (Gal): 314.0
Total Purge Water (Gal): 277.2

Pump On: 9:19
Water at Surface: 9:19
Begin Sampling: 10:47
End Sampling: 10:50
Pump Off: 10:50
Final Water Level (ft MSL): 5832.28
Total Waste Water (Gal): 316.8

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
9:30:00	NC	NC	NC	NC	0.36	NC	5832.71	3.6	clear, odorless
9:35:00	7.59	12.43	178	6.69	-	178	-	-	-
9:40:00	7.79	13.22	177	6.31	0.39	170	5832.44	3.6	clear, odorless
9:45:00	7.96	14.43	174	6.17	-	164	-	-	-
9:50:00	8.08	15.40	171	6.13	0.29	160	5832.32	3.6	clear, odorless
9:55:00	8.17	16.35	170	6.10	-	156	-	-	-
10:00:00	8.22	16.79	170	6.12	0.24	155	5832.31	3.6	clear, odorless
10:05:00	8.23	17.11	170	6.14	-	155	-	-	-
10:10:00	8.22	17.31	169	6.14	0.41	155	5832.29	3.6	clear, odorless
10:15:00	8.24	17.67	169	6.14	-	154	-	-	-
10:20:00	8.25	17.95	169	6.20	0.36	154	5832.28	3.6	clear, odorless
10:25:00	8.24	17.98	170	6.20	-	154	-	-	-
10:30:00	8.22	18.04	169	6.18	0.33	155	5832.28	3.6	clear, odorless
10:35:00	8.20	18.19	169	6.16	0.27	155	5832.28	3.6	clear, odorless
10:40:00	8.20	18.14	170	6.19	0.19	155	5832.28	3.6	clear, odorless
10:45:00	8.15	17.91	170	6.24	0.34	157	5832.28	3.6	clear, odorless

Additional Notes
HACH Turbidimeter #2 used for all readings due to negative turbidity on YSI

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-50 S1
Well Inside Diameter (in): 5
Well Depth (ft BGS): 1118.11
Casing/Tubing Type: SS
Date: 1/15/2014
Initial Water Level (ft MSL): 5834.99
Measuring Point (ft MSL): 6904.11

1 Casing Volume (Gal): 50
3 Casing Volume (Gal): 150
Drop Pipe (Gal): 43.8
3 CVs plus DP (Gal): 193.8
Total Purge Water (Gal): 153.4

Pump On: 13:19
Water at Surface: 13:19
Begin Sampling: 14:35
End Sampling: 14:43
Pump Off: 14:45
Final Water Level (ft MSL): 5831.46
Total Waste Water (Gal): 197.6

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
13:36:00	NC	NC	NC	NC	0.28	NC	5830.79	2.6	slight effervescence, no odor
13:41:00	8.13	20.80	140	7.09	-	137	-	-	-
13:46:00	7.85	20.95	186	4.39	0.73	142	5830.78	2.6	slight effervescence, no odor
13:51:00	7.91	20.91	195	5.23	-	142	-	-	-
13:56:00	7.89	21.05	194	5.51	0.44	145	5830.77	2.6	slight effervescence, no odor
14:01:00	7.93	21.29	192	5.55	-	143	-	-	-
14:06:00	7.94	21.13	191	5.54	0.36	143	5830.77	2.6	clear, no odor
14:11:00	7.87	20.99	193	5.56	-	148	-	-	-
14:16:00	7.87	21.00	194	5.53	0.30	148	5830.77	2.6	clear, no odor
14:21:00	7.83	21.00	193	5.55	0.28	150	5830.76	2.6	clear, no odor
14:26:00	7.84	20.93	192	5.57	0.39	150	5830.76	2.6	clear, no odor
14:31:00	7.82	20.81	192	5.58	0.45	151	5830.77	2.6	clear, no odor

Additional Notes:
HACH Turbidimeter used for all readings due to negative turbidity on YSI

Entered by: Andrew Stocker
Reviewed by : Megan Green

Well Name: R-50 S2
Well Inside Diameter (in): 5
Well Depth (ft BGS): 1217.5
Casing/Tubing Type: SS
Date: 1/15/2014
Initial Water Level (ft MSL): 5834.63
Measuring Point (ft MSL): 6904.11

1 Casing Volume (Gal): 96.5
3 Casing Volume (Gal): 290
Drop Pipe (Gal): 46
3 CVs plus DP (Gal): 336.0
Total Purge Water (Gal): 292.4

Pump On: 9:35
Water at Surface: 9:35
Begin Sampling: 12:54
End Sampling: 12:57
Pump Off: 12:58
Final Water Level (ft MSL): 5833.84
Total Waste Water (Gal): 338.4

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
10:02:00	NC	NC	167	NC	0.77	NC	5833.82	1.7	effervescent, no odor
10:07:00	7.62	12.92	-	3.34	-	138	-	-	-
10:12:00	7.70	13.25	-	2.88	-	137	-	-	-
10:17:00	7.77	13.67	-	4.04	-	136	-	-	-
10:22:00	7.88	14.06	-	5.74	-	134	-	-	-
10:27:00	7.93	14.44	148	6.27	3.03	134	5833.87	1.7	effervescent, no odor
10:32:00	7.98	14.90	-	6.89	-	134	-	-	-
10:37:00	8.03	15.30	-	7.09	-	133	-	-	-
10:42:00	8.06	15.57	-	7.32	-	133	-	-	-
10:47:00	8.07	15.92	-	7.44	-	133	-	-	-
10:52:00	8.09	16.17	136	7.55	0.79	133	5833.88	1.7	effervescent, no odor
10:57:00	8.08	16.46	-	7.56	-	134	-	-	-
11:02:00	8.09	16.59	-	7.56	-	135	-	-	-
11:07:00	8.11	16.72	-	7.66	-	134	-	-	-
11:12:00	8.10	16.74	-	7.51	-	136	-	-	-
11:17:00	8.08	16.81	135	7.62	0.58	137	5833.89	1.7	effervescent, no odor
11:22:00	8.10	16.86	-	7.66	-	137	-	-	-
11:27:00	8.10	16.69	-	7.57	-	137	-	-	-
11:32:00	8.06	16.62	-	7.65	-	140	-	-	-
11:37:00	8.04	16.54	-	7.72	-	141	-	-	-
11:42:00	8.02	16.39	134	7.68	0.95	143	5833.91	1.7	effervescent, no odor
11:47:00	8.02	16.42	-	7.66	-	143	-	-	-
11:52:00	8.05	16.36	-	7.69	-	142	-	-	-
11:57:00	8.04	16.43	-	7.84	-	142	-	-	-
12:02:00	8.07	16.46	-	7.87	-	141	-	-	-

Well Name: R-50 S2, continued

12:07:00	8.07	16.55	133	7.83	1.03	141	5833.93	1.7	effervescent, no odor
12:12:00	8.11	16.73	-	7.80	-	140	-	-	-
12:17:00	8.12	16.81	-	7.78	-	139	-	-	-
12:22:00	8.11	16.87	-	7.86	-	140	-	-	-
12:27:00	8.11	17.00	-	7.79	-	140	-	-	-
12:32:00	8.10	17.11	133	7.80	0.12	140	5833.93	1.7	effervescent, no odor
12:37:00	8.08	17.04	-	7.68	-	141	-	-	-
12:42:00	8.07	17.23	133	7.80	0.10	142	5833.94	1.7	effervescent, no odor
12:47:00	8.10	17.44	133	7.74	0.25	141	5833.95	1.7	effervescent, no odor
12:52:00	8.12	17.69	133	7.52	0.29	140	5833.95	1.7	effervescent, no odor

Additional Notes:

HACH Turbidimeter used for all readings due to negative turbidity on YSI. Specific conductance measured in secondary YSI per work plan provided by the GTL.

Entered by: Andrew Stocker

Reviewed by : Megan Green

Well Name: R-55 S1
Well Inside Diameter (in): 5
Well Depth (ft BGS): 945.3
Casing/Tubing Type(s): SS
Date: 1/8/2014
Initial Water Level (ft MSL): 5697.97
Measuring Point (ft MSL): 6533.86

1 Casing Volume (Gal): 111.6
3 Casing Volume (Gal): 334.8
Drop Pipe (Gal): 34.3
3 CVs plus DP (Gal): 369.1
Total Purge Water (Gal): 335

Pump On: 9:13
Water at Surface: 9:13
Begin Sampling: 11:27
End Sampling: 11:29
Pump Off: 11:29
Final Water Level (ft MSL): 5697.90
Total Waste Water (Gal): 385

Time	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
9:26:00	NC	NC	NC	NC	1.16	NC	5697.86	2.77	clear, odorless
9:31:00	8.46	16.03	175	4.65	-	142	-	-	-
9:36:00	8.31	17.81	173	4.01	-	141	-	-	-
9:41:00	8.43	19.32	175	4.12	0.46	136	5697.81	2.77	clear, odorless
9:46:00	8.51	19.97	176	4.46	-	137	-	-	-
9:51:00	8.57	20.36	176	4.96	-	137	-	-	-
9:56:00	8.55	20.43	176	5.34	0.37	138	5697.83	2.77	clear, odorless
10:01:00	8.51	20.37	176	5.64	-	138	-	-	-
10:06:00	8.43	20.36	176	5.79	-	141	-	-	-
10:11:00	8.39	20.48	176	5.91	0.30	142	5697.85	2.77	clear, odorless
10:16:00	8.38	20.37	176	5.98	-	141	-	-	-
10:21:00	8.35	20.65	176	6.02	-	141	-	-	-
10:26:00	8.36	20.71	176	6.06	0.22	140	5697.85	2.77	166 gal purged
10:31:00	8.35	20.73	176	6.08	-	140	-	-	-
10:36:00	8.33	20.82	176	6.10	-	141	-	-	-
10:41:00	8.31	20.87	176	6.12	0.28	141	5697.85	2.77	clear, odorless
10:46:00	8.28	20.88	176	6.14	-	143	-	-	-
10:51:00	8.28	21.02	175	6.13	-	142	-	-	-
10:56:00	8.28	20.94	175	6.15	0.35	142	5697.88	2.77	clear, odorless
11:01:00	8.26	20.94	175	6.17	-	143	-	-	-
11:06:00	8.25	20.97	175	6.18	-	143	-	-	-
11:11:00	8.25	21.08	175	6.19	0.36	143	5697.88	2.77	clear, odorless

R-55 S1 continued

11:16:00	8.25	21.05	175	6.21	0.32	143	5697.89	2.77	clear, odorless
11:21:00	8.24	21.12	175	6.22	0.33	143	5697.87	2.77	clear, odorless
11:26:00	8.23	21.17	175	6.24	0.25	144	5697.86	2.77	clear, odorless

Additional notes:

HACH Turbidimeter #*2* used for all readings due to negative turbidity on YSI

Entered by: Andrew Stocker

Reviewed by: Megan Green

Well Name: R-56 S1
Well Inside Diameter (in): 5
Well Depth (ft BGS): 1006.7
Casing/Tubing Type(s): SS
Date: 1/23/2014
Initial Water Level (ft MSL): 5852.51
Measuring Point (ft MSL): 6780.88

1 Casing Volume (Gal): 79.9
3 Casing Volume (Gal): 239.7
Drop Pipe (Gal): 38.1
3 CVs plus DP (Gal): 277.8
Total Purge Water (Gal): 240

Pump On: 9:48
Water at Surface: 9:48
Begin Sampling: 10:58
End Sampling: 11:01
Pump Off: 11:01
Final Water Level (ft MSL): 5852.47
Total Waste Water (Gal): 290

Time	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
10:00:32	NC	NC	NC	NC	NC	Nc	5852.49	4.17	clear, odorless
10:05:32	7.68	17.86	151	4.60	0.3	-87	-	-	-
10:10:32	7.88	19.26	151	6.53	0.1	-90	5852.50	4.17	clear, odorless
10:15:32	7.95	19.76	152	6.67	0.0	-92	-	-	-
10:20:32	7.99	19.94	152	6.74	0.0	-90	5852.51	4.17	clear, odorless
10:25:32	8.02	20.05	152	6.74	-	-89	-	-	-
10:30:32	8.04	20.04	152	6.76	0.35	-88	5852.50	4.17	clear, odorless
10:35:32	8.06	20.12	152	6.78	-	-87	-	-	-
10:40:32	8.06	20.28	152	6.76	0.37	-87	5852.48	4.17	clear, odorless
10:45:32	8.07	20.29	153	6.76	0.34	-86	5852.49	4.17	clear, odorless
10:50:32	8.07	20.26	153	6.75	0.31	-84	5852.49	4.17	clear, odorless
10:55:32	8.08	20.28	152	6.77	0.31	-84	5852.50	4.17	clear, odorless

Additional notes:
HACH Turbidimeter used from 10:30 on due to negative turbidity on YSI

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-57 S1
Well Inside Diameter (in): 5
Well Depth (ft BGS): 959
Casing/Tubing Type(s): SS
Date: 1/8/2014
Initial Water Level (ft MSL): 5758.48
Measuring Point (ft MSL): 6648.04

1 Casing Volume (Gal): 70.8
3 Casing Volume (Gal): 212.4
Drop Pipe (Gal): 36.5
3 CVs plus DP (Gal): 248.9
Total Purge Water (Gal): 216

Pump On: 11:08
Water at Surface: 11:08
Begin Sampling: 12:20
End Sampling: 12:22
Pump Off: 12:22
Final Water Level (ft MSL): 5757.26
Total Waste Water (Gal): 255.6

Time	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
11:19:01	NC	NC	NC	NC	NC	NC	5757.29	3.6	clear, odorless
11:22:01	7.46	12.8	138	4.73	0.0	-39	-	-	-
11:25:01	7.47	13.18	138	3.66	0.0	-38	-	-	-
11:28:01	7.47	13.58	139	3.28	0.1	-38	5757.27	3.6	clear, odorless
11:31:01	7.47	13.99	140	3.16	0.1	-39	-	-	-
11:34:01	7.48	14.55	140	3.70	0.1	-41	-	-	-
11:37:01	7.52	15.16	141	3.65	0.1	-45	-	-	-
11:40:01	7.53	15.55	141	3.84	0.1	-48	5757.28	3.6	clear, odorless
11:43:01	7.57	15.85	141	3.97	0.0	-48	-	-	-
11:46:01	7.58	16.10	141	4.32	0.0	-49	-	-	-
11:49:01	7.58	16.38	141	4.47	0.0	-49	5757.27	3.6	clear, odorless
11:52:01	7.61	16.68	141	4.54	0.0	-50	-	-	-
11:55:01	7.60	17.00	141	4.31	0.0	-50	-	-	-
11:58:01	7.65	17.19	141	4.74	0.0	-50	5757.26	3.6	clear, odorless
12:01:01	7.66	17.37	141	4.45	0.0	-50	-	-	-
12:04:01	7.68	17.46	141	4.39	0.0	-49	-	-	-
12:07:01	7.69	17.58	141	4.45	0.0	-48	-	-	-
12:09:01	7.70	17.82	141	4.62	0.0	-48	5757.27	3.6	clear, odorless
12:14:01	7.71	18.01	141	4.60	0.0	-49	5757.27	3.6	clear, odorless
12:19:01	7.73	18.10	141	4.79	0.0	-51	5757.26	3.6	clear, odorless

Additional notes: Last three parameters are recorded here as 5 minute parameters because the YSI recorded in 3-minute intervals, but the stability was established according to the three 5-minute parameters

Entered by: Andrew Stocker
Reviewed by: Megan Green

Well Name: R-61 S1
Well Inside Diameter (in): 5
Well Depth (ft BGS): 1162.3
Casing/Tubing Type: SS
Date: 1/23/2014
Initial Water Level (ft MSL): 5836.71
Measuring Point (ft MSL): 6940.1

1 Casing Volume (Gal): 60.1
3 Casing Volume (Gal): 180.3
Drop Pipe (Gal): 45.2
3 CVs plus DP (Gal): 225.5
Total Purge Water (Gal): 181

Pump On: 8:00
Water at Surface: 8:01
Begin Sampling: 8:48; 9:43; 11:06; 12:29; 13:52
End Sampling: 8:50; 9:49; 11:10; 12:31; 13:56
Pump Off: 13:56
Final Water Level (ft MSL): 5833.33
Total Waste Water (Gal): 775

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
8:21:00	NC	NC	NC	NC	NC	NC	5833.52	2.27	clear, odorless
8:26:00	6.67	14.97	159	0.38	2.4	137	-	-	-
8:31:00	6.58	15.41	166	1.38	4.4	48	5833.44	2.27	clear, odorless
8:36:00	6.69	15.98	156	4.93	2.0	59	-	-	-
8:41:00	6.74	16.71	152	5.40	2.0	68	5833.38	2.27	clear, odorless
8:46:00	6.76	17.67	151	5.55	2.2	74	5833.38	2.27	clear, odorless
8:51:00	6.78	17.53	153	5.28	5.0	80	5833.50	2.18	clear, odorless
8:56:00	6.76	16.57	153	5.46	2.1	87	-	-	-
9:01:00	6.71	18.38	150	5.70	2.1	92	5833.36	2.18	clear, odorless
9:06:00	6.75	18.46	150	5.64	2.8	93	-	-	-
9:11:00	6.74	18.50	150	5.65	2.0	97	5833.33	2.18	clear, odorless
9:16:00	6.70	18.59	149	5.70	1.8	102	-	-	-
9:21:00	6.68	18.69	149	6.39	1.5	105	5833.34	2.18	clear, odorless
9:26:00	6.67	18.73	149	6.27	1.5	108	-	-	-
9:31:00	6.63	18.58	149	6.40	1.4	112	5833.32	2.18	clear, odorless
9:36:00	6.57	18.68	150	6.47	1.3	116	5833.33	2.18	clear, odorless
9:41:00	6.63	18.87	150	6.44	1.2	114	5833.34	2.18	clear, odorless
9:46:00	6.72	19.06	150	5.24	2.6	114	-	-	-
9:51:00	6.65	17.69	151	6.62	1.2	121	5833.38	2.18	clear, odorless
9:56:00	6.60	16.39	150	6.59	1.0	126	-	-	-
10:01:00	6.56	14.08	150	6.62	0.9	131	-	-	-
10:06:00	6.57	14.05	149	6.34	1.0	132	-	-	-

Well Name: R-61 S1, continued

10:11:00	6.59	13.63	149	6.32	1.0	133	5833.34	2.18	clear, odorless
10:16:00	6.60	14.67	148	6.42	16.6	132	-	-	-
10:21:00	6.76	16.38	147	5.99	1.0	125	-	-	-
10:26:00	6.76	16.52	148	6.10	0.9	125	-	-	-
10:31:00	6.76	16.69	148	6.26	0.9	126	5833.32	2.18	clear, odorless
10:36:00	6.76	16.92	148	6.19	0.9	127	-	-	-
10:41:00	6.75	17.03	148	6.30	0.8	129	-	-	-
10:46:00	6.72	16.77	149	6.47	0.8	132	-	-	-
10:51:00	6.64	16.71	148	6.39	0.8	137	5833.32	2.18	clear, odorless
10:56:00	6.64	16.74	148	6.50	0.7	138	-	-	-
11:01:00	6.63	16.59	149	6.52	0.7	139	-	-	-
11:06:00	6.60	16.74	149	6.46	0.7	142	5833.33	2.18	clear, odorless
11:11:00	6.59	16.79	150	6.79	1.3	143	5833.32	2.18	clear, odorless
11:16:00	6.79	17.86	151	5.72	0.7	132	-	-	-
11:21:00	6.70	15.41	152	6.62	0.6	140	-	-	-
11:26:00	6.58	14.29	150	6.51	0.5	148	-	-	-
11:31:00	6.59	14.01	149	6.37	0.6	148	5833.33	2.18	clear, odorless
11:36:00	6.59	13.80	149	6.45	0.6	149	-	-	-
11:41:00	6.60	14.41	149	6.22	0.9	148	-	-	-
11:46:00	6.76	15.58	148	6.02	1.0	140	-	-	-
11:51:00	6.75	15.71	149	6.19	1.2	141	5833.32	2.18	clear, odorless
11:56:00	6.75	16.09	149	6.13	1.1	141	-	-	-
12:01:00	6.75	16.24	149	6.15	1.3	142	-	-	-
12:06:00	6.69	16.20	148	6.46	1.1	145	-	-	-
12:11:00	6.66	16.15	148	6.25	1.0	147	5833.33	2.18	clear, odorless
12:16:00	6.65	16.11	148	6.22	1.4	149	-	-	-
12:21:00	6.67	16.26	148	6.18	1.0	148	-	-	-
12:26:00	6.75	16.33	148	6.24	1.2	144	5833.32	2.18	clear, odorless
12:31:00	6.71	16.27	148	6.34	0.6	147	-	-	-
12:36:00	6.63	15.29	148	6.49	0.5	152	5833.32	2.18	clear, odorless
12:41:00	6.60	13.86	148	6.80	0.5	155	-	-	-

Well Name: R-61 S1, continued

12:46:00	6.57	13.24	147	6.80	0.5	158	-	-	-
12:51:00	6.57	13.04	147	6.74	0.5	158	5833.32	2.18	clear, odorless
12:56:00	6.54	12.55	147	6.62	0.5	161	-	-	-
13:01:00	6.79	17.07	147	6.16	1.1	146	-	-	-
13:06:00	6.84	17.99	148	6.12	1.7	142	-	-	-
13:11:00	6.82	18.17	148	6.09	1.8	144	5833.33	2.18	clear, odorless
13:16:00	6.80	18.43	148	6.08	1.8	145	-	-	-
13:21:00	6.77	18.34	147	6.07	2.0	147	-	-	-
13:26:00	6.77	18.38	147	6.02	2.2	148	-	-	-
13:31:00	6.70	18.23	149	6.08	2.4	152	5833.33	2.18	clear, odorless
13:36:00	6.72	18.36	149	6.04	1.9	152	-	-	-
13:41:00	6.74	18.51	148	6.06	1.6	151	-	-	-
13:46:00	6.76	18.45	148	6.09	1.8	151	-	-	-
13:51:00	6.74	18.61	148	6.05	1.8	152	5833.32	2.18	clear, odorless

Additional Notes:

Additional samples collected at 1, 3, 6, 9, and 12 CVs

The work plan provided by the GTL specified that specific conductance be measured with a secondary meter, however this was not done by the field team. Effervescence was mitigated in the flow through cell and specific conductance did not appear to be affected by effervescense.

Entered by: Andrew Stocker

Reviewed by Megan Green

Well Name: R-61 S2
Well Inside Diameter (in): 5
Well Depth (ft BGS): 1251
Casing/Tubing Type: SS
Date: 1/22/2014
Initial Water Level (ft MSL): 5836.84
Measuring Point (ft MSL): 6940.12

1 Casing Volume (Gal): 86.3
3 Casing Volume (Gal): 258.9
Drop Pipe (Gal): 47.8
3 CVs plus DP (Gal): 306.7
Total Purge Water (Gal): 262.5

Pump On: 7:41
Water at Surface: 7:42
Begin Sampling: 8:53; 10:15; 10:17; 12:18; 14:21; 16:2
End Sampling: 8:57; 10:30; 12:26; 14:26; 16:29
Pump Off: 16:29
Final Water Level (ft MSL): 5834.68
Total Waste Water (Gal): 1169.7

Time (MST)	pH	Temperature (°C)	SC (µS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Water Level (ft MSL)	Discharge Rate (gpm)	Notes
8:12:01	NC	NC	NC	NC	NC	NC	5834.36	2.1	clear; organic odor
8:17:01	6.52	15.92	178	0.42	7.7	-137	-	-	-
8:22:01	6.50	16.55	185	0.43	8.8	-124	-	-	-
8:27:01	6.51	17.54	193	0.48	8.8	-131	-	-	-
8:32:01	6.51	18.22	197	0.56	8.4	-133	5834.39	2.1	clear; organic odor
8:37:01	6.51	18.53	198	0.68	7.9	-132	-	-	-
8:42:01	6.52	18.68	195	0.73	7.4	-133	-	-	-
8:47:01	6.63	18.86	194	0.82	6.5	-124	-	-	-
8:52:01	6.59	18.85	195	0.93	5.9	-112	5834.35	2.1	clear; organic odor
8:57:01	6.59	19.11	196	0.99	5.3	-118	-	-	-
9:02:01	6.61	19.09	194	1.10	4.7	-125	-	-	-
9:07:01	6.59	19.02	195	1.09	4.2	-113	-	-	-
9:12:01	6.57	18.93	195	1.21	3.9	-99	5834.38	2.1	clear, organic odor
9:17:01	6.57	18.96	193	1.27	3.6	-91	-	-	-
9:22:01	6.56	19.06	195	1.29	3.4	-91	-	-	-
9:27:01	6.56	19.14	194	1.43	3.3	-87	-	-	-
9:32:01	6.55	19.27	193	1.47	2.9	-82	5834.39	2.1	clear, organic odor
9:37:01	6.55	19.35	195	1.45	2.8	-83	-	-	-
9:42:01	6.55	19.28	193	1.72	2.8	-86	-	-	-
9:47:01	6.55	19.14	193	1.68	2.5	-75	-	-	-
9:52:01	6.55	19.08	193	1.68	2.5	-76	5834.40	2.1	clear, organic odor
9:57:01	6.55	19.18	193	1.79	2.4	-71	-	-	-
10:02:01	6.55	19.23	191	1.74	2.4	-72	5834.40	2.1	clear, organic odor

Well Name: R-61 S2, continued

10:07:01	6.56	19.33	191	1.80	2.2	-70	5834.40	2.1	clear, organic odor
10:12:01	6.53	19.24	192	1.82	2.2	-70	5834.41	2.1	clear, organic odor
10:17:01	6.55	19.23	192	1.77	2.5	-72	5834.40	2.1	clear, effervescent, organic odor
10:22:01	6.56	19.64	190	1.89	2.4	-79	-	-	-
10:27:01	6.56	19.95	189	1.95	4.7	-82	-	-	-
10:32:01	6.59	19.63	189	2.24	1.8	-87	-	-	-
10:37:01	6.59	18.65	189	2.15	1.9	-85	-	-	-
10:42:01	6.58	18.17	188	2.21	1.8	-80	-	-	-
10:47:01	6.57	18.03	187	2.21	1.8	-77	-	-	-
10:52:01	6.57	18.04	186	2.24	1.8	-73	-	-	-
10:57:01	6.56	18.04	187	2.25	1.8	-66	-	-	-
11:02:01	6.56	17.95	186	2.29	1.8	-66	-	-	-
11:07:01	6.56	17.86	185	2.25	1.8	-65	-	-	-
11:12:01	6.56	17.84	185	2.27	1.7	-64	-	-	-
11:17:01	6.56	17.80	184	2.35	1.7	-64	5834.43	2.1	clear, effervescent, organic odor
11:22:01	6.56	17.84	183	2.42	1.7	-63	-	-	-
11:27:01	6.56	17.82	184	2.38	1.7	-62	-	-	-
11:32:01	6.56	17.80	183	2.43	1.6	-61	-	-	-
11:37:01	6.56	17.80	183	2.54	1.6	-61	-	-	-
11:42:01	6.56	17.94	182	2.55	1.7	-60	-	-	-
11:47:01	6.56	17.99	182	2.52	1.6	-59	-	-	-
11:52:01	6.54	18.13	185	2.63	1.5	-56	-	-	-
11:57:01	6.55	18.40	184	2.58	1.5	-55	-	-	-
12:02:01	6.56	18.45	183	2.59	1.5	-56	-	-	-
12:07:01	6.57	18.49	182	2.60	1.5	-56	-	-	-
12:12:01	6.57	18.42	182	2.62	1.4	-55	-	-	-
12:17:01	6.57	18.38	181	2.67	1.4	-53	5834.47	2.1	clear, effervescent, organic odor
12:22:01	6.58	18.29	180	2.63	1.5	-53	-	-	-
12:27:01	6.58	18.54	180	2.72	1.4	-57	-	-	-
12:32:01	6.58	18.25	178	2.83	1.3	-57	-	-	-
12:37:01	6.58	18.03	178	2.88	1.4	-56	-	-	-

Well Name: R-61 S2, continued

12:42:01	6.58	17.98	178	2.92	1.4	-54	-	-	-
12:47:01	6.58	18.06	178	2.91	1.4	-50	-	-	-
12:52:01	6.58	18.11	177	2.94	1.4	-49	-	-	-
12:57:01	6.58	18.08	177	2.97	1.4	-48	-	-	-
13:02:01	6.58	18.15	177	2.99	1.4	-49	-	-	-
13:07:01	6.58	18.13	177	3.00	1.4	-49	-	-	-
13:12:01	6.59	18.08	176	3.03	1.4	-48	-	-	-
13:17:01	6.59	18.08	175	3.03	1.4	-47	5834.53	2.1	clear, effervescent, organic odor
13:22:01	6.60	17.89	176	3.01	1.4	-48	-	-	-
13:27:01	6.59	17.64	175	2.97	1.4	-47	-	-	-
13:32:01	6.59	19.05	174	3.14	1.4	-44	-	-	-
13:37:01	6.62	19.76	172	3.06	1.4	-48	-	-	-
13:42:01	6.64	19.86	172	3.08	1.5	-52	-	-	-
13:47:01	6.65	19.85	173	3.10	1.4	-53	-	-	-
13:52:01	6.65	19.77	172	3.06	1.4	-53	-	-	-
13:57:01	6.65	19.86	172	3.13	1.3	-52	-	-	-
14:02:01	6.66	19.86	171	3.12	1.5	-53	-	-	-
14:07:01	6.66	19.88	172	3.13	1.4	-52	-	-	-
14:12:01	6.66	19.95	171	3.13	1.5	-53	-	-	-
14:17:01	6.66	20.00	171	3.13	1.5	-51	5834.50	2.1	clear, effervescent, organic odor
14:22:01	6.66	19.87	171	3.14	1.4	-54	-	-	-
14:27:01	6.67	19.72	171	3.19	1.4	-56	-	-	-
14:32:01	6.67	19.45	171	3.18	1.3	-57	-	-	-
14:37:01	6.67	19.17	171	3.10	1.3	-56	-	-	-
14:42:01	6.66	18.92	171	3.05	1.3	-55	-	-	-
14:47:01	6.66	18.68	171	3.01	1.4	-54	-	-	-
14:52:01	6.66	18.43	171	3.01	1.3	-52	-	-	-
14:57:01	6.65	19.60	169	3.38	1.4	-48	-	-	-
15:02:01	6.67	20.10	167	3.44	1.5	-49	-	-	-
15:07:01	6.67	20.17	167	3.36	1.5	-51	-	-	-
15:12:01	6.67	20.23	167	3.36	1.3	-51	-	-	-

Well Name: R-61 S2, continued

15:17:01	6.66	20.21	167	3.37	1.4	-53	5834.52	2.1	clear, effervescent, organic odor
15:22:01	6.64	20.17	169	3.31	1.4	-49	-	-	-
15:27:01	6.65	20.11	168	3.53	1.3	-49	-	-	-
15:32:01	6.66	20.20	169	3.51	1.3	-51	-	-	-
15:37:01	6.67	20.15	167	3.49	1.3	-49	-	-	-
15:42:01	6.68	20.21	167	3.49	1.2	-50	-	-	-
15:47:01	6.68	20.20	166	3.55	1.3	-50	-	-	-
15:52:01	6.67	20.24	166	3.48	1.3	-51	-	-	-
15:57:01	6.68	20.22	165	3.50	1.3	-53	-	-	-
16:02:01	6.68	20.22	165	3.51	1.3	-51	-	-	-
16:07:01	6.68	20.24	165	3.53	1.3	-49	-	-	-
16:12:01	6.69	20.22	164	3.57	1.4	-49	-	-	-
16:17:01	6.69	20.20	165	3.57	1.3	-49	5834.56	2.1	clear, effervescent, organic odor
16:22:01	6.69	20.23	164	3.57	1.4	-49	5834.54	2.1	clear, effervescent, organic odor

Additional Notes:

Additional samples collected at 1, 3, 6, 9, and 12 CVs

Entered by: Andrew Stocker

Reviewed by: Megan Green

Appendix D

Field Parameter Summary Table

Well	MY	Qtr	Date	Drop pipe (DP) vol (calc)	1CV (calc)	3CV (calc)	DP + 3CV (calc)	Reported Purge Vol (gal)	Calc CVs purged	pH	Temp (◦C)	Sp Cond (uS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Discharge Rate (gpm)	Notes at start of purge	Notes at end of purge
MCO-4B	2011	1	11/8/2011	0.00	1.90	5.70	5.70	2.00	1.05	6.86	9.39	431.00	8.90	6.22	177.00		Clear, odorless	Clear, odorless
MCO-4B	2011	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		NA	N/A
MCO-4B	2014	1	11/20/2013	N/A	2.44	7.34	7.34	2.50	1.02	6.49	11.54	1207.00	7.62	0.90	124.00	0.13	Some floaties in water	clear, no odor
MCO-4B	2014	2	1/21/2014	N/A	1.6	4.8	4.8	2	1.25	6.09	11.13	1316	5.27	1.20	-38.0	0.11	slightly cloudy	clear, odorless
MCO-6	2011	2	3/23/2012	N/A	3.20	9.60	9.60	3.80	1.19	6.98	9.37	420.00	8.35	4.85	33.00		clear, odorless	Clear, odorless
MCO-6	2011	4	8/15/2012	N/A	2.63	7.89	7.89	2.50	0.95	6.85	17.88	488	7.74	11.8	213		Clear, odorless	Clear, odorless
MCO-6	2014	1	11/20/2013	NA	5.18	15.50	15.50	5.20	1.00	6.71	9.93	605	8.32	1.2	122	0.13	clear, odorless	clear, odorless
MCO-6	2014	2	1/21/2014	N/A	4.6	13.9	13.9	4.6	1.0	6.48	10.23	1082	7.54	0.40	-48	0.20	clear, odorless	clear, odorless
MCO-7	2011	2	3/22/2012	N/A	10.20	30.60	30.60	12.70	1.25	6.77	9.80	526.00	8.26	6.01	211.00		clear, odorless	Clear, odorless.
MCO-7	2011	4	8/14/2012	NA	9.9	29.70	89.10	10.00	1.01	6.73	11.34	478	7.87	2.98	249		clear, odorless	clear, odorless
MCO-7	2014	1	11/21/2013	N/A	10	30.00	30.00	12.50	1.25	6.82	10.30	472	7.69	15.40	151	0.04	very silty, brown	cloudy
MCO-7	2014	2	1/29/2014	N/A	11.03	33.1	33.1	11.7	1.06	6.11	10.13	511	8.42	1.90	-2	0.18	clear, odorless	clear, odorless
MCOI-6	2013	3	5/8/2013	27.0	45	135.00	162.00	136	3.02	7.22	16.01	595	7.49	3.8	160	1.66	water cloudy, odorless	clear, odorless
MCOI-6	2013	4	7/9/2013	27.0	45.4	136.20	163.20	136.5	3.01	7.02	17.19	594	6.95	-0.7	111	1.30	clear, no odor	clear, no odor
MCOI-6	2014	1	11/7/2013	27.0	45	135.10	162.10	136	3.02	7.27	15.00	592	6.90	0.6	108	1.38	clear, no odor	clear, no odor
MCOI-6	2014	2	1/17/2014	27.0	45	135.0	162.0	135.5	3.01	7.03	14.76	585	6.90	0.1	159	1.44	clear, odorless	clear, odorless
R-11	2013	3	5/13/2013	34.4	51.9	155.70	190.10	156	3.01	7.96	22.55	237	7.45	0.4	191	3.09	clear, odorless	clear, odorless
R-11	2013	4	7/12/2013	34.4	51.8	155.40	189.80	159	3.07	8.02	22.27	240	7.60	0.7	158	3.00	clear, no odor	clear, no odor
R-11	2014	1	11/5/2013	34.4	51.5	154.50	188.90	155	3.01	8.22	20.82	238	7.10	0.6	175	2.88	clear, odorless	clear, odorless
R-11	2014	2	1/9/2014	34.4	51.7	155.1	189.50	159	3.08	8.00	20.87	230	7.17	0.4	-38	3.0	clear, odorless	clear, odorless
R-23	2013	1	10/12/2012	34.10	45.30	135.80	169.90	200.00	4.42	8.02	20.75	162.00	6.88	0.60	69.00		clear, no odor	clear, no odor
R-23	2013	3	4/23/2013	34.1	45.2	135.60	169.70	150	3.32	8.02	20.86	168	6.91	0.60	252	10.00	clear, no odor	clear, no odor
R-23	2014	1	12/4/2013	34.1	45.6	136.80	170.90	240	5.26	8.01	20.72	168	6.86	0.50	156	10.00	no odor, clear, slight effervescence	no odor, clear, slight effervescence
R-23	2014	2	1/7/2014	34.1	45.1	135.3	169.4	150	3.33	8.12	21.50	169	6.69	0.0	125	10	clear, no odor, very little effervescence	clear, no odor
R-34	2013	3	5/15/2013	32.7	101.2	303.60	336.30	304.5	3.01	8.30	21.72	152	6.26	0.9	92	2.72	clear, odorless, effervescent	clear, odorless, effervescent
R-34	2013	4	7/17/2013	32.7	100.9	302.70	335.40	354	3.51	8.06	22.35	160	6.55	1.6	89	2.70	slightly effervescent	very effervescent
R-34	2014	1	12/19/2013	32.7	101.1	303.30	336.00	305.5	3.02	8.27	17.77	152	6.82	1.7	-8	2.97	Clear, no odor, effervescent	odorless, clear, effervescent
R-34	2014	2	1/17/2014	32.7	100.8	302.5	335.2	344.4	3.42	8.28	20.56	153	8.01	0.8	-68	2.8	effervescent, odorless	effervescent, odorless
R-35a	2013	1	11/13/2012	32.60	239.60	718.80	751.40	720.00	3.01	8.08	22.66	241.00	4.90	1.08	170.00	3.60	fine particles, odorless, clear	clear, odorless
R-35a	2013	3	5/16/2013	32.7	238.2	714.60	747.30	718.20	3.02	8.05	24.66	242	5.03	1.97	81.4	3.80	clear, odorless	clear, odorless
R-35a	2014	1	11/13/2013	32.6	240.3	720.90	753.50	722.00	3.00	8.06	24.18	243	4.99	1.4	131	3.80	clear, odorless	clear, odorless
R-35a	2014	2	1/16/2014	33	241.5	724.5	757.5	729.3	3.02	7.96	24.02	245	4.83	0.83	175	3.9	clear, odorless	clear, odorless
R-35b	2011	3	2/28/2011	32.39	67.80	203.40	235.79	215.00	3.17	7.67	20.30	167.00	6.80	0.90	170.00		Clear, no odor	Clear, no odor
R-35b	2013	1	11/14/2012	32.40	67.10	201.30	233.70	201.00	3.00	7.66	21.07	170.00	6.14	0.51	189.00	3.66	clear, odorless	clear, odorless
R-35b	2013	3	5/10/2013	32.4	67	201.00	233.40	205	3.06	7.47	21.23	172	5.85	0.44	239	3.10	clear, odorless	clear, odorless
R-35b	2014	1	11/13/2013	32.4	67	201.00	233.40	203	3.03	7.48	20.79	171	6.06	0.60	76	3.23	clear, odorless	clear, odorless
R-35b	2014	2	1/15/2014	32.5	66.6	199.8	232.30	202	3.03	7.44	20.66	172	6.17	0.6	-49	2.97	clear, odorless	clear, odorless
R-37 S2	2013	3	4/11/2013	41.7	53.5	160.5	202.2	164	3.07	7.97	17.10	129	7.39	1.20	98	9.37	clear, odorless	clear, odorless
R-37 S2	2013	4	7/12/2013	41.7	52.6	161.5	203.2	169	3.21	7.90	21.45	133	7.13	1.70	105	9.38	effervescent, clear, no odor	effervescent, clear, no odor
R-37 S2	2014	1	12/6/2013	41.7	52.5	158	199.7	330	6.29	8.00	18.81	135	7.43	0.37	136	10.00	clear, odorless, effervescent	clear, odorless, effervescent
R-37 S2	2014	2	1/7/2014	41.71	52.45	157.35	199.06	224.88	4.29	7.78	18.38	133	7.51	0.6	-36	9.37	clear, no odor, no effervescence	Clear, no odor, effervescent

Well	MY	Qtr	Date	Drop pipe (DP) vol (calc)	1CV (calc)	3CV (calc)	DP + 3CV (calc)	Reported Purge Vol (gal)	Calc CVs purged	pH	Temp (◦C)	Sp Cond (uS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Discharge Rate (gpm)	Notes at start of purge	Notes at end of purge
R-39	2013	3	4/9/2013	33.9	48.6	145.8	#REF!	165	3.40	8.10	18.19	138	6.61	0.6	249	3.00	clear, no odor	clear, no odor
R-39	2013	4	7/18/2013	34	48.3	146.8	#REF!	147	3.04	8.15	22.84	139	6.73	1.50	126	3.00	clear, odorless	clear, odorless
R-39	2014	1	12/16/2013	34	48	144	178	180	3.75	7.88	21.99	140	6.82	0.50	180	3.00	clear, no odor	clear, no odor
R-39	2014	2	1/24/2014	33.93	48.8	146.4	180.33	170	3.48	8.08	21.60	144	6.95	0.2	150	2.80	clear, no odor, no effervescence	Water level dropped below bottom of access tube
R-41 S2	2013	3	4/9/2013	39.4	36.4	109.2	148.60	110.2	3.03	8.09	18.75	161	6.14	0.30	185	2.90	clear, no odor	clear, no odor
R-41 S2	2013	4	7/15/2013	39.4	35.9	110.2	149.60	105	2.92	8.00	22.88	163	6.36	6.40	110	2.90	clear, no odor	clear, no odor
R-41 S2	2014	1	12/10/2013	39.5	35.7	107.1	146.60	107	3.00	8.08	21.13	163	6.16	0.50	78	3.00	clear, no odor	clear, no odor
R-41 S2	2014	2	1/16/2014	39.4	35.7	107.2	146.60	107	3.00	7.90	20.07	162	6.23	0.7	-90	2.8	clear, no odor	clear, no odor
R-43 S1	2013	3	5/15/2013	36.7	66.5	199.50	236.20	200.00	3.01	8.17	20.16	183	6.81	1.88	224	1.31	clear, odorless	clear, odorless
R-43 S1	2013	4	7/16/2013	36.7	65.9	197.70	234.40	199	3.02	8.20	20.87	183	7.01	-0.50	166	1.33	clear, odorless	clear, odorless
R-43 S1	2014	1	11/12/2013	36.7	65.6	196.80	233.50	197	3.00	8.25	20.01	184	6.96	0.20	114	1.20	clear, odorless	clear, odorless
R-43 S1	2014	2	1/21/2014	36.8	65.6	196.8	233.60	198	3.02	8.27	18.19	186	6.79	0.27	169	1.2	clear, odorless	198 gal purged, clear, odorless
R-43 S2	2013	3	5/14/2013	39.6	25.5	76.50	116.10	77	3.02	8.50	20.22	193	4.79	0.19	160	1.22	clear, odorless	clear, odorless
R-43 S2	2013	4	7/18/2013	39.6	25.5	76.50	116.10	77	3.02	8.59	20.24	195	3.28	0.00	67	1.25	clear, odorless	clear, odorless
R-43 S2	2014	1	11/12/2013	39.6	25.5	76.50	116.10	77	3.02	8.71	19.68	197	3.08	0.20	103	1.30	clear, no odor	clear, no odor
R-43 S2	2014	2	1/21/2014	39.6	25.5	76.5	116.1	77	3.02	8.65	19.94	199	3.28	0.35	172	1.35	clear, odorless	clear, odorless
R-44 S1	2013	1	11/12/2012	36.12	56.47	169.41	205.53	170.00	3.01	7.78	18.66	134.00	6.70	0.43	101.00	3.40	clear, tiny particles, no effervescence	clear, particle-free, no effervescence
R-44 S1	2013	3	5/9/2013	36.1	56.9	170.70	206.80	171.60	3.02	7.73	20.39	135	6.89	0.20	182	3.30	clear, no odor	clear, no odor
R-44 S1	2014	1	11/6/2013	36.1	56.68	170.04	206.14	173.40	3.06	7.82	18.87	135	6.20	0.00	118	3.40	water clear, no odor	water clear, no odor
R-44 S1	2014	2	1/13/2014	36.1	56.1	168.3	204.4	168.5	3.00	7.68	20.50	134	6.79	0.1	-46	3.37	clear, odorless	clear, odorless
R-44 S2	2013	1	11/12/2012	38.6	76.40	229.20	267.80	231.20	3.03	7.87	19.02	143.00	7.10	0.17	119.00	3.40	clear, no odor, no effervescence	clear, no odor, no effervescence
R-44 S2	2013	3	5/9/2013	38.6	76.4	229.20	267.80	231.00	3.02	7.81	20.78	144	7.2	0.10	139.0	3.30	clear, no odor	clear, no odor
R-44 S2	2014	1	11/6/2013	38.6	76.4	229.20	267.80	307.20	4.02	7.90	20.47	145	7.1	0.25	103.0	3.20	water clear, no odor	water clear, no odor
R-44 S2	2014	2	1/13/2014	38.6	76.4	229.2	267.8	232.5	3.04	7.80	20.26	143	7.2	0.1	-46.0	3.37	clear, odorless	clear, odorless
R-45 S1	2013	1	11/6/2012	36	52.00	156.00	192.00	157.50	3.03	7.84	20.72	173.00	7.22	0.37	97.00	3.50	clear, odorless	clear, odorless
R-45 S1	2013	3	5/9/2013	35.7	52.4	157.20	192.90	157.2	3.00	7.67	19.50	179	7.15	0.39	304	3.59	clear, odorless	clear, odorless
R-45 S1	2014	1	11/6/2013	35.7	51.2	153.50	189.20	154	3.01	7.96	20.23	183	7.22	0.00	83	3.50	clear, no odor	clear, no odor
R-45 S1	2014	2	1/14/2014	35.7	51.5	155	190.7	169.2	3.29	7.78	20.33	182	7.21	0.21	128	3.6	clear, odorless	clear, odorless
R-45 S2	2013	1	11/6/2012	38	91.80	275.40	313.40	278.80	3.04	8.10	20.82	164.00	6.69	0.40	87.00	3.40	clear, odorless	clear, odorless
R-45 S2	2013	3	5/9/2013	38.0	91.8	275.40	313.40	276.00	3.01	7.94	20.98	170	6.43	0.34	314	3.57	clear, odorless	clear, odorless
R-45 S2	2014	1	11/6/2013	38.0	91.8	275.40	313.40	276.00	3.01	8.15	20.30	172	6.64	0.00	121	3.50	clear, odorless	clear, odorless
R-45 S2	2014	2	1/14/2014	38.0	92	276	314.0	277.2	3.01	8.15	17.91	170	6.24	0.34	157	3.6	clear, odorless	clear, odorless
R-50 S1	2013	3	5/10/2013	43.8	50.7	152.10	195.90	165	3.25	7.66	20.80	191	5.57	0.8	249	2.50	slight effervescent, clear, odorless	slight effervescent, clear, odorless
R-50 S1	2013	4	7/9/2013	43.8	50.3	150.90	194.70	155	3.08	7.92	21.40	184	5.47	0.7	152	2.44	clear, odorless, slightly effervesecent	clear, odorless, effervescent
R-50 S1	2014	1	11/12/2013	43.9	49.3	147.80	191.70	161	3.27	7.97	20.85	171	5.80	0.4	120	2.60	very effervescent	slight effervescence
R-50 S1	2014	2	1/15/2014	43.8	50	150	193.8	153.4	3.07	7.82	20.81	192	5.58	0.45	151	2.6	slight effervescence, no odor	clear, no odor
R-50 S2	2013	3	5/13/2013	46.0	96.49	289.47	335.51	319	3.31	8.07	22.84	131	7.28	1.00	117	1.45	water clear, odorless	water clear, effervescent, odorless
R-50 S2	2013	4	7/10/2013	46.0	96.5	289.50	335.50	290	3.01	7.88	21.82	132	7.14	4.7	88	1.43	clear, odorless	clear, odorless, effervescent
R-50 S2	2014	1	11/12/2013	46.0	96.5	289.50	335.50	294	3.05	8.01	20.20	133	7.99	0.35	120	1.50	effervescent, no odor *HACH	effervescent, clearer than before DO reading
R-50 S2	2014	2	1/15/2014	46	96.5	290	336.0	292.4	3.03	8.12	17.69	133	7.52	0.29	140	1.7	effervescent, no odor	effervescent, no odor
R-55 S1	2013	1	10/24/2012	34.30	111.90	335.70	370.00	337.50	3.02	8.19	22.26	173.00	6.29	0.25	89.20		clear, odorless	clear, odorless
R-55 S1	2013	3	4/18/2013	34.3	111.6	339.8	369.10	335	3.00	8.22	20.45	174	6.32	0.10	62	2.86	clear, odorless	clear, odorless
R-55 S1	2014	1	12/2/2013	34.3	111.7	335.1	369.40	337	3.02	8.19	21.70	175	6.27	0.26	55	2.72	clear, odor	clear, odorless
R-55 S1	2014	2	1/8/2014	34.3	111.6	334.8	369.1	335	3.00	8.23	21.17	175	6.24	0.25	144	2.77	clear, odorless	clear, odorless

Well	MY	Qtr	Date	Drop pipe (DP) vol (calc)	1CV (calc)	3CV (calc)	DP + 3CV (calc)	Reported Purge Vol (gal)	Calc CVs purged	pH	Temp (◦C)	Sp Cond (uS/cm)	DO (mg/L)	Turbidity (NTU)	ORP (mV)	Discharge Rate (gpm)	Notes at start of purge	Notes at end of purge
R-56 S1	2013	3	4/24/2013	37.9	84.9	254.7	292.60	256	3.02	7.97	20.99	148	6.34	0	137	4.00	clear, odorless	clear, odorless
R-56 S1	2013	4	7/23/2013	37.9	84.8	255.7	292.30	256	3.02	8.04	21.69	150	6.56	0.3	148	4.11	clear, odorless	clear, odorless
R-56 S1	2014	1	12/17/2013	37.9	84.5	253.5	291.40	255	3.02	7.88	21.09	151	6.67	0.7	128	4.17	clear, odorless	clear, odorless
R-56 S1	2014	2	1/23/2014	38.1	79.9	239.7	277.8	240	3.00	8.08	20.28	152	6.77	0.31	-84	4.17	clear, odorless	clear, odorless
R-57 S1	2013	3	4/10/2013	36.5	70.5	211.5	248.00	212	3.01	7.84	21.99	145	5.02	0.50	46	3.50	clear, no odor	clear, no odor
R-57 S1	2013	4	7/18/2013	36.5	70.8	212.5	249.00	214	3.02	7.92	22.71	138	4.95	0.4	71	3.57	clear, odorless	OK
R-57 S1	2014	1	12/5/2013	36.5	70.8	212.4	248.90	216	3.05	7.85	21.84	141	5.03	0.6	37	3.60	clear, no odor	clear, no odor
R-57 S1	2014	2	1/8/2014	36.5	70.8	212.4	248.9	216	3.05	7.73	18.10	141	4.79	0.0	-51	3.6	clear, odorless	clear, odorless
R-61 S1	2013	3	5/16/2013	45.2	60.8	182.40	227.60	183.5	3.02	6.71	20.88	155	5.97	3.00	252	2.14	slightly effervescent, clear, odorless	effervescent, clear, odorless
R-61 S1	2013	4	7/15/2013	45.2	60.4	181.20	226.40	727.2	12.04	6.75	20.47	141	6.39	0.00	130	2.12	clear, odor	clear, no odor
R-61 S1	2014	1	11/15/2013	45.3	59.9	179.60	224.90	360	6.01	6.80	19.66	148	5.63	1.20	106	2.10	clear, light organic odor, effervescent	clear, organic odor, effervescent
R-61 S1	2014	2	1/23/2014	45.2	60.1	180.3	225.5	181	3.01	6.63	18.87	150	6.44	1.2	114	2.18	clear, odorless	clear, odorless
R-61 S2	2013	3	5/22/2013	47.80	86.30	258.90	306.70	260.00	3.01	6.56	21.04	152	2.96	12.30	95	2.00	effervescent, clear, odorless	effervescent, cloudy, odorless
R-61 S2	2013	4	7/16/2013	47.8	86.3	259.90	307.70	1056	12.24	6.59	20.92	147	3.52	3.20	-25	2.20	clear, slight odor	effervescent, odor
R-61 S2	2014	1	11/14/2013	47.9	86.3	258.90	306.80	518	6.00	6.67	19.93	152	2.67	2.80	11	2.08	clear, smells strong organic odor	clear, effervescent, organic odor
R-61 S2	2014	2	1/22/2014	47.8	86.3	258.90	306.70	262.5	3.04	6.57	18.93	195	1.74	2.4	-72	2.1	clear organic odor	clear organic odor
SCI-2	2013	2	1/31/2013	3.18	6.5	19.50	22.68	47.3	7.28	7.50	13.93	602	9.70	1.54	2	0.43	clear, odorless	Clear, no odor, effervescent
SCI-2	2013	3	5/21/2013	3.2	7	21.00	24.20	26.4	3.77	7.41	14.48	621	9.24	1.1	222	0.44	clear, green tint, odorless	clear, green tint, odorless
SCI-2	2013	4	7/23/2013	3.2	6.8	20.40	23.60	20.6	3.03	7.38	16.05	608	8.26	0.1	180	0.42	green tint, clear, odorless	green tint, clear, odorless
SCI-2	2014	2	1/13/2014	3.17	6.78	20.34	23.51	35	5.16	7.45	13.97	617	9.58	1.8	155	0.70	clear, no odor	clear, no odor

Field Summary Report - Supplementary Documentation

Mortandad and Sandia (Chromium Investigation and General Surveillance Monitoring Groups) and Pajarito (TA-54 Monitoring Group) Watershed Quarterly Sampling Event 2, 2014 Interim Facility-Wide Groundwater Monitoring Plan

Other Field Activities from January 7-January 29, 2014

Prepared by TerranearPMC, LLC
Los Alamos, NM

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Appendix E

Field Documentation

Daily Status Report for Task Order 14 Sampling
Mortandad/Sandia Q2 (Chromium Investigation and General Surveillance Monitoring Groups) and Pajarito Q2 (TA-54 Monitoring Group) Including all Other Field Activities from Jan. 7th through Jan. 29th, 2014

Monitoring Group	Watershed	Media*	Location Name	QC Assignments **	Location Information	Sampled?	Sample or Cancellation Date	Cancellation Code*** (if applicable)	Samplers	Comments
TA-54	Mortandad	WGI	R-37 S1	FB, FTB		NO	1/22/2014	CPL		
		WGR	R-37 S2	FTB		Yes	1/7/2014		DF, MS, MJ	None
			R-55 S1	FTB		Yes	1/8/2014		DF, DW, JJ, BR	
	Pajarito	WGR	R-23	FD, FB, FTB		Yes	1/7/2014		DW, JM, JJ	FD and FB collected
			R-39	FTB		YES	1/24/2014		MS, JJ, MJ	
			R-41 S2	FTB		YES	1/16/2014		DF, BR	NMED Split
			R-56 S1	FTB		YES	1/23/2014		MS, AS, JR	
			R-57 S1	FB, FTB		YES	1/8/2014		WS, MS, MJ	FB collected
Chromium Monitoring	Mortandad	WGI	MCOI-6			YES	1/17/2014		DF, MJ	NMED Split
		WGR	R-28	~~PEB~~	Cancelled	NO	1/21/2014	CPL		
			R-42		Cancelled	NO	1/21/2014	CPL		
			R-44 S1	~~PEB~~		YES	1/13/2014		WS, DF, BR	NMED Split
			R-44 S2			YES	1/13/2014		WS, DF, BR	NMED Split
			R-45 S1	PEB		YES	1/14/2014		WS, MS, JM	PEB collected, NMED Split
			R-45 S2			YES	1/14/2014		WS, MS, JM	NMED Split
			R-50 S1	FD		YES	1/15/2014		WS, JJ, BR	FD collected, NMED Split
			R-50 S2			YES	1/15/2014		WS, JJ, BR	NMED Split
			R-61 S1		Purge 12 CV; time series sampling	YES	1/23/2014		WS, DF, JM	
			R-61 S2		Purge 12 CV; time series sampling	YES	1/22/2014		WS, JM, AS, MJ	
	Sandia	WGI	SCI-2			YES	1/13/2014		MS, JM	
		WGR	R-11			YES	1/9/2014		WS, MS, JM	NMED Split
			R-35a			YES	1/16/2014		WS, DF, JM, JJ	NMED Split
			R-35b			YES	1/15/2014		DF, JM, MJ	NMED Split
			R-43 S1	FD		YES	1/21/2014		DF, JM, JJ	FD collected, NMED Split
			R-43 S2			YES	1/21/2014		DF, JM, JJ	NMED Split
General Surveillance	Mortandad	WGR	R-34			YES	1/17/2014		WS. JM	

Other Field Activities	Watershed	Media*	Location Name	QC Assignments **	Location Information	Sampled?				
Discharge Permit Sampling (DCO XX)	Mortandad	WGA	CDBO-6	FD, FTB	DRY	NO	1/23/2014	DRY		DRY
			MCO-4B			YES	1/21/2014		WS, AS, MJ	
			MCO-6			YES	1/21/2014		WS, AS, MJ	
			MCO-7			YES	1/29/2014		WS, AS, JM	

*WS = baseflow, WGS = spring, WGA = alluvial groundwater, WGI = intermediate groundwater, WGR = regional groundwater.
**EQB = equipment rinsate blank, FB = field blank, FD = field duplicate, FTB = field trip blank, MS = matrix spike, PEB = performance evaluation blank.
***Shaded locations are not planned for the current sampling campaign (CANCS = no samples required during current sampling event; CANMY = sampling requirements are complete for the current monitoring year; CPL = cancelled by project lead; CRP = cancelled, removed from plan; INST = not installed; MECH = Mechanical Problem; OSTMP = out of service - temporary; OSPRM = out of service - permanent; AI = area inaccessible)

Status	Weather	Contact Information		Abbreviations
Date:	**Forecast:**	**Project Management Issues:**	**Westbay team lead:**	NS = No Sample Collected FCN = Field Change Notice
1/29/2014	Sunny 40's	Kevin Reid: 663-7108, 412-3996		AS = Abbreviated Sample Suite Collected
Prepared by:	**Fire Danger:**	**Alluvial leads:**	**Waste Managements:**	WB = Westbay Sampling System
W.Shaw	Moderate	Andrew Stocker: 500-6935, W.Shaw 970-988-8913	Kevin Reid	IS = Indicator Suite
Sampling Event:	**Wind:**	**Regional/intermediate wells team leads:**	**Sample plan**	FAS = Full Analytical Suite
Pajarito Q2; Mortandad/Sandia Q2	Moderate	David Fellenz: 412-5409, William Shaw:970-988-8913	P.Baucom 412-3998 or 663-7114	GDP = Groundwater Discharge Permit
Status:	**Precipitation:**	Megan Green: 663-7153		MS = Matrix Spike
Day 23	None			NMED = New Mexico Environmental Department

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4521

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Mortandad

SAMPLE ID: CAMO-14-49723

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):			**MEDIA:**	UA	
PRS ID:			**SAMPLE TECH CODE:**	UA	
LOCATION ID:	R-37 S1		**FIELD PREP:**	UF	
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	P1A		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL		
	WSP-LL-H-3	1 LITER POLY	1	NONE		

SAMPLE COMMENTS:

Samples Not Collected

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4521

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Mortandad

SAMPLE ID: CAMO-14-49719

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):			**MEDIA:**	UA	
PRS ID:			**SAMPLE TECH CODE:**	UA	
LOCATION ID:	R-37 S1		**FIELD PREP:**	UF	
LOCATION TYPE:			**FIELD QC TYPE:**	FB	
PORT:	P1A		**SAMPLE USAGE:**	QC	

1/22/14

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL		

SAMPLE COMMENTS:

Samples Not Collected

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4521

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Mortandad

SAMPLE ID: CAMO-14-49720

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):			**MEDIA:**	UA	
PRS ID:			**SAMPLE TECH CODE:**	UA	
LOCATION ID:	R-37 S1		**FIELD PREP:**	UF	
LOCATION TYPE:			**FIELD QC TYPE:**	RTB	
PORT:	P1A		**SAMPLE USAGE:**	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL		

SAMPLE COMMENTS:

LOCATION COMMENTS:

Samples Not Collect

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

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R-37 S1 visit 1

01/09/14

0700 Health and Safety Meeting at TA-64, Shaw
0740 Calibrate YSI 20 at TA-64, Woody (EP2011-0073, page 58)
0840 On site R-37

Personnel: Jojola, Rappe, Woody
Safety Nitrogen trailer pressure system, tripping hazards
Weather: Sun, 40's (°F), slightly overcast
Objective: Sample R-37 S1 per RSP documents (EP2010-0251, Vol XII, pg)

LSD = 6870.59 'msl V = 5960.63 'msl
TD = TOP = 959.3 'bgs DTW = LSD − V = 909.96 'bgs
DP = DTW((0.006 gal/ft)) = 5.5 gal
WC = TD − DTW = 49.3
1CV = WC(1.02 gal/ft) = 50.3 gal
3CV = 1CV(3) = 150.9 gal

0920 Pump on (170 PSI) – historical norm as per actuation/pumping water to surface

~~Q manual = DW 01/09/14~~
~~For Q =~~
~~YSI 20 "R-37S1 01-09-14"~~

0923 No water to surface: Crew discovers Bennett water outlet has ice in it. System depressurized

0925 Crew attempts to penetrate ice using a thin stainless tube. Tube returns to surface wet. Prior experience suggests that puncturing ice or even pushing the ice plug downward yields enough volume for purge water to pass through, further melting the ice in the process. (tree system removed prior to plunging)

0945 ~~1000~~ – system repressurized = no water (tree assembly re-installed)

DW 01/09/14

* regulator behaving oddly
  - Baski regulator with 625 PSI pressure relief
  - Not appropriate regulator, but the only type available from TA-64. Bennetts should not be run higher than around 170-190 PSI (approximately.)

1015 · Call made to McFarland: STR's advice = call Helland
1100 · Helland returns call: He will check system.
1115 · Helland on site, confirms regulator malfunction
1130 · Helland returns regulator to TA-64 for testing
1215 · Hellands informs crew: he will return
1230 · Helland returns. Attempts Fail

R-37 S1 visit 1

01/09/14

1315 Call to S. White. Probability high that pump and lines intact but that ice plug preventing flow and all nitrogen pressure bypassing pump. (to exhaust) This is true up to 170 PSI.

1320 Crew breaks down sampling set-up

1325 Call to McFarland to explain situation
Helland still unsure that reguiatorgager working correctly
OR that low flow orifice is causing pressure flow problems

1345 off site to TA-64

SUMMARY: Sampling unsuccessful

David Woody
01/09/14

R-37 SI

1/22/14

0700 D. Fellenz conducts health and safety tailgate at TA-64

0730 J. Jordan calibrates YSI #20 at TA-64, see calibration log book EP2011-0073 page 59 for details

0940 Crew on site at R-37 (D. Fellenz, M. Shendo, J. Jordan)
2 Minute Safety: Pressure systems, trips, splashes
Weather: 40's, Partly cloudy, light breeze
Objective: Purge and sample R-37 SI per applicable documents on page 3

0945 Connect to transducer (level troll) with Rugged Reader #1

Note: This is a dual pump well with a dedicated RSP and GSP pump

Note: The following info is from historicals and well completion data

LSD = 6870.60' msl $\underline{V}$ = 5960.55' msl

TD = TOP = 959.3' bgs DTW = LSD - $\underline{V}$ = 910.05' bgs

DP = (0.006 gal/ft) DTW = 5.5 gal WC = TD - DTW = 49.25'

1CV = (1.02 gal/ft) WC = 50.2 gal

3CV = 3(1CV) = 150.6 gal; Total to sample = 3CV + DP = 156.1 gal

0953 Pump on (venting) to 150 psi needs to be at 170 psi for water, but regulator tops out at 150 psi

0957 G. Helland informed, will come on site to evaluate

1010 G. Helland on site

1012 Pump off to swap out regulators

1017 Pump on with new regulator (venting) to 130 psi

1019 Pump off

Note: Both of the above mentioned regulators have a flow restricting orifice which appears to be regulating flow to no higher than 160 psi

1025 A third regulator without the flow restricting orifice is used, pressure can be brought up to 170 psi pump on, but still only venting (no water)

1028 Pressure increased to 185 psi, still no water, pump off

1030 Well is checked for obstructions (ice), but plunger can be inserted full 20' which suggests no ice in system

Summary: Well not sampled due to mechanical problems.

Note: Crew attempted to call STR (R. Reynolds), however, he did not answer and his voicemail was full so K. Reid notified and will inform appropriate personnel.

1050 All personnel off site
DF 1/22/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4521

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Mortandad

SAMPLE ID: CAMO-14-49724

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/7/2014 ~~1/14~~ MS 1/7/14	**FIELD MATRIX:** WG		o/c
TIME COLLECTED (HH:MM):		1114	**MEDIA:** UA		↓
PRS ID:		o/c	**SAMPLE TECH CODE:** UA		GSP
LOCATION ID: R-37 S2		↓	**FIELD PREP:** UF		o/c
LOCATION TYPE: MON		↓	**FIELD QC TYPE:** REG		↓
PORT: P2A		↓	**SAMPLE USAGE:** INV		↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	y	NA
NA	WSP-LL-H-3	1 LITER POLY	1	NONE	y	NA

SAMPLE COMMENTS: generator Running about 50' away.

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen 7.5 mg/L Flow (in gpm) 9.37 GPM Oxidation-Reduction Potential -35.6 mV

pH 7.78 SU Specific Conductance 133 uS/cm Temperature 18.37 deg C

Turbidity 0.6 NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Maurice Shendo (Signature) [signature]	1/7/14 1200	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	1/7/14 1200
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4521

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Mortandad

SAMPLE ID: CAMO-14-49721

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/7/2014	FIELD MATRIX: WG		o/c
TIME COLLECTED (HH:MM):		1114	MEDIA: UA		↓
PRS ID:		o/c	SAMPLE TECH CODE: UA		MS 1/7/14 ~~GST~~ DC
LOCATION ID: R-37 S2		↓	FIELD PREP: UF		o/c
LOCATION TYPE:		↓	FIELD QC TYPE: FTB		↓
PORT: P2A		↓	SAMPLE USAGE: QC		↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	3	MS HCL 1/7/14	Y	NA

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Maurice Shendo (Signature)	1/7/14 1200	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	1/7/14 1200
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 01/06/2014

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R-37 S2

0700 Health & Safety tailgate conducted by D. Fellenz
Kick off meet for watershed.
0800 D. Fellenz calibrates YSI #10
1015 on site @ R-37 S2
2 min Safety: cold weather, stay warm, Electrical.
Weather: Low 40's partly cloudy
Field crew: D. Fellenz, M. Jojola, & M. Shendo
Objective: Purge & Sample R-37 S2 with GSP & diesel generator in Accordance with procedures on p. 3
TOC = 5853.23' msl TD = 1068.8' bgs
LSD = 6870.6' msl
DTW = LSD − TOC = 1017.37' bgs
WC = TD − DTW = 51.43'
DP = DTW (0.041 gal/ft) = 41.71
1CV = WC (1.02 gal/ft) = 52.45
3CV = 1CV X 3 = 157.35
1044 Pump on, water to surface.
1046 M. Jojola measure Q = 9.37
1106 keep pursing on DO not stable.
1114 start sampling
1115 end sampling, pump off.
Objective met. Purged and sampled R-37 S2 in Accordance with procedures on p. 3.
Notes: ground water sampling log on p. 137
Compliance checklist on p. 138
1140 off site
1200 at SMO Relonquishing samples to S. Sherwood.
Event ID: 4521
Sample ID: CAMO-14-49724, 49721

1/7/14

137

MS 1/7/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6870.6 ft. msl	Well Diameter: 5 inches	Date: 1/7/14
Watershed: Pajarito	Water Level: 5853.23 ft. msl	Top of Screen: 5844.6 ft.	Notes: NA
Well: R37 S2	*TD: 1068.8' bgs	Bottom of Screen: 5824.0 ft.	
Sampling Device: GSP	*DTW: 1017.37' bgs	Water Column: 51.43 ft.	
Measuring Point: LSD	Drop Pipe: 41.71 gal.	1CV: 52.45 gal.	Packer Pressure
* Completion Depth: TD		3CV: 157.35 gal.	Before: 220 psi
			Actuation: NA psi
			Opening: NA psi
			After: 220 psi

[* ft. BTOC / BTIC / BGS / MSL] Note height of TOC/TIC on MP for Alluvials

DTW = (LSD - Water Level). .Water Column = (TD - DTW). .Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1044	Pump on, water to surface								
1049	7.47	11.49	134	7.84	0.7	-11.4	5851.92	9.37	clear, no odor no effervescence
1052	7.49	16.14	134	6.57	1.9	-19.2	5851.86		"
1055	7.48	16.80	134	7.05	1.2	-26.2	5851.81		"
1058	7.54	17.17	134	6.93	1.1	-33.5	5851.80		"
1101	7.58	17.48	134	7.28	1.2	-34.4	5851.78		"
1104	7.64	17.83	135	6.81	1.0	-37.4	5851.77		clear, no odor effervescence
1107	7.72	18.25	133	7.39	0.7	-37.4	5851.75		"
1110	7.75	18.33	133	7.38	0.6	-36.9	5851.74		"
1113	7.78	18.37	133	7.50	0.6	-35.6	5851.72		"
1114	start sampling								
1115	End sampling, Pump off.								

MS 1/7/14

Final Water Level: 5851.74

*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)

WASTE

Contact: 1/4	gal.	Drum#: Municipal	
Purge Water: 224.88	gal.	Drum#'s: 10171950	550 gal Tank
Total Waste Water: 290	gal.		

MS 1/7/14

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NLS 1/7/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R 37 S2

Date: 1/7/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 41.71 3 CVs: 157.35	46.85	224.88	4	Y N	DO not stable at 3cv's

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1107	7.72	133	7.39	0.7	DO not stable at 3cv's
1110	7.75	133	7.38	0.6	
1113	7.78	133	7.50	0.6	
Calculations:	Upper: 7.78 Lower: 7.72 Difference: 0.06	Median: 133 Upper: 137 Lower: 129	Upper: 7.50 Lower: 7.38 Difference: 0.12	Median: NA Upper: NA Lower: NA	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	NA

NLS 1/7/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4521

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Mortandad

SAMPLE ID: CAMO-14-49725

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/08/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1127	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-55 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen 6.24 mg/L Flow (in gpm) 2.77 GPM Oxidation-Reduction Potential 144.5 mV

pH 8.23 SU Specific Conductance 176 uS/cm Temperature 21.15 deg C

Turbidity 0.25 NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellenz (Signature)	1/8/14 1205	(Printed Name) D. Sherwood (Signature)	1/8/14 1205
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4521

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Mortandad

SAMPLE ID: CAMO-14-49722

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):	01/08/2014		FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):	1127		MEDIA:	UA	↓
PRS ID:	OK		SAMPLE TECH CODE:	UA	OK
LOCATION ID:	R-55 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:			FIELD QC TYPE:	FTB	↓
PORT:	P1A		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL 1 OF 1/8/14	Y	NA

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) D. Woody

RELINQUISHED BY (Printed Name) David Fellenz (Signature)	Date/Time 1/8/14 1205	RECEIVED BY (Printed Name) S. Sherwood (Signature) Sheri Sherwood	Date/Time 1/8/14 1205
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

R-55 S1

1/8/14

0700 W. Shaw conducts health and safety tailgate at TA-64
0745 J. Jordan calibrates YSI #20 at TA-64, see calibration log book EP2014-0073 page 58 for details
0855 Crew (D. Fellenz, B. Rappe, D. Woody, J. Jordan) on site at R-55
2 Minute safety: Electrical and pressure systems, splashes, trips
Weather: 40's, Sunny, light breeze
Objective: Purge and sample R-55 S1 per applicable documents on p. 3
0905 Connect to Transducer (level troll) with Rugged Reader # 2
Note: This is a dual screened Baski with a dedicated GSP pump
Note: The following data is from historicals and well completion info
LSD = 6533.86' msl $\bar{V}$ = 5697.97' msl
TD = TOP = 945.3' bgs DTW = LSD − $\bar{V}$ = 835.89' bgs
DP = (0.041 gal/ft) DTW = 34.3 gal WC = TD − DTW = 109.41'
1CV = (1.02 gal/ft) WC = 111.6 gal
3CV = 3(1CV) = 334.8 gal
0911 Open APV from 245 psi to 252 psi with 480 psi
0912 Generator on
0913 Pump on
0913 Water to surface; Q = 2.67 gpm (manual using carboy)
0926 DP clear (34.5 gal); Begin loggin parameters (File: R-55S1)
0926 ~~Note:~~ DF 1/8/14 Q = 2.77 gpm (manual using carboy); Negative turbidity on YSI, crew uses Hach # 2 for turbidity reading
1127 Begin sampling
1129 Sampling complete, pump off; Generator off
1131 Close APV, ending packer pressure 248 psi
1133 Disconnect from transducer
Note: See pages 46-47 of this log book for parameters, final $\bar{V}$, final parameters, waste info, compliance checklist
Summary: Crew successfully samples R-55 S1
1145 Crew off site
1205 Submit samples to SMO c/o: S. Sherwood
Event ID: 4521
Sample ID's: CAMO-14-49722, 49725

David Fellenz 1/8/14

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1/8/14

R-55 S1 Continued

1/8/14

David Fellenz 1/8/14

Groundwater Sampling Log

Project: IFWSMP MY2013	LSD: 6533.86 ft. msl	Well Diameter: 5 inches		Date: 1/8/14
Watershed: Pajarito	Water Level: 5697.97 ft. msl	Top of Screen: 5673.9 ft.msl		Notes: Hach #2 used to collect Turbidity
Well: R-55 S1	*TD: TOP = 945.3' bgs	Bottom of Screen: 5653.3 ft.msl		
Sampling Device: GSP	*DTW: 835.89' bgs	Water Column: 109.41 ft.		
Measuring Point: LSD	Drop Pipe: 34.3 gal.	1CV: 111.6 gal.		Packer Pressure
* Completion Depth: TD		3CV: 334.8 gal.		Before: 245 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials			Actuation: 480 psi
				Opening: 252 psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier) 1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)				After: 248 psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0913	Pump on; Water to surface								
0926	8.43	15.46	174	4.84	1.16	146.8	5697.86	2.77	clear, odorless
0941	8.43	19.33	176	4.13	0.46	136.7	5697.81		
0956	8.55	20.43	176	5.35	0.37	138.6	5697.83		
1011	8.38	20.47	176	5.91	0.30	142.2	5697.85		
1026	8.34	20.76	176	6.06	0.22	140.4	5697.85		166 gal. purged
1041	8.31	20.82	176	5.86	0.28	140.6	5697.85		clear, odorless
1056	8.26	20.90	176	6.16	0.35	142.8	5697.88		
1111	8.24	20.99	176	6.20	0.36	142.5	5697.88		
1186	8.25	21.05	175	6.21	0.32	143.4	5697.89		
1121	8.24	21.13	175	6.22	0.33	144.0	5697.87		
1126	8.23	21.15	176	6.24	0.25	144.5	5697.86		
1127	Begin sampling								335 gal. purged
1129	Sampling complete								
	David Fellenz					1/8/14			

WASTE

Contact: 1/4 gal.	Drum#: Municipal	Final Water Level: 5697.90' msl	
*Purge Water: 335 gal.	Drum#'s: 10171956	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)	
Total Waste Water: 385 gal.			

David Fellenz 1/8/14

1/8/14

David Fellenz

Well Nam
Date: 1

Dischar calculati metho

Flow Me
Manua

Parame collecte prope interva (HH:M
1116
112
112

Calculat

SOI Require Met

R-55 S1 Continued

47

1/8/14

David Fellenz 1/8/14

DF 11/5/13

SOP-20032 ~~Rev. 4~~ Compliance Checklist

Rev. 3

Well Name: R-55 S1

Date: 1/8/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 34.3 3 CVs: 334.8	34.5	335	3.0	(Y) N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (<10 NTU) or ± 10%,	Comments:
1116	8.25	175	6.21	0.32	
1121	8.24	175	6.22	0.33	
1126	8.23	176	6.24	0.25	
Calculations.	Upper: 8.25 Lower: 8.23 Difference: 0.02	Median: 175 Upper: 180 Lower: 160	Upper: 6.24 Lower: 6.21 Difference: 0.03	Median: NA Upper: NA Lower: NA	NA
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	NA

David Fellenz 1/8/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520 **EVENT NAME:** Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49709 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/07/14 OW 01/07/14 2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1036	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-23		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
NA	WSP-LL-H-3	1 LITER POLY	1	NONE	Y	NA

SAMPLE COMMENTS: Samples taken within 50' of a running diesel generator.

LOCATION COMMENTS: None

FIELD PARAMETERS:

Dissolved Oxygen 6.71 mg/L Flow (in gpm) 10 GPM Oxidation-Reduction Potential 125.2 mV

pH 8.12 SU Specific Conductance 169 uS/cm Temperature 21.50 deg C

Turbidity 0.0 NTU

COLLECTED BY (PRINT) J Jordan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	01/07/14 1130	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	01/07/14 1130
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49702

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/07/~~14~~ 2014 DW 01/07/14	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1036	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-23		FIELD PREP:	UF	OK
LOCATION TYPE:			FIELD QC TYPE:	FD	
PORT:	SINGLE COMPLETION	✓	SAMPLE USAGE:	QC	✓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
NA	WSP-LL-H-3	1 LITER POLY	1	NONE	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS: DW 01/07/14

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) J Maze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	01/07/14 1130	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	01/07/14 1130
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49704

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/07/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1036	MEDIA:	UA	OK
PRS ID:		OK	SAMPLE TECH CODE:	UA	DW 01/07/14 ~~GSP~~ DC
LOCATION ID:	R-23		FIELD PREP:	UF	OK
LOCATION TYPE:			FIELD QC TYPE:	FTB	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	~~2~~ 1	DW 01/07/14 HCL	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS: DW 01/07/14

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ µS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) J Maze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) D Woody (Signature) David Woody	01/07/14 1130	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	01/07/14 1130
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520 **EVENT NAME:** Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49700 **WORK ORDER:**

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/07/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1036	MEDIA:	UA	OK
PRS ID:		OV	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-23	✓	FIELD PREP:	UF	OK
LOCATION TYPE:		✓	FIELD QC TYPE:	FB	✓
PORT:	SINGLE COMPLETION	✓	SAMPLE USAGE:	INV	✓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS: DW 01/07/14

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) J Jordan

RELINQUISHED BY (Printed Name) D Woody (Signature) David Woody	Date/Time 01/07/14 1130	**RECEIVED BY** (Printed Name) S. Sherwood (Signature) Sheri Sherwood	Date/Time 01/07/14 1130
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	**RECEIVED BY** (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

01/07/14

R-23

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DW 01/07/14 Bailey Wesley

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6527.75 ft. msl	Well Diameter: ID 4.5 inches	Date: 01/07/14
Watershed: PAJ Q2	Water Level: 5695.99 ft. msl	Top of Screen: 5711.75 ft. msl	Notes:
Well: R-23	*TD: 886.3 'bgs	Bottom of Screen: 5654.75 ft. msl	None
Sampling Device: GSP	*DTW: 831.76 'bgs	Water Column: 54.54 ft.	
Measuring Point: LSD	Drop Pipe: 34.1 gal.	1CV: 45.1 gal.	Packer Pressure
* Completion Depth: TD	NA	3CV: 135.3 gal.	Before: NA psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: ____ psi
			Opening: ____ psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier) 1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			After: ____ psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				clear
1021	7.42	13.87	165	4.14	0.0	136.0	5695.21	10	no odor very little effervescence
1024	7.52	14.62	164	4.92	2.4	134.9	5695.20		clear no odor
1027	7.92	20.93	167	6.62	1.0	124.0	5695.20		
1030	8.09	21.33	168	6.70	0.3	122.8	5695.21		
1033	8.11	21.51	169	6.70	0.1	123.8	5695.23		
1036	8.12	21.50	169	6.71	0.0	125.2	5695.24		

JW 01/07/14

WASTE

Contact: 1/2 gal.	Drum#: NA (Municipal)	Final Water Level: 5695.24 'msl
*Purge Water: 150 gal.	Drum#'s: 10171955	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water: 250 gal.	550 tank	

DW 01/07/14 Bailey Wesley

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R-23

01/07/14

MST 0700 Health and Safety Meeting at TA-64, Fellenz

0800 Calibrate YSI 20 at TA-64, Jordan (EP2011-0073 page 58)

0945 On site R-23

personnel - Jordan, Maze, Woody

safety - Cold exposure, electrical system, "slow start"

weather - 28 °F, light wind, Sun

objective - Sample R-23 per GSP documents (EP2010-0251 V. XII pg-3)

LSD = 6527.75' msl I = 5695.99' msl

TD = 886.3' bgs DTW = LSD − I = 831.76' bgs

DP = DTW(.041 gal/ft) = 34.1 gal

WC = TD − DTW = 54.54

1CV = WC(.826 gal/ft) = 45.1 gal

3CV = 1CV(3) = 135.3 gal

1016 Pump on

1017 Water to surface

Q manual =

For Q = 10gpm and DP = 34.1 gal, 4 min to clear DP

YSI 20 "R-23 01-07-14"

NOTE: 3 min parameters due to high Q and low purge volume

1021 Parameters begin

DP = 40 gal

For Q = 10gpm and 3CV of 135.3 gal; 3CV purged in 14 min

1036 Sampling begins

Purge = 10gpm (15 min) = 150 gal

1042 Sampling ends / Pump off

Total waste water = DP + Purge + 6min(10 gpm) = 250gal

For Groundwater Sampling Log page 43 } this logbook (as above)
Compliance Checklist page 44

1110 Offsite

SUMMARY: R-23 successfully sampled

FB collected (DI from Rearick)

Parameters stabilized within 3CV. Last vist 5.3CV's needed

1130 SMO - relinquish CAPA-14-49709, 49702, 49704, 49700

DW 01/07/14

01/07/14
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R-23

01/07/14 DW
David Wozniak

DF 11/5/13
SOP-20032 ~~Rev. 4~~ Rev. 3 Compliance Checklist

Well Name: R-23

Date: 01/07/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter	Drop Pipe: 34.1	40	150	250	Y N	None
Manual	3 CVs: 135.3					

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1030	8.09	168	6.70	0.3	None
1033	8.11	169	6.70	0.1	
1036	8.12	169	6.71	0.0	
Calculations:	Upper: 8.12	Median: 169	Upper: 6.71	Median: NA	
	Lower: 8.09	Upper: 174.1	Lower: 6.70	Upper:	
	Difference: 0.03	Lower: 163.9	Difference: 0.01	Lower:	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	None

DW 01/07/14
David Wozniak

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520 **EVENT NAME:** Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49710 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/24/14	FIELD MATRIX:	WG	o/c
TIME COLLECTED (HH:MM):		1024	MEDIA:	UA	↓
PRS ID:		o/c	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-39		FIELD PREP:	UF	o/c
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	y	NA
NA	WSP-LL-H-3	1 LITER POLY	1	NONE	y	NA

SAMPLE COMMENTS: generator Running at 50' away

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.95 mg/L Flow (in gpm) 2.8 GPM Oxidation-Reduction Potential 150.5 mV

pH 8.08 SU Specific Conductance 144 uS/cm Temperature 21.59 deg C

Turbidity 0.2 NTU

COLLECTED BY (PRINT) J. Jordan / M. Jojola.

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Maurice Shendo (Signature)	1/24/14 1125	(Printed Name) M. Montoya (Signature)	1/24/14 1125
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49705

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/24/14	**FIELD MATRIX:**	WG	ok
TIME COLLECTED (HH:MM):		1024	**MEDIA:**	UA	L
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	DC
LOCATION ID:	R-39		**FIELD PREP:**	UF	ok
LOCATION TYPE:			**FIELD QC TYPE:**	FTB	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL US 1/9/14	Y	NA

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Jordan / M. Jojola

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Maurice Shendo (Signature)	1/24/14 1125	(Printed Name) (Signature)	1/24/14 1125
RELINQUISHED BY	**Date/Time**	**RECEIVED BY**	**Date/Time**
(Printed Name) (Signature)		(Printed Name) (Signature)	

Report Date 01/06/2014

1/24/2014 R-39

700 AM Will shaw conducts Hielth & Safety Tailgate @ TA-64.
730 AM Jim Jordan calibrates YSI # 20 (EP2011-0073) Details on page 60.
845 AM On site @ TA-39
CREW: J. Jordan, M. Jojola, M. Shendo
Weather: Temp 20°F High of 40°C, Breezy/partly cloudy.
Safety: Electrical safety, pinch points, warm clothes.
objective: Purge & Sample R-39 per SOP's documents on Page 3, Using GSP & Desil generator.
LSD = 6580.86' msl V = NA A water level meter will be used to find DTW. (Sounder).
DTW = 827.72' BGS TD = 875.57' BGS
DP = DTW (.041 gal/ft) = 33.93 gal
WC = DTW - TD = 47.85 gal
1CV = WC (1.02 gal/ft) = 48.80 gal
3CV = 1CV X 3 = 146.4
921 Pump on, 922 AM water to Surface.
926 J. Jordan Mesures ~~water~~ MLS 1/24/14 gpm Q = 3.15
J. Jordan & M. Jojola Taking water levels.
948 J. Jordan checks Q = 3.0 gpm
1003 J. Jordan checks Q = 2.8 gpm
1018 Taking Extra Reading DO not in compliance.
1024 Start Sampling
1025 End Sampling / pump off.
Note: Final water level at 856.32' bgs due to Sounder Hitting The TD of The slave cylinder, water level last Recorded @ 10:08 AM due to cylinder TD.
Summary: objective met, Purged & Sampled R-39 per SOP. documents on page 3.
Groundwater Sampling log on p. 78
Compliance checklist on p. 79
1105 off site.
1122 at SMO Relinquishing samples to M. Montoya
Event ID: 4520
Sample ID: CAPA-14-49710, 49705

MLS
1/24/14

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R-39

MS 1/24/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6580.86' ft. msl	Well Diameter: 5 inches	Date: 1/24/14
Watershed: Pajarito	Water Level: NA ft. msl	Top of Screen: 859.03 ft.	Notes: NA
Well: R-39	*TD: 875.57' BGS	Bottom of Screen: 869.03 ft.	
Sampling Device: GSP	*DTW: 827.72' BGS	Water Column: 47.85 ft.	
Measuring Point: LSD	Drop Pipe: 33.93 gal.	1CV: 48.80 gal.	Packer Pressure
* Completion Depth: TD		3CV: 146.4 gal.	Before: NA psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: NA psi
DTW = (LSD - Water Level). .Water Column = (TD - DTW). .Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: NA psi
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			After: NA psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. BGS	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
921	Pump on								
922	water to Surface.								
933	7.99	14.75	137	6.27	5.1	126.7	850.13	3.15	clear, no odor, no Effervescence
938	8.15	17.12	144	4.36	0.3	133.0	852.44		
943	8.23	18.91	147	4.70	0.82	135.1	854.51		Hanna #2 used To Take Turb.
948	8.27	20.35	146	5.56	1.81	136.4	855.96	3.00	
953	8.23	20.85	145	6.16	1.6	138.8	856.32		Turb Back To Positive Readings.
958	8.17	21.11	145	6.39	1.9	141.5	856.31		
1003	8.14	21.27	144	6.55	0.9	141.8	856.32	2.80	
1008	8.13	21.40	144	6.43	0.6	143.5	856.32		Sounder Hit TD of Sump Cylinder
1013	8.13	21.51	143	6.78	0.5	145.4	NC		
1018	8.10	21.52	144	6.90	0.3	146.6			
1023	8.08	21.59	144	6.95	0.2	150.5			
1024	Start Sampling								
1025	MS R Stop Sampling / Pump off.								

WASTE				
Contact:	1/4 gal.	Drum#:	Municipal	Final Water Level: 1695 ft 856.32 MS 1/27/14
Purge Water:	170 gal.	Drum#'s:	10171974 305 gal Tank	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	MS 1/24/14 ~~170~~ 175 gal.			

MS 1/24/14

R-39

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MS 1/24/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-39

Date: 1/24/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter	Drop Pipe: 33.93	34.65	170	3.5	Y N	DO not in compliance @ 3cv's.
Manual	3 CVs: 146.4					

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1013	8.13	143	6.78	0.5	DO not in compliance at 3cv's.
1018	8.10	144	6.90	0.3	
1023	8.08	144	6.95	0.2	
Calculations:	Upper: 8.13	Median: 144	Upper: 6.95	Median: NA	
	Lower: 8.08	Upper: 148	Lower: 6.78	Upper: NA	
	Difference: 0.05	Lower: 140	Difference: 0.17	Lower: NA	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	NA

MS 1/24/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520 **EVENT NAME:** Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49711 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/16/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1046	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	↓
LOCATION ID:	R-41 S2	OK	FIELD PREP:	UF	↓
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	Y	↓

SAMPLE COMMENTS: sampled within ~50 ft of diesel generator

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen 6.24 mg/L Flow (in gpm) 2.8 GPM Oxidation-Reduction Potential -90.3 mV

pH 7.90 SU Specific Conductance 162 uS/cm Temperature 20.06 deg C

Turbidity 0.7 NTU

COLLECTED BY (PRINT) D.Fellenz

RELINQUISHED BY (Printed Name) David Fellenz (Signature)	Date/Time 1/16/14 1540	RECEIVED BY (Printed Name) S. Sherwood (Signature) Sheri Sherwood	Date/Time 1/16/14 1540
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49706

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/16/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1046	MEDIA:	UA	
PRS ID:		OK	SAMPLE TECH CODE:	UA	
LOCATION ID:	R-41 S2	OK	FIELD PREP:	UF	
LOCATION TYPE:			FIELD QC TYPE:	FTB	
PORT:	P1A		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL DF 1/16/14	Y	NA

SAMPLE COMMENTS: NONE

LOCATION COMMENTS: NONE

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM ~~Oxidation-Reduction Potential _____ mV~~

pH _____ SU ~~Specific Conductance _____ uS/cm~~ Temperature _____ deg C

~~Turbidity _____ NTU~~ PAR 01/16/14

COLLECTED BY (PRINT) D. Fellenz

RELINQUISHED BY (Printed Name) (Signature) David Fellenz	**Date/Time** 1/16/14 1540	**RECEIVED BY (Printed Name) (Signature)** D. Sherwood	**Date/Time** 1/16/14 1540
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

R-41 S2

01/15/2014

~~0730~~ 0700 W. Shaw conducts health and safety tailgate at TA-6

0740 B. Rappe calibrates YSI #10 at TA-64, see calibration log EP2011-0072 p. 62 for details.

0925 Crew (B. Rappe and D. Fellenz) on site at R-40 S2.
Weather: Low 30's, sunny, clear, light winds
2 minute safety: Slips, trips, falls, TA-54 rod hazard
Objective: Purge and sample R-41 S2 per applicable documents on p. 3.

0928 connect to transducer (level troll) with Rugged Reader #1

Note: ~~This is a single~~ Screen one is dry and screen two will be sampled using a generator and GSP pump.

Note: The following data is from historicals and well completion info:

LSD: 6660.53 msl V: ~~962.06'~~ 5698.47' msl

TD: 997.1' bgs DTW: 962.06' msl ← LSD - V =

DP: DTW (0.041 gal/ft) = 39.4 gal WC = TD - DTW = 35.04'

1CV = WC (1.02 gal/ft) = 35.74 gal

3CV = 3 x 1CV = 107.22 gal

0951 generator on

0952 pump on

0953 water to surface; Q = 2.8 gpm (manual using carboy)

1007 DP clear (42 gal); begin logging parameters (File R41S2B)

1046 Begin sampling

1048 Sampling complete. pump off; generator off

1049 Disconnect from transducer.

Note: See pages 62 and 63 of this log book for parameters, final V, final parameters, waste info, compliance checklist.

Summary: Crew successfully samples R-41 S2

1100 Crew off site

1540 Relinquish samples to SMO c/o: S. Sherwood
Event ID: 4520
Sample ID's: CAPA-14-49711, 49706

David Fellenz 1/16/14

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1/16/14

R-41 S2 continued

David Fellenz 1/16/14

Groundwater Sampling Log

Project: NPDES GWMP MY2013	LSD: 6660.53 ft. msl	Well Diameter: 5 inches	Date: 01-15-14 16
Watershed: Pajarito	Water Level: 5698.47 ft. msl	Top of Screen: 5695.23 ft.	Notes: NA
Well: R-41 S2	*TD: 997.1 bgs	Bottom of Screen: 5685.53 ft.	
Sampling Device: GSD	*DTW: 962.06 msl	Water Column: 35.0 ft.	
Measuring Point: LSD	Drop Pipe: 39.4 gal.	1CV: 35.7 gal.	Packer Pressure
* Completion Depth: 99 TD		3CV: 107.2 gal.	Before: NA psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: psi
			Opening: psi
DTW = (LSD - Water Level). Water Column = (TD - DTW). Drop Pipe = (DTW x Drop Pipe Diameter Multiplier) 1CV = (Water Column x Well Diameter Multiplier) 3 CV = (1CV x 3)			After: psi

TIME MST DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0952	pump on								
0953	water to surface								
1007	7.28	12.96	160	5.67	0.9	-87.6	5698.47	2.8	clear, no odor
1012	7.47	13.96	160	5.19	1.6	-80.9	5698.47	2.8	
1017	7.58	15.89	161	5.40	1.2	-82.2	5698.47	2.8	
1022	7.71	17.47	162	5.77	0.9	-87.7	5698.47		
1027	7.78	18.87	162	5.92	0.9	-89.9	5698.47		
1032	7.84	19.48	163	6.08	0.8	-92.5	5698.47		
1037	7.88	19.82	162	6.14	0.7	-91.8	5698.47		
1042	7.90	20.06	162	6.24	0.7	-90.3	5698.47		
~~1047~~ 1046	Begin sampling								
1048	sampling complete; pump off								

RDL 01/16/14

RDL 01/16/2014

WASTE

Contact: 1/2 gal.	Drum#: municipal	Final Water Level: 5698.47
Purge Water: 107 gal.	Drum#'s: 10171975 ~~10179175~~	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water: 145 gal.	RDL 01/16/14	

David Fellenz 1/16/14

1/16/14

R-41 S2 continued

David Fellenz 1/16/14

DF 11/5/13

SOP-20032 ~~Rev. 4~~ Compliance Checklist

Rev. 3

Well Name: R-41 S2

Date: 01/15/2014 (1/16/14)

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter	Drop Pipe: 39.4	40	107	3	(Y) N	NONE
Manual	3 CVs: 107.2gal					

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1032	7.84	163	6.08	0.8	NONE
1037	7.88	162	6.14	0.7	
1042	7.90	162	6.24	0.7	
Calculations:	Upper: 7.90	Median: 162	Upper: 6.24	Median: 0.7	
	Lower: 7.84	Upper: 163	Lower: 6.08	Upper: 0.8	
	Difference: 0.06	Lower: 162	Difference: 0.16	Lower: 0.7	
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	NONE

1/16/14

David Fellenz 1/16/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49712

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1058	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-56 S1	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA
↓	WSP-LL-H-3	1 LITER POLY	1	NONE	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: diesel generator running 40' away

FIELD PARAMETERS:

Dissolved Oxygen 6.82 mg/L Flow (in gpm) 4.17 GPM Oxidation-Reduction Potential -83.3 mV

pH 8.09 SU Specific Conductance 153 uS/cm Temperature 20.21 deg C

Turbidity 0.31 NTU

COLLECTED BY (PRINT) M. Stenko

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
[illegible]	1/23/14 1225	B. Sherwood [illegible]	1/23/14 1225
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49707

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1158	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	DC
LOCATION ID: R-56 S1			FIELD PREP:	UF	ok
LOCATION TYPE:			FIELD QC TYPE:	FTB	
PORT: P1A			SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL 1/23/14	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

ts 1/23/14

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) M. Stevens

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
	1/23/14 1225	S. Sherwood Sheri Sherwood	1/23/14 1225
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

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1/23/2014 R-56 S1

0700 H&S Safegate performed by W. Shaw @ TA-54

0732 YSI #10 Calibrated by J. Jordan @ TA-54, see log EP2011-0072

0845 crew shot trying to check in @ TA-54 Access Control

0920 crew onsite

crew: A. Stocker, J. Romero, M. Shendo

weather: 20s-30s, overcast - breezy

2 non-safety pressure systems, TA-54 hazards

Objectives: Purge + sample R-56 S1 per SOPs and referenced documents on pg. 3 using a Geotech GSP

0926 wait for RCT to sniff well for Tritium

0938 RCT sniff well for Tritium and passes

0940 connect to level troll pressure transducer

TOC = 5852.51 bis, LSD: 6780.88 msl, TD = top of packer = 1006.7' bgs

DTW = 928.37' bgs WC = 78.33'

1450 DP = (0.041 gal/bf × DTW) = 38.1 gal

5450 1CV = (1.020 gal/bf × WC) = 79.9 gal

3CV = = 239.7 gal

0945 open APV @ 450 psi

0948 pump on, water to surface

0952 named rate = 4.17 gpm

AS 1/23/14 ~~0958~~ 1000 DP closed, begin logging parameters on Groundwater Sampling Log, see SOP Compliance Checklist for Stability, purged 46 gal for DP b/c needed to switch Data logger

1030 begin using HACH Turbidimeter because of negative turbidity on YSI

1058 3CVs purged, parameters stable, Begin Sampling

1101 Sampling Complete, pump off, Objectives Complete

packup

AS 1/23/14 1113 crew offsite after equipment secured

1200 ~~1145~~ crew leave TA-54 Access Control

AS 1/23/14

DS 1/23/14

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Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6780.88 ft. msl	Well Diameter: 5 inches	Date: 1/23/14
Watershed: Pajarito	Water Level: 5852.51 ft. msl	Top of Screen: 5835.9 ft msl	Notes:
Well: R-56 S1	*TD: = top of packer = 1006.7' bgs	Bottom of Screen: 5815.3 ft msl	NA
Sampling Device: bailer/GSP	*DTW: 928.37' bgs	Water Column: 78.33 ft.	
Measuring Point: LSD	Drop Pipe: 38.1 gal.	1CV: 79.9 gal.	Packer Pressure
* Completion Depth: 1078.8' bgs		3CV: 239.7 gal.	Before: 240 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 450 psi
			Opening: 243 psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier) 1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			After: 240 psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0948	Pump on, water to surface								
1000 ~~0958~~	7.49	16.22	150	5.99	2.6	-73.7	58 5849	4.17	clear, colorless
1010	7.88	19.26	151	6.56	0.1	-90.5	5852.50	4.17	
1020	7.99	19.94	152	6.75	0.0	-90.0	5852.51		
1030	8.04	20.04	152	6.77	*0.35	-87.8	5852.50		
1040	8.06	20.28	152	6.77	*0.37	-86.6	5852.48		
1045	8.07	20.29	152	6.77	0.34	-88	5852.49		
1050	8.07	20.28	152	6.79	0.31	-83.8	5852.49		
1055	8.09	20.21	153	6.82	0.31	-83.3	5852.50		
1058	3CVs purged, parameters stable, Begin sampling								
1101	Sampling complete, pump off								
				DS 1/23/14					

WASTE

Contact:	1/2 gal.	Drum#: Municipal	Final Water Level: 5852.47' msl
*Purge Water:	240 gal.	Drum#'s: 10166176 SSO deck	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	290 gal.		

* Begin using HACH turbidimeter b/c of negative YSI turbidity

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AS 1/23/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-56 S1

Date: 1/23/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 381 3 CVs: 239.7	46	246	3	Y N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1045	8.07	152	6.77	0.34	NA
1050	8.07	152	6.79	0.31	
1055	8.09	153	6.82	0.31	
Calculations:	Upper: 8.09 Lower: 8.07 Difference: 0.02	Median: 152 Upper: 157 Lower: 147	Upper: 6.82 Lower: 6.77 Difference: 0.05	Median: 0.31 Upper: <10 Lower: <10	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	All SOPs met, all parameters stable

AS 1/23/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520 **EVENT NAME:** Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49713 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/8/2014	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1220	**MEDIA:**	UA	
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-57 S1		**FIELD PREP:**	UF	OK
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	P1A		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	N/A
	WSP-LL-H-3	1 LITER POLY	1	NONE		

SAMPLE COMMENTS: Diesel generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 4.79 mg/L Flow (in gpm) 3.6 GPM Oxidation-Reduction Potential -50.8 mV

pH 7.73 SU Specific Conductance 141 uS/cm Temperature 18.10 deg C

Turbidity 0.0 NTU

COLLECTED BY (PRINT) M. Shando

RELINQUISHED BY (Printed Name) William Shan **(Signature)**	**Date/Time** 1/8/14 1336	**RECEIVED BY (Printed Name)** M. Martin **(Signature)**	**Date/Time** 1/8/14 1336
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49708

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/8/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1220	MEDIA:	UA	
PRS ID:		OK	SAMPLE TECH CODE:	UA	NC
LOCATION ID:	R-57 S1		FIELD PREP:	UF	ok
LOCATION TYPE:			FIELD QC TYPE:	FTB	
PORT:	P1A		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	X	N/A

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
W. Shaw	1/8/14 1336		1/8/14 1336
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4520

EVENT NAME: Pajarito (TA-54 Monitoring Group) MY2014 Q2 Sampling Event_Pajarito

SAMPLE ID: CAPA-14-49701

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/8/14	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1220	MEDIA:	UA	
PRS ID:		OK	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	R-57 S1		FIELD PREP:	UF	OK
LOCATION TYPE:			FIELD QC TYPE:	FB	
PORT:	P1A		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL	Y	NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

William Shaw 1/8/14

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) M Sojola

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shaw	1/8/14 1336	M. Martyn	1/8/14 1336
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

R-57 S1

1/8/2014

0700 H2S tailgate conducted at TA-64 by W. Shaw per SOP's
0740 Meter #10 calibrated at TA-64 by PWoodyske log# EP-2011-0072
1030 onsite
Invisible safety: Slips, trips, falls, Heavy lifting, Baski pressure system, electrical
Field crew: W. Shaw, M. Shando, M. Tojola
Weather: Sunny H in the 40's
Objectives: Purge and Sample R-57 S1 with a GSP and Diesel Generator in accordance with procedure on p 3
1053 connect to transducer level troll begin recording water level on Nagect reader #4 ws 1/8/13
LSD = 6648.04' msl TD = ~~5758.48' msl~~ ws 1/8/14, TOP = 959' bgs
V = 5758.48' msl
DTW = (LSD - V) = 6648.04 - 5758.48 = 889.56' bgs
WC = TOP - DTW = 959' - 889.56' = 69.4'
DP = DTW (0.041 gal/ft) = 889.56' (0.041 gal/ft) = 36.5 gal
1CV = WC (1.02 gal/ft) = 69.4' (1.02 gal/ft) = 70.8 gal
3CV = 1CV(3) = 212.4 gal
Total purge until sampling begins = 249 gal
Initial tank pressure 1750 psi
Initial packer pressure 240 psi
Apv opens at 420 psi
1108 pump on / water to surface
M Shando measures flow rate $\frac{5 gal}{84 sec} \times 60 sec = 3.6$ gpm
1119 DP cleared start recording parameters on YSI #10
1219 Parameters stable see Compliance checklist for R-57 S1 1/8/13
1220 Sampling begins
1227 Sampling ends / pump off / Objectives complete
1228 Apv closes
ending packer pressure 240 psi
ending tank pressure 1750 psi
1300 offsite
1336 Relinquish samples at SMO c/o M Montoya

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1/8/14

R-57 S1 cont

Sample ID#'s CAPA-14-49703, 49701, 49708
Event ID#4520

1/8/14

Groundwater Sampling Log

Project: FWGMP MY2013	LSD: 6648.04 ft. msl	Well Diameter: 5 inches	Date: 1/8/2014
Watershed: Pajarito	Water Level: 5758.48 ft. msl	Top of Screen: 5738 ft msl	Notes:
Well: R-57 S1	*TD: TOP = 959.0' bgs	Bottom of Screen: 5717 ft msl	N/A
Sampling Device: GSP	*DTW: 889.56' bgs	Water Column: 69.44 ft.	
Measuring Point: LSD	Drop Pipe: 26.5 gal.	1CV: 70.8 gal.	Packer Pressure
* Completion Depth: TD		3CV: 212.4 gal.	Before: 240 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 420 psi
			Opening: 246 psi
			After: 240 psi

DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1108	pump on / water to surface							3.6	
1119	7.43	12.42	139	4.71	0.0	-45.5	5757.29		clear, odorless
1129	7.47	13.72	140	3.02	0.0	-38.1	5757.27		
1139	7.54	15.49	141	3.89	0.1	-47.5	5757.28		
1149	7.58	16.39	141	4.47	0.0	-49.0	5757.27		
1159	7.66	17.26	141	4.78	0.0	-49.2	5757.26		
1209	7.70	17.82	141	4.62	0.0	-47.5	5757.27		
1214	7.71	18.01	141	4.60	0.0	-48.8	5757.27		
1219	7.73	18.10	141	4.79	0.0	-50.8	5757.26		
1220	Sampling begins								
1222	Sampling ends / pump off								

William Shaw 1/8/2014

1/8/14

WASTE

Contact:	0.25 gal.	Drum#:	Municipal
*Purge Water:	216 gal.	Drum#'s:	101 71960
Total Waste Water:	255.6 gal.		

Final Water Level: 5757.26 msl

*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)

William Shaw 1/8/14

William Shaw 1/8/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-5751

Date: 1/8/2014

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 36.5 3 CVs: 212.4	39.6	216	3	Y N	N/A

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1209	7.70	141	4.62	0.0	N/A
1214	7.71	141	4.60	0.0	
1219	7.73	141	4.79	0.0	
Calculations:	Upper: 7.73 Lower: 7.70 Difference: 0.03	Median: 141 Upper: 141 Lower: 141	Upper: 4.79 Lower: 4.69 Difference: 0.19	Median: 0 Upper: 0 Lower: 0	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	N/A

William Shaw 1/8/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49663 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/17/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1106	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	MCOI-6	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generater

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.90 mg/L Flow (in gpm) 1.44 GPM Oxidation-Reduction Potential 159.5 mV

pH 7.03 SU Specific Conductance 585 uS/cm Temperature 14.76 deg C

Turbidity 0.1 NTU

COLLECTED BY (PRINT) M. Jojola

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellows (Signature)	1/17/14 1215	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	1/17/14 1215
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49674

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/17/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1106	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	MCOI-6	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	NA
↓	WSP-CR52/53	1 LITER POLY	1	ICE	↓	↓
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) M. Jojola

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Felleuz (Signature) [signature]	1/17/14 1215	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	1/17/14 1215
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

64

MCOI-6

1/17/14

0700 W. Shaw conducts health and safety tailgate at TA-64
0730 M. Jojola calibrates YSI # 20 at TA-64, see calibration log EP2011-0073 page 59 for details
0850 Crew (D. Fellenz, M. Jojola) on site at MCOI-6
2 Minute Safety: Electrical system, trips, cold, splashes
Weather: Sunny, 30's, calm
Objective: Purge and sample MCOI-6 per applicable documents on p.3
Note: This is a single completion well with a dedicated GSP pump
0857 Connect to transducer (level troll) with Rugged Reader # 2
Note: The following data is from historicals and well completion info
LSD = 6811.1' msl TD = 6152.34' msl
TD = 713.22' bgs DTW = LSD - TD = 658.76' bgs
DP = (0.041 gal/ft) DTW = 27.0 gal WC = TD - DTW = 54.46'
1CV = (0.826 gal/ft) WC = 45.0 gal
3CV = 3(1CV) = 135.0 gal
Total to sample = 3CV + DP = 172 gal
0907 Generator on
0912 Pump on
0913 Water to surface; Q = 1.44 gpm (manual using carboy)
0932 DP clear (27.3 gal.), begin logging parameters (File: MCOI-6)
1106 Begin sampling
Note: Crew collects samples for NMED
1114 Sampling complete, pump off; Generator off
Note: M. Jojola preserves all samples; D. Fellenz QA's
1120 Disconnect from transducer
Note: See pages 65-66 of this log book for parameters, final # final parameters, waste info, compliance checklist
Summary: Crew successfully samples MCOI-6 (Objective met!)
1143 Crew off site
1215 Relinquish samples to SMO c/o: S. Sherwood
Event ID: 4517
Sample ID's: CAMO-14-49663, 49674

David Fellenz 1/17/14

1/17/14

David Fellenz

Project:
Watershed:
Well:
Sampling
Measuring
Complet
ft. BTO
DTW = (L
TIME
MST DS
Stability
0912
093
094
100
101
103
104
105
105
110
110
111
Contac
Purge
Total V

~~MCI~~ MCOI-6 Continued 65

1/17/14 DF 1/17/14

4-64

David Fellenz 1/17/14

Groundwater Sampling Log

Project: IHMSMP MY2013	LSD: 6811.1 ft. msl	Well Diameter: 4.5 inches	Date: 1/17/14
Watershed: Mortandad	Water Level: 6152.34 ft. msl	Top of Screen: 6125.1 ft. msl	Notes:
Well: MCOI-6	*TD: 713.22' bgs	Bottom of Screen: 6102.87 ft. msl	NA
Sampling Device: GSP	*DTW: 658.76' bgs	Water Column: 54.46 ft.	
Measuring Point: LSD	Drop Pipe: 27.0 gal.	1CV: 45.0 gal.	Packer Pressure
Completion Depth: TD		3CV: 135.0 gal.	Before: NA psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: NA psi
			Opening: NA psi
			After: NA psi

DTW = (LSD - Water Level). Water Column = (TD - DTW). Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)
1CV = (Water Column x Well Diameter Multiplier). 3 CV = (1CV x 3)

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0912	Pump on; 0913 water to surface								
0932	6.82 7.01 DF 1/17/14	9.00	587	2.52	37.0	166.4	6135.63	1.44	clear, odorless
0947	7.23	13.41	580	6.65	3.6	152.5	6134.78		
1002	7.17	14.42	586	6.87	2.8	152.3	6134.48		
1017	7.09	14.53	586	6.89	1.1	154.9	6134.31		
1032	7.04	14.59	585	6.91	0.5	158.2	6134.25		86.5 gal. purged
1047	7.03	14.65	585	6.90	0.3	159.6	6134.21		clear, odorless
1052	7.03	14.64	585	6.91	0.2	159.6	6134.22		
1057	7.03	14.66	585	6.90	0.2	159.4	6134.20		
1102	7.03	14.76	585	6.90	0.1	159.5	6134.20		
1106	Begin sampling								135.5 gal purged
1114	Sampling complete, pump off								

David Fellenz 1/17/14

WASTE

Contact: 1/2 gal.	Drum#: 10141448		Final Water Level: 6136.79' msl
Purge Water: 135.5 gal.	Drum#'s: 10171965		*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water: 170 gal.		305	

David Fellenz 1/17/14

66
1/17/14

MCOI-6 continued

David Fellenz 1/17/14

DF 11/5/13
SOP-20032 ~~Rev. 4~~ Compliance Checklist
Rev. 3

Well Name: MCOI-6
Date: 1/17/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 27.0 3 CVs: 135.0	27.3	135.5	3.0	(Y) N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (10 NTU) or ± 10%,	Comments:
1052	7.03	585	6.91	0.2	NA
1057	7.03	585	6.90	0.2	
1102	7.03	585	6.90	0.1	
Calculations:	Upper: 7.03 Lower: 7.03 Difference: 0.0	Median: 585 Upper: 603 Lower: 567	Upper: 6.91 Lower: 6.90 Difference: 0.01	Median: NA Upper: NA Lower: NA	
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	NA

David Fellenz 1/17/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49675

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			FIELD MATRIX:	WG	
TIME COLLECTED (HH:MM):			MEDIA:	UA	
PRS ID:			SAMPLE TECH CODE:	UA	
LOCATION ID:	R-28		FIELD PREP:	F	
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	WSP-All Metals	1 LITER POLY	1	HNO3 ICE		
	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49664

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			FIELD MATRIX:	WG	
TIME COLLECTED (HH:MM):			MEDIA:	UA	
PRS ID:			SAMPLE TECH CODE:	UA	
LOCATION ID:	R-28		FIELD PREP:	UF	
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	MSGP-Hg	1 LITER POLY	1	HNO3		
	WSP-CN(T)	250 ML POLY	1	NAOH		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49676

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):			**MEDIA:**	UA	
PRS ID:			**SAMPLE TECH CODE:**	UA	
LOCATION ID:	R-42		**FIELD PREP:**	F	
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	WSP-All Metals	1 LITER POLY	1	HNO3 ICE		
	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49665

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):			**MEDIA:**	UA	
PRS ID:			**SAMPLE TECH CODE:**	UA	
LOCATION ID:	R-42		**FIELD PREP:**	UF	
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	MSGP-Hg	1 LITER POLY	1	HNO3		
	WSP-CN(T)	250 ML POLY	1	NAOH		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49666

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/13/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1241	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-44 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:
Sampled within 50' of running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.86 mg/L Flow (in gpm) 3.37 GPM Oxidation-Reduction Potential -45.9 mV

pH 7.68 SU Specific Conductance 134 uS/cm Temperature 20.50 deg C

Turbidity 0.1 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) BRAPPE	01/13/14 1325	(Printed Name) M. Martin	1/13/14 1325
(Signature)		(Signature)	
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49677

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/13/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1241	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-44 S1	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	NA
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) B. Rappe

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) B Rappe (Signature)	01/13/14 1325	(Printed Name) A. Martin (Signature)	1/13/14 1325
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

R-44 S1 53

1/13/14

0700 W. Shaw conducts health and safety tailgait at TA-64
0745 D. Fellenz calibrates YSI #10 at TA-64, see calibration log book EP2011-0072 page 64 for details
0425 Crew (D. Fellenz, B. Rappe, W. Shaw) on site at R-44
2 Minute Safety: Pressure and electrical systems, trips, splashes
Weather: Sunny, 40's, breezy
Objective: Purge and sample R-44 S1 per applicable documents on p.3
Note: This is a dual screened Baski with a dedicated GSP pump
1130 Connect to transducer (level troll) with Rugged Reader #4
Note: The following data is from historicals and well completion info
LSD = 6714.41' msl V = 5833.60' msl
TD = TOP = 936.3' bgs DTW = LSD - V = 881.31' bgs
DP = (0.041 gal/ft) DTW = 36.1 gal WC = TD - DTW = 54.99'
1 CV = (1.02 gal/ft) WC = 56.1 gal
3 CV = 3 (1 CV) = 168.3 gal
Total to sample = 3 CV + DP = 204.4 gal
1139 Open APV from 232 psi to 240 psi with 450 psi
1140 Pump on
1140 Water to surface; Q = 3.37 gpm (manual using carboy)
1151 DP clear (37 gal.), begin logging parameters (File: R-44 S1)
1241 Begin sampling
1244 M. Dale (NMED) on site
1250 Sampling complete, pump off; Generator off
Note: B. Rappe preserves all samples; W. Shaw QA's
1252 Close APV, final packer pressure 232 psi
1255 Disconnect from transducer
1255 M. Dale off site
Note: See pages 54-55 of this logbook for parameters, final V, final parameters, compliance checklist, waste info
Summary: Crew successfully samples R-44 S1 (Objective met!)
1305 Crew off site
1325 Relinquish samples to SMO c/o: M. Montoya
Event ID: 4517
Sample ID's: CAMO-14-49666, 49677

David Fellenz 1/13/14

1/13/14

54
1/13/14

R-44 S1 continued

David Fellenz 1/13/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6714.91 ft. msl	Well Diameter: 5 inches	Date: 1/13/14
Watershed: Mortandad	Water Level: 5833.60 ft. msl	Top of Screen: 5819.9 ftmsl	Notes:
Well: R-44 S1	*TD: TOP=936.3' bgs	Bottom of Screen: 5809.9 ftmsl	NA
Sampling Device: GSP	*DTW: 881.31' bgs	Water Column: 54.99 ft.	
Measuring Point: LSD	Drop Pipe: 36.1 gal.	1CV: 56.1 gal.	Packer Pressure
* Completion Depth: TD		3CV: 168.3 gal.	Before: 232 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 4150 psi
DTW = (LSD - Water Level). Water Column = (TD - DTW). Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: 240 psi
1CV = (Water Column x Well Diameter Multiplier) . 3 CV = (1CV x 3)			After: 232 psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1140	Pump on, water to surface								
1151	7.82	19.72	142	7.54	0.0	-61.9	5833.30	3.37	clear, odorless
1201	7.65	20.28	135	5.69	0.4	-61.5	5833.31		
1211	7.67	20.80	134	6.43	0.1	-56.2	5833.32		
1221	7.67	20.62	134	6.51	0.1	-52.1	5833.32		
1231	7.67	20.68	134	6.61	0.1	-48.4	5833.33		
1236	7.68	20.64	134	6.71	0.1	-47.3	5833.33		
1241	7.68	20.50	134	6.80	0.1	-45.9	5833.33		
1241	Begin sampling								168.5 gal. purged
1250	Sampling complete, pump off								

David Fellenz 1/13/14

David Fellenz 1/13/14

WASTE			
Contact: 1/2 gal.	Drum#: Municipal	Final Water Level: 5833.35 'msl	
Purge Water: 168.5 gal.	Drum#'s: 10171961	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)	
Total Waste Water: 210 gal.	305		

David Fellenz 1/13/14

1/13/14

R-44 S1 continued

55

1/13/14

David Fellenz 1/13/14

DF 11/5/13

SOP-20032 ~~Rev. 4~~ Compliance Checklist
Rev. 3

Well Name: R-44 S1
Date: 1/13/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 36.1 3 CVs: 168.3	37	168.5	3.0	Y N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity ≤10 NTU or ± 10%,	Comments:
1231	7.67	134	6.61	0.1	NA
1236	7.68	134	6.71	0.1	
1241	7.68	134	6.80	0.1	
Calculations:	Upper: 7.68 Lower: 7.67 Difference: 0.01	Median: 134 Upper: 138 Lower: 130	Upper: 6.80 Lower: 6.61 Difference: 0.19	Median: NA Upper: NA Lower: NA	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	NA

1/13/14

David Fellenz 1/13/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49667

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/13/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1111	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-44 S2	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P2A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 7.24 mg/L Flow (in gpm) 3.37 GPM Oxidation-Reduction Potential -46.4 mV

pH 7.80 SU Specific Conductance 143 uS/cm Temperature 20.25 deg C

Turbidity 0.1 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) William Shaw (Signature)	Date/Time 1/13/14 1325	RECEIVED BY (Printed Name) (Signature)	Date/Time 1/13/14 1325
RELINQUISHED BY (Printed Name) (Signature)	Date/Time 1325	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49678

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/13/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1111	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-44 S2	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P2A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	NA
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) B. Rappe

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) William Shear (Signature)	1/13/14 1325	(Printed Name) M. Montoya (Signature)	4/13/14 1325
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

50 R-44 S2

1/13/14

0700 W. Shaw conducts health and safety tailgate at TA-64
0745 D. Fellenz calibrates YSI #10 at TA-64, see calibration log book EP2011-0072 page 64 for details
0925 Crew (D. Fellenz, B. Rappe, W. Shaw) on site at R-44
2 Minute Safety: Electrical and pressure systems, trips, splashes
Weather: 40's, Sunny, windy
Objective: Purge and sample R-44 S2 per applicable docs on p.3
0931 Generator on
0938 Connect to transducer (level troll) with Rugged Reader #4
Note: This is a dual screened Baski with a dedicated GSP pump
Note: The following data is from historicals and well completion info
LSD = 6714.99' msl TV = 5833.45' msl
TD = 1016.0' bgs DTW = BOP = 941.1' bgs
DP = (0.0419 gal/ft) DTW = 38.6 gal WC = TD - DTW = 74.9'
1CV = (1.02 gal/ft) WC = 76.4 gal
3CV = 3(1CV) = 229.2 gal
Total to sample = 3CV + DP = 267.8 gal
0950 Open APV from 232 psi to 240 psi with 530 psi
0950 Pump on
0950 Water to surface; Q = 3.37 gpm (manual using carboy)
1002 DP clear (40 gal); Begin logging parameters (File: R-44S2)
1107 M. Dale (NMED) on site
1111 Begin sampling
1116 Sampling complete, pump off
Note: W. Shaw preserves all samples; B. Rappe QA's
1118 Close APV, ending packer pressure 232 psi
1119 Disconnect from transducer
1121 M. Dale off site
1125 Begin setting up for R-44 S1
Note: See pages 51-52 of this log book for parameters, final TV, final parameters, waste info, compliance checklist
Summary: Crew successfully samples R-44 S2 (Objective met!)
1305 Crew off site
1325 Relinquish samples to SMO c/o: M. Montoya
Event ID: 4517
Sample ID's: CAMO-14-49667, 49678
DF 1/13/14

1/13/14

David Fellenz

R-44 S2 continued

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1/13/14

David Fellenz 1/13/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6714.91 ft. msl	Well Diameter: 5 inches		Date: 1/13/14
Watershed: Mortandad	Water Level: 5833.45 ft. msl	Top of Screen: 5729.6 ft. msl		Notes: NA
Well: R-44 S2	*TD: 1016.0' bgs	Bottom of Screen: 5719.7 ft. msl		
Sampling Device: GSP	*DTW: BOP = 941.1' bgs	Water Column: 74.9 ft.		
Measuring Point: LSD	Drop Pipe: 38.6 gal.	1CV: 76.4 gal.		Packer Pressure
* Completion Depth: TD		3CV: 229.2 gal.		Before: 232 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials			Actuation: 530 psi
DTW = (LSD - Water Level). .Water Column = (TD - DTW). .Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)				Opening: 240 psi
1CV = (Water Column x Well Diameter Multiplier) . 3 CV = (1CV x 3)				After: 232 psi

TIME MST/DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0950	Pump on, water to surface								
1002	7.12	14.79	133	6.36	0.2	28.5	5832.47	3.37	clear, odorless
1012	7.28	17.62	142	6.60	0.2	-17.7	5832.47		
1022	7.55	19.41	144	7.10	0.1	-40.3	5832.50		
1032	7.69	19.86	144	7.20	0.1	-47.0	5832.51		
1042	7.75	20.12	143	7.18	0.1	-49.2	5832.49		
1052	7.78	20.39	143	7.19	0.0	-48.3	5832.51		
1057	7.79	20.23	143	7.22	0.0	-47.7	5832.51		
1102	7.79	20.28	143	7.21	0.0	-46.9	5832.51		
1107	7.80	20.25	143	7.24	0.1	-46.4	5832.50		
1111	Begin sampling								232.5 gal. purged
1116	Sampling complete; Pump off								

David Fellenz 1/13/14

WASTE

Contact: 1/2 gal.	Drum#: Municipal		Final Water Level: 5832.52' msl
Purge Water: 232.5 gal.	Drum#'s: 10171962	550	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water: 275 gal.			

David Fellenz 1/13/14

52
1/13/14

R-44 S2 continued

David Fellenz 1/13/14

DF 11/5/13
SOP-20032 ~~Rev. 4~~ Compliance Checklist
Rev 3

Well Name: R-44 S2
Date: 1/13/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter / Manual	Drop Pipe: 38.6 / 3 CVs: 229.2	40	232.5	3.0	Y N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1057	7.79	143	7.22	0.0	NA
1102	7.79	143	7.21	0.0	
1107	7.80	143	7.24	0.1	
Calculations:	Upper: 7.80 / Lower: 7.79 / Difference: 0.01	Median: 143 / Upper: 147 / Lower: 139	Upper: 7.24 / Lower: 7.21 / Difference: 0.03	Median: NA / Upper: NA / Lower: NA	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	NA

David Fellenz 1/13/14

1/13/14
0700 W
0745 D.
lo
0425 Cr
2
W
Ob
Note: Th
1130 C
Note: T
L
T
D
1
3
T
1139 C
1140 1
1140 1
1151 1
1241
1244
1250
Note:
1252
1255
1255
Note:
Summary
1305
1325

D

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49660

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/14/2014	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1256	MEDIA:	UA	
PRS ID:		016	SAMPLE TECH CODE:	UA	DC
LOCATION ID:	DF 1/14/14 ~~R-44 S1~~	R-45 S1	FIELD PREP:	UF	ok
LOCATION TYPE:		ok	FIELD QC TYPE:	PEB	
PORT:	P1A		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	MSGP-Hg	1 LITER POLY	1	HNO3	X	N/A
	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL		
	WSP-All Metals	1 LITER POLY	1	HNO3 ICE		
	WSP-CN(T)	250 ML POLY	1	NAOH		
	WSP-CR52/53	1 LITER POLY	1	ICE		
	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE		
	WSP-LL-H-3	1 LITER POLY	1	NONE		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

Analyses continued on next page

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49660

WORK ORDER:

SAMPLE COMMENTS: DI from M. Reavicks Lab

LOCATION COMMENTS: Mt

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	**Date/Time** 1/14/14 13:6	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time** 1/14/14 1:16
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/07/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49679

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/14/14	FIELD MATRIX: WG		ok
TIME COLLECTED (HH:MM):		1217	MEDIA: UA		
PRS ID:		ok	SAMPLE TECH CODE: UA		GSP
LOCATION ID: R-45 S1			FIELD PREP: F		ok
LOCATION TYPE: MON			FIELD QC TYPE: REG		
PORT: P1A			SAMPLE USAGE: INV		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-CR52/53	1 LITER POLY	1	ICE	Y	N/A

SAMPLE COMMENTS: Diesel generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 7.21 mg/L Flow (in gpm) 3.6 GPM Oxidation-Reduction Potential 129.2 mV

pH 7.77 SU Specific Conductance 182 uS/cm Temperature 20.33 deg C

Turbidity 0.21 NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) William Shaw (Signature)	Date/Time 1/14/14 1316	RECEIVED BY (Printed Name) N. Martin (Signature)	Date/Time 1/14/14 1316
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

1/14/14 R-45 51 33

see p 30 for HTS tailgate and Calibration information
2 minute safety: slips, trips, falls, pressure systems, electrical
Field crew: W. Shaw, M. Shendo, J Maze
Weather: sunny 40's light wind
Objectives: Purge and Sample R-45 51 with a diesel generator and GSP in accordance with procedures on p3.

1107 Connect to transducer (level troll) begin logging water level on nugget vender #12
TOC = 5833.22' msl
LSP = 6704.02' msl TD = TOP = 921.31' bgs
DTW = (LSP − TOC) = 6704.02' − 5833.22' = 870.8' bgs
WC = (TD − DTW) = 921.31' − 870.8' = 50.51'
PP = (0.041 gal/ft) DTW = (0.041 gal/ft)(870.8') = 35.7 gal
1CV = (1.020 gal/ft) WC = (1.020 gal/ft)(50.51') = 51.5 gal
3CV = 1CV(3) = 155 gal
total purge until sampling begins ≈ 190 gal
Apv opens at 460 psi / initial packer pressure 230 psi
1120 pump on / water to surface
M. Shendo measures flow rate $\frac{5 gal}{83} \times 60 sec = 3.6$ gpm
1130 DP cleaned begin logging parameters on YSI #20
1202 S. Yanicek onsite
DP + 3CV's purged parameters stable see compliance checklist for R-45 51 Pajarito Q2
1217 Sampling begins
1217 sampling ends
1221 pump off
Objectives complete R-45 51 purged and sampled with a diesel generator and GSP in accordance with procedures on p3.
Apv closes
Final packer pressure 220 psi / Final tank pressure 1450 psi
S. Yanicek offsite
1232 Offsite
Event ~~ID#~~ ~~441~~ 4517
Sample ~~ID#~~ LAMO-14-49679, 49660

34

1/14/14

R-45 51 con't

1316 Relinquish samples at SMO c/o M Montoya

William Shaw 1/14/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-45 51

Date: 1/14/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter / Manual	Drop Pipe: 35.7 / 3 CVs: 155	36.0	169.2	3	Y N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1205	7.80	182	7.20	0.30	NA
1210	7.76	177	7.21	0.29	
1215	7.77	182	7.21	0.21	
Calculations:	Upper: 7.80 / Lower: 7.76 / Difference: 0.04	Median: 182 / Upper: 182 / Lower: 177	Upper: 7.21 / Lower: 7.20 / Difference: 0.01	Median: 0.29 / Upper: 0.30 / Lower: 0.21	
	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	NA

William Shaw 1/14/14

R-45 51 con't

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 5704.02 ft. msl	Well Diameter: 5.0 inches	Date: 1/14/14
Watershed: Mortandad	Water Level: 5833.22 ft. msl	Top of Screen: 5824.0 ft.msl	Notes: N/A
Well: R-45 51	*TD: TOP= 921.31	Bottom of Screen: 5814.0 ft.msl	
Sampling Device: GSP	*DTW: 870.81' bgs	Water Column: 50.51 ft.	
Measuring Point: LSD	Drop Pipe: 35.7 gal.	1CV: 51.5 gal.	Packer Pressure
* Completion Depth: TD		3CV: 155 gal.	Before: 230 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 460 psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier) 1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			Opening: 240 psi
			After: 220 psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1120	pump on/water to surface							3.6	
1130	8.21	17.55	169	7.49	0.6	109.2	5832.78		clear, odorless
1135	7.82	18.67	169	7.65	0.45	117.3	5832.78		
1140	7.91	19.69	178	6.29	0.25	113.0	5832.79		
1145	7.91	20.43	180	6.83	0.32	115.5	5832.79		
1150	7.89	20.39	182	7.10	0.34	117.8	5832.79		
1155	7.85	20.45	182	7.14	0.61	121.8	5832.80		
1200	7.83	20.64	182	7.18	0.32	123.8	5832.79		
1205	7.80	20.35	182	7.20	0.30	126.4	5832.80		
1210	7.76	20.37	177	7.21	0.29	127.7	5832.81		
1215	7.77	20.33	182	7.21	0.21	129.2	5832.81		
1217	Sampling begins								
1217	Sampling ends								
1221	pump off								
			William Shaw			1/14/14			

WASTE

Contact:	0.25 gal.	Drum#:	Municipal
*Purge Water:	169.2 gal.	Drum#'s:	1017963
Total Waste Water:	205.2 gal.		

Final Water Level: 5832.81' msl

*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)

William Shaw 1/14/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49680

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/14/14	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1047	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-45 S2		FIELD PREP:	F	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
Y	WSP-CR52/53	1 LITER POLY	1	ICE	Y	N/A

SAMPLE COMMENTS: Diesel Generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 6.26 mg/L Flow (in gpm) 3.6 GPM Oxidation-Reduction Potential 158.1 mV

pH 8.14 SU Specific Conductance 169 uS/cm Temperature 17.87 deg C

Turbidity 0.34 NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shea	1/14/14 1316	[illegible]	1/14/13 1:16
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

30
1/14/14

R-45 S2

0700 HTS Tailgate conducted at TA-64 by W. Shaw per SOP's
07 Meter #20 calibrated at TA-64 by W. Shaw see log # EP 2011-0073
0850 onsite
2 minute safety: slips, trips, falls, pressure systems, electrical
Field crew: W. Shaw, M Shando, J. Maze
Weather: Sunny H 40's
Objectives: Purge and Sample R-45 S2 with a GSP and Deisel Generator in accordance with procedures on p3

0909 Connect to transducer (level troll); start logging on Puget reader #2
TOC = 5833.38' msl
ESD = 6704.02' msl TD = 1016.0' bgs
DTW = BOP = 926' bgs
WC = DTW - TD = 1016.0 - 926 = 90'
DP = (0.041 gal/ft) DTW = (0.041 gal/ft) 926' = 38.0 gal
ICV = (1.020 gal/ft) WC = 1.020 gal/ft (90') = 92 gal
3CV = 1CV(3) = 276 gal
Total purge until sampling begins = 313.4 gal
Initial packer pressure = 230 psi
Initial tank pressure = 1500 psi
APV opens at 460 psi
0919 pump on / water to surface
0924 M Shando measures flow rate $\frac{5\,gal}{8\,sec} \times 60\,sec = 3.6\,gpm$

DP chamed begin logging parameters on YSI #20
Turbidity measured on Turbidimeter #2
1018 S. Yanicek, K. Granzow onsite
1037 B. Cruz onsite
1044 B. Cruz offsite
1047 Sampling begins; DP + 3CV purged parameters stable see compliance checklist for R-45S2 Pajarito
1050 Sampling ends
1050 pump off / S Yanicek K Granzow offsite
Objectives complete R-45 S2 purged and sample with a Deisel Generator and GSP in accordance with procedures on p3

1/14/14 R-45 52 cont

Apv closes
ending packer pressure 230 psi
Event ID# 4517
Sample ID# CAMO-14-49680
1316 relinquish samples at SMO c/o M Montoya

William Shearman 1/14/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-45 52
Date: 1/14/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 38 3 CVs: 276	39.6	277.2	3.0	(Y) N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (<10 NTU) or ± 10%,	Comments:
1035	8.20	169	6.19	0.27	NA
1040	8.20	170	6.23	0.19	
1045	8.14	169	6.26 ~~0.34~~	0.34	
Calculations:	Upper: 8.20 Lower: 8.14 Difference: 0.06	Median: 169 Upper: 170 Lower: 169	Upper: 6.26 Lower: 6.19 Difference: 0.07	Median: 0.27 Upper: 0.34 Lower: 0.19	
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	NA

William Shearman 1/14/14

32 1/14/14 R-45 S 2 cont

1/14

William Shear 1/14/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6704.02 ft. msl	Well Diameter: 5 inches	Date: 1/14/14
Watershed: Mortandad	Water Level: 5833.38 ft. msl	Top of Screen: 5729.12 ft.msl	Notes: NA
Well: R-45 S 2	*TD: 1016.0' bgs	Bottom of Screen: 5709.12 ftmsl	
Sampling Device: GSP	*DTW: POP = 926' bgs	Water Column: 90 ' ft.	
Measuring Point: LSD	Drop Pipe: 38.0 gal.	1CV: 92 gal.	Packer Pressure
* Completion Depth: TD		3CV: 276 gal.	Before: 230 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 460 psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier) 1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			Opening: 240 psi
			After: 230 psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0919	pump on/water to surface							3.6	
0930	7.58	11.39	180	6.72	0.36	184.2	5832.71		clear, odorless
0940	7.83	13.50	176	6.28	0.39	168.5	5832.44		
0950	8.12	15.97	171	5.93	0.29	158.3	5832.32		
1000	8.22	16.95	170	6.11	0.24	156.3	5832.31		
1010	8.24	17.67	169	6.14	0.41	153.9	5832.29		
1020	8.24	17.98	169	6.23	0.36	153.5	5832.28		
1030	8.21	18.11	169	6.20	0.33	155.1	5832.28		
1035	8.20	18.18	169	6.19	0.27	155.2	5832.28		
1040	8.20	18.10	170	6.23	0.19	155.1	5832.28		
1045	8.14	17.87	169	6.26	0.34	158.1	5832.28		
1047	Sampling begins								
1050	Sampling ends								

William Shear 1/14/14

1/14/14

WASTE			
Contact:	0.25 gal.	Drum#: Municipal	Final Water Level: 5832.28' msl
*Purge Water:	277.2 gal.	Drum#'s: 10171964	*Purge: Formation water pumped prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	316.8 gal.		

William Shear

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49670

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/15/14	FIELD MATRIX: WG		OK
TIME COLLECTED (HH:MM):		1435	MEDIA: UA		↓
PRS ID:		OK	SAMPLE TECH CODE: UA		GSI
LOCATION ID: R-50 S1		↓	FIELD PREP: UF		OK
LOCATION TYPE: MON		↓	FIELD QC TYPE: REG		↓
PORT: P1A		↓	SAMPLE USAGE: INV		↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Deisel Generator running while sampling

LOCATION COMMENTS: NA

FIELD PARAMETERS: ws 1/15/14

Dissolved Oxygen ~~0.45~~ 5.59 mg/L Flow (in gpm) 2.6 GPM Oxidation-Reduction Potential 152.4 mV

pH 7.81 SU Specific Conductance 192 uS/cm Temperature 20.80 deg C

Turbidity 0.45 NTU

COLLECTED BY (PRINT) B. Rappe

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) W. William Shaw (Signature)	1/15/14 1515	(Printed Name) S. Sherwood (Signature) Sherwood	1/15/14 1515
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49681

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/15/14	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1435	MEDIA:	UA	✓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-50 S1	✓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	✓	FIELD QC TYPE:	REG	✓
PORT:	P1A	✓	SAMPLE USAGE:	INV	✓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	N/A
✓	WSP-CR52/53	1 LITER POLY	1	ICE	✓	✓
✓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	✓	✓
✓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	✓	✓

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS: William Shaw 1/15/14

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) I Jordan

RELINQUISHED BY (Printed Name) William Shaw **(Signature)**	**Date/Time** 1/15/14 1515	**RECEIVED BY (Printed Name)** S. Sherwood **(Signature)**	**Date/Time** 1/15/14 1515
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49661

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/15/14	FIELD MATRIX:	WG	QC
TIME COLLECTED (HH:MM):		1435	MEDIA:	UA	↓
PRS ID:		QC	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-50 S1		↓	FIELD PREP:	UF	QC
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT: P1A		↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	MSGP-Hg	1 LITER POLY	1	HNO3	Y	N/A
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:

LOCATION COMMENTS:

William Shaw 1/15/14

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) B. Rappe

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shaw	1/15/14 1515	S. Sherwood Sheri Sherwood	1/15/14 1515
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49662

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/15/14	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1435	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	Co SP
LOCATION ID:	R-50 S1		FIELD PREP:	F	ok
LOCATION TYPE:			FIELD QC TYPE:	FD	
PORT:	P1A		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NH	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	Y/K
	WSP-CR52/53	1 LITER POLY	1	ICE		
	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

William Shaw 1/15/14

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) J. Jordan

RELINQUISHED BY (Printed Name) W. William Shaw **(Signature)**	**Date/Time** 1/15/14 1515	**RECEIVED BY (Printed Name)** S. Sherwood **(Signature)** Sherri Sherwood	**Date/Time** 1/15/14 1515
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

R-50 S1

1/15/14

See p 36 for HTS and calibration information
2 minute Safety: Slips, trips, falls, pressure systems, electrical
Weather: Sunny 440's
Fieldcrew: W. Shaw, J. Jordan, B. Rappe
Objectives: purge and Sample R-50 S1 with a diesel generator and GSI in accordance with procedures on p 3

1313 Connect to transducer (level troll); begin logging water level on rugged reader #2
TOC = 5834.99' msl
LSD = 6904.11' msl TD = TOP = 1118.1' bgs
DTW = (LSD - TOC) = 6904.11' - 5834.99' = 1069.12' bgs
WC = ~~DTW vs TD~~ = TD - DTW = 1118.1' - 1069.12' = 48.98'
DP = DTW (0.041 gal/ft) = 1069.12 (0.041 gal/ft) = 43.8 gal
1CV = WC (1.020 gal/ft) = 48.98' (1.020 gal/ft) = 50 gal
3CV = 1CV (3) = 150 gal
Initial packer pressure 230 psi; tpv opens at 460 psi
Total volume purge until sampling begins ≈ 193.8 gal

1319 pump on / water to surface
J. Jordan measures flow rate $\frac{3 gal}{1.15} \times 60 sec = 2.6 gpm$

1336 DP cleared begin logging parameters on YSI #20
parameters stable see compliance checklist for R-50 S1

1435 Sampling begins; S. Yanicek onsite
1443 Sampling complete
1445 pump off
Objectives complete R-50 S1 purged and sampled in accordance with procedures on p3
B Rappe preserves samples
1500 offsite
Event ID# 4517
Sample ID # CAMO-14-49661, 49662, 49670, 49681
Relinquished samples at SMO c/o S Sharwood

William Shaw 1/15/14

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William Shaw 1/15/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6904.11 ft. msl	Well Diameter: 5.0 inches	Date: 1/15/14
Watershed: Mortandad	Water Level: 5834.99 ft. msl	Top of Screen: 5827.1 ft msl	Notes:
Well: R-50 S1	*TD: TOP: 1119.1 bgs	Bottom of Screen: 5817.1 ft. msl	NA
Sampling Device: GSP	*DTW: 1069.12 bgs	Water Column: 48.98 ft.	
Measuring Point: LSD	Drop Pipe: 43.8 gal.	1CV: 50 gal.	Packer Pressure
* Completion Depth: TD		3CV: 150 gal.	Before: 230 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 460 psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: 235 psi
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			After: 230 psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1319	pump on / water to surface							2.6	
1336	8.16	16.89	135	7.18	0.28	137.6	5830.79		slight effervescence no odor
1346	7.84	20.96	186	4.40	0.73	142.7	5830.78		
1356	7.89	21.06	194	5.51	0.44	145.6	5830.77		
1406	7.94	21.11	191	5.54	0.36	144.1	5830.77		clear no odor
1416	7.85	20.98	194	5.54	0.30	149.6	5830.77		
1426	7.83	21.00	193	5.55	0.28	151.6	5830.76		
1426	7.84	20.92	193	5.57	0.39	150.9	5830.76		
1431	7.81	20.80	192	5.59	0.45	152.4	5830.77		
1435	Sampling begins								
1443	Sampling ends								
1445	pump off								

William Shaw 1/15/14

WASTE			
Contact:	0.5 gal.	Drum#: Municipal	Final Water Level: 5831.46 msl
*Purge Water:	153.7 gal.	Drum#'s: 10171966	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	197.6 gal.		

William Shaw 1/15/14

William Dunn 1/15/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-50 51

Date: 1/15/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 43.8 3 CVs: 150	44.2	153.4	3.0	(Y) N	N/A

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (<10) NTU or ± 10%,	Comments:
1421	7.83	193	5.55	0.28	N/A
1426	7.84	193	5.57	0.39	
1431	7.81	192	5.59	0.45	
Calculations:	Upper: 7.84 Lower: 7.81 Difference: 0.03	Median: 193 Upper: 193 Lower: 192	Upper: 5.59 Lower: 5.55 Difference: 0.04	Median: 0.39 Upper: 0.45 Lower: 0.28	
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	N/A

William Dunn 1/15/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49671

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/15/14	FIELD MATRIX: WG		ok
TIME COLLECTED (HH:MM):		1254	MEDIA: UA		
PRS ID:		ok	SAMPLE TECH CODE: UA		GSP
LOCATION ID: R-50 S2			FIELD PREP: UF		ok
LOCATION TYPE: MON			FIELD QC TYPE: REG		
PORT: P2A			SAMPLE USAGE: INV		

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	MSGP-Hg	1 LITER POLY	1	HNO3	Y	N/A
	WSP-CN(T)	250 ML POLY	1	NAOH		
	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS: Diesel generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 7.63 mg/L Flow (in gpm) 1.7 GPM Oxidation-Reduction Potential 140.9 mV

pH 8.10 SU Specific Conductance 133 uS/cm Temperature 17.70 deg C

Turbidity 0.29 NTU

COLLECTED BY (PRINT) B. Rappe

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) William Shaw	1/15/14 1515	(Printed Name) Sherwood	1/15/14 1515
(Signature)		(Signature) Sherwood	
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49682

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/15/14	FIELD MATRIX:	WG	O/C
TIME COLLECTED (HH:MM):		1254	MEDIA:	UA	
PRS ID:		O/C	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-50 S2		FIELD PREP:	F	O/C
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	P2A		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	N/A
	WSP-CR52/53	1 LITER POLY	1	ICE		
	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) J. Jordan

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
W. Ivan Shan	1/15/14 1515	S. Sherwood Sheri Sherwood	1/15/14 1515
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

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R-50 S2

1/15/14

0700 HTS tailgate conducted at TA-64 by W. Shaw
0730 Meter #20 calibrated at TA-64 by J. Jordan see log # BP204-0073
0917 onsite
7 minute safety: slips, trips, falls, pressure systems, electrical
Weather: H 40's sunny
Fieldcrew: W. Shaw, J. Jordan, B. Rappe
Objectives: Purge and Sample R-50 S2 with a dedicated Generator and GSP in accordance with the work plan and procedures on p3
0920 Connect to transducer (level troll); start logging water level on rugged reader #2;
TOC = 5834.63' msl
LSD = 6904.11' msl TD = 1217.5' bgs
DTW = BOP = 1122.9' bgs WC = (TD − DTW) = 1217.5' − 1122.9' = 94.6'
DP = (0.041 gal/ft) DTW = (0.041 gal/ft) 1122.9' = 46 gal
1CV = (1.020 gal/ft) WC = (1.020 gal/ft) 94.6' = 96.5 gal
3CV = 1CV(3) = 290 gal
Total purge until sampling begins ≈ = 336 gal
Initial packer pressure = 230 psi, APV opens at 460 psi
0935 pump on / water to surface
J. Jordan measures flow rate $\frac{5\text{ gal}}{174\text{ sec}} \times 60\text{ sec} = 1.7\text{ gpm}$
1002 DP cleared begin logging parameters on YSI #20
Turbidity measured on Turbidimeter #2
Conductivity measured on Meter #30 per work plan
1245 M. Dale onsite
1252 parameters stable see compliance checklist for R-50 S2
1254 Sampling begins
1257 Sampling complete
1258 pump off
Objectives complete R-50 S2 purged and sampled in accordance with the work plan and procedures on p3
APV closes; Final packer pressure 230 psi
Event ID # 4517
Sample ID # CAMO-14-49671, 49682
1555 Relinquish samples at SNO 40/Shorewood

William Shaw 1/15/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6904.11 ft. msl	Well Diameter: 5 inches		Date: 1/15/14
Watershed: Mortandad	Water Level: 5834.63 ft. msl	Top of Screen: ~~5698.5~~ 5719.1 ft. msl		Notes: 5719.1 msl
Well: R-50 S2	*TD: 1267.5 bgs	Bottom of Screen: 5698.5 ft. msl		
Sampling Device: GSP	*DTW: BOP = 1122.9 bgs	Water Column: 94.6 ft.		
Measuring Point: LSD	Drop Pipe: 46 gal.	1CV: 96.5 gal.		Packer Pressure
* Completion Depth: TD		3CV: 290 gal.		Before: 230 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials			Actuation: 460 psi
				Opening: 235 psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier) 1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)				After: 230 psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0935	pump on / water to surface							1.7	
1002	7.59	12.53	167	3.48	0.77	134.3	5833.82		effervescent; no odor
1027	7.93	14.45	148	6.29	3.03	134.9	5833.87		
1052	8.09	16.22	136	7.44	0.79	133.3	5833.88		
1117	8.08	16.80	135	7.62	0.58	137.7	5833.89		
1142	8.00	16.35	134	7.68	0.95	142.8	5833.91		
1207	8.09	16.60	133	7.74	1.03	140.8	5833.93		
1232	8.10	17.10	133	7.80	0.12	141.3	5833.93		
1242	8.04	17.21	133	7.80	0.10	142.2	5833.94		
1247	8.10	17.40	133	7.75	0.25	141.7	5833.95		
1252	8.10	17.70	133	7.63	0.29	140.9	5833.95		
1254	Sampling begins								
1257	Sampling ends / (pump off 1258)								
	William Shaw					1/15/14			

WASTE			
Contact:	0.5 gal.	Drum#: Municipal	Final Water Level: 5833.84' msl
*Purge Water:	297.4 gal.	Drum#'s: 10171967	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	338.4 gal.		

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SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-50 S2

Date: 1/15/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 46 3 CVs: 290	46	292.4	3.0	Y N	N/A

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (<10 NTU) or ± 10%,	Comments:
1242	8.04	133	7.80	0.10	N/A
1247	8.10	133	7.75	0.25	
1252	8.10	133	7.63	0.29	
Calculations:	Upper: 8.10 Lower: 8.04 Difference: 0.06	Median: 133 Upper: 133 Lower: 133	Upper: 7.80 Lower: 7.63 Difference: 0.17	Median: 0.25 Upper: 0.29 Lower: 0.10	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	N/A

William Stone 1/15/14

William Stone 1/15/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53833 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		0848	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-DRO	1 LITER AMBER GLASS	2	ICE	Y	NA

SAMPLE COMMENTS: Collect at DP + ICV Sampled within 50' of running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 5.55 mg/L Flow (in gpm) 2.27 GPM Oxidation-Reduction Potential 74.9 mV

pH 6.75 SU Specific Conductance 151 uS/cm Temperature 17.70 deg C

Turbidity 2.2 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellenz (Signature)	1/23/14 1440	(Printed Name) (Signature)	1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53843 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		0848	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA

SAMPLE COMMENTS: Collect at DP+1CV

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) David Fellewz (Signature)	Date/Time 1/23/14 1440	**RECEIVED BY** (Printed Name) (Signature)	Date/Time 1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	**RECEIVED BY** (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53834

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		0943	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-DRO	1 LITER AMBER GLASS	2	ICE	Y	NA
↓	WSP-EES6-ALK	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓
↓	WSP-EES6-TOC	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS: Collect at 3CV

LOCATION COMMENTS: sampled within 50 of running diesel generator

FIELD PARAMETERS:

Dissolved Oxygen 6.44 mg/L Flow (in gpm) 2.18 GPM Oxidation-Reduction Potential 115.9 mV

pH 6.63 SU Specific Conductance 150 uS/cm Temperature 18.83 deg C

Turbidity 1.1 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellenz (Signature)	1/23/14 1440	(Printed Name) (Signature)	1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53844

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		0943	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA
↓	WSP-EES6-ANIONS	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓

SAMPLE COMMENTS: Collect at 3 CV

LOCATION COMMENTS: ~~Sampled~~ DF 1/23/14 NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
David Fellenz	1/23/14 1440	W. Martyn	1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49672

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		0943	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.44 mg/L Flow (in gpm) 2.18 GPM Oxidation-Reduction Potential 115.9 mV

pH 6.63 SU Specific Conductance 150 uS/cm Temperature 18.83 deg C

Turbidity 1.1 NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) David Felleuz (Signature)	Date/Time 1/23/14 1440	**RECEIVED BY** (Printed Name) (Signature)	Date/Time 1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	**RECEIVED BY** (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49683

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		0943	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	NA
↓	WSP-CR52/53	1 LITER POLY	1	ICE	↓	↓
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellenz (Signature)	1/23/14 1440	(Printed Name) (Signature)	1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53835

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1106	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-DRO	1 LITER AMBER GLASS	2	ICE	Y	NA
↓	WSP-EES6-ALK	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓
↓	WSP-EES6-TOC	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS: collect at GCV

LOCATION COMMENTS: sampled within 50' of running diesel generator

FIELD PARAMETERS:

Dissolved Oxygen 6.46 mg/L Flow (in gpm) 2.18 GPM Oxidation-Reduction Potential 146.6 mV

pH 6.60 SU Specific Conductance 149 uS/cm Temperature 16.73 deg C

Turbidity 0.7 NTU

COLLECTED BY (PRINT) W. Shan

RELINQUISHED BY (Printed Name) David Fellenz (Signature)	Date/Time 1/23/14 1440	RECEIVED BY (Printed Name) (Signature)	Date/Time 1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53845

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1106	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	↓
TOP DEPTH:			SAMPLE USAGE:	TEST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA
↓	WSP-EES6-ANIONS	125 ML POLY	1	ICE	↓	↓
	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE		

SAMPLE COMMENTS: Collect at GCV

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) David Fellenz (Signature)	Date/Time 1/23/14 1440	RECEIVED BY (Printed Name) (Signature)	Date/Time 1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53836

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1229	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	↓
TOP DEPTH:			SAMPLE USAGE:	TEST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-DRO	1 LITER AMBER GLASS	2	ICE	Y	NA
↓	WSP-EES6-ALK	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓
↓	WSP-EES6-TOC	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS: Collect at QCV

LOCATION COMMENTS: Sampled within 50' of running diesel generator

FIELD PARAMETERS:

Dissolved Oxygen 6.24 mg/L Flow (in gpm) 2.18 GPM Oxidation-Reduction Potential 145.4 mV

pH 6.75 SU Specific Conductance 148 uS/cm Temperature 16.34 deg C

Turbidity 1.1 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) David Fellenz **(Signature)**	**Date/Time** 1/23/14 1440	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time** 1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53846

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1229	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-61 S1		↓	FIELD PREP:	F	OK
LOCATION TYPE: MON		↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / (NA)

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA
↓	WSP-EES6-ANIONS	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓

SAMPLE COMMENTS: Collect at QCV

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellenz (Signature)	1/23/14 1440	(Printed Name) (Signature)	1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53837

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1352	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-DRO	1 LITER AMBER GLASS	2	ICE	Y	NA
↓	WSP-EES6-ALK	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓
↓	WSP-EES6-TOC	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS: Collect at 12CV

LOCATION COMMENTS: Samplod within 50' of running diesel generator

FIELD PARAMETERS:

Dissolved Oxygen 6.05 mg/L Flow (in gpm) 2.18 GPM Oxidation-Reduction Potential 152.2 mV

pH 6.71 SU Specific Conductance 148 uS/cm Temperature 18.62 deg C

Turbidity 1.8 NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) David Fellenz (Signature)	Date/Time 1/23/14 1440	RECEIVED BY (Printed Name) (Signature)	Date/Time 1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53847

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/23/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1352	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID: R-61 S1		↓	FIELD PREP:	F	OK
LOCATION TYPE: MON		↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA
↓	WSP-EES6-ANIONS	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓

SAMPLE COMMENTS: Collect at 12 CV

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) David Fellenz (Signature)	1/23/14 1440	(Printed Name) (Signature)	1/23/14 1440
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

R-61 S1

1/23/14

0630 W. Shaw conducts health and safety tailgate at TA-64
Note: D. Fellenz calibrated YSI #20 at TA-64 on 1/22/14 at 1430, see calibration log book EP2011-0073 page 60 for details
0710 Crew (D. Fellenz, J. Maze, W. Shaw) on site at R-61
2 Minute Safety: Electrical, pressure systems, cold, spills, trips
Weather: 20's, Mostly cloudy, windy (feels like 15°F)
Objective: Purge and sample R-61 S1 per applicable documents on page 3 and per Work Plan for Sandia/Mortandad Q2 MY2013
0732 W. Shaw off site to retrive Rugged Reader
Note: This is a dual screened Baski with a dedicated GSP pump
Note: Per the work plan 12 CV's will be purged with sampling at 1, 3, 6, 9, and 12 CV's
0754 W. Shaw on site with Rugged Reader
0756 Connect to transducer (level troll) with Rugged Reader #2
Note: The following data is from historicals and well completion info
LSD = 6940.12' msl V = 5836.71' msl
TD = TOP = 1162.3' bgs DTW = LSD − V = 1103.41' bgs
DP = (0.041 gal/ft) DTW = 45.2 gal WC = TD − DTW = 58.89'
1CV = (1.02 gal/ft) WC = 60.1 gal
3CV = 3 (1CV) = 180.3 gal; 6CV = 3(1CV) = 360.6 gal
9CV = 9 (1CV) = 540.9 gal; 12CV = 12(1CV) = 721.2 gal
0758 Open APV, initial packer pressure 200 psi, opens to 205 psi with 360 ps
0759 Generator on
0800 Pump on
0801 Water to surface; Q = 2.27 gpm (manual using carboy)
0821 DP clear (45.5 gal), begin logging parameters (File: R-61S1)
0848 Begin sampling 1CV + DP
0850 Sampling complete 1CV + DP; Q = 2.18 gpm (manual using carboy)
0911 A. Vigil, J. Jordan on site to bring crew heat gun
0918 A. Vigil, J. Jordan off site
0943 Begin Sampling 3CV + DP and IFGMP
0949 Sampling complete for 3CV + DP and IFGMP
Note: J. Maze preserves all samples; W. Shaw QA's
1106 Begin sampling 6CV + DP
1110 Sampling complete 6CV + DP
Note: J Maze preserves all samples; W. Shaw QA's
1229 Begin sampling 9CV + DP

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R-61 S1 continued

1/23/14

1231 Sampling complete for 9CV+DP
Note: J. Maze preserves all samples; W. Shaw QA's
1352 Begin sampling 12CV+DP
1356 Sampling complete for 12CV+DP, pump off; Generator off
Note: J. Maze preserves all samples; W. Shaw QA's
1359 Close APV, final packer pressure 200psi
1400 Disconnect from transducer
Note: See pages 65-68 of this log book for parameters, final IV, final parameters, waste info, compliance check list
Summary: Crew successfully samples R-61 S1
1420 Crew off site
1440 Relinquish samples to SMO c/o: M. Montoya
Event ID's: 4517, 4533
Sample ID's: CAMO-14-49672, 49683, 53833, 53843, 53834, 53844, 53835, 53845, 53836, 53846, 53837, 53847

David Fellenz 1/23/14

1/23/14

David Fellenz

R-61 S1 continued

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1/23/14

David Fellows 1/23/14

Groundwater Sampling Log

Project: FWGMP MY2013	LSD: 6940.12 ft. msl	Well Diameter: 5 inches	Date: 1/23/14
Watershed: Sandia	Water Level: 5836.71 ft. msl	Top of Screen: 5815.12 ft. msl	Notes:
Well: R-61 S1	*TD: TOP = 1162.3' bgs	Bottom of Screen: 5805.12 ft. msl	Page 1 of 3
Sampling Device: GSP	*DTW: 1103.41' bgs	Water Column: 58.89 ft.	
Measuring Point: LSD	Drop Pipe: 45.2 gal.	1CV: 60.1 gal.	Packer Pressure
* Completion Depth: TD		3CV: 180.3 gal.	Before: 200 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 360 psi
DTW = (LSD - Water Level). .Water Column = (TD - DTW). .Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: 205 psi
1CV = (Water Column x Well Diameter Multiplier) . 3 CV = (1CV x 3)			After: 200 psi

TIME (MST / DST)	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0800	Pump on, 0801 water to surface								
0821	6.79	14.45	160	1.34	1.8	131.9	5833.52	2.27	clear, odorless
0831	6.58	15.43	166	1.44	4.3	49.2	5833.44		
0841	6.74	16.76	152	5.39	2.0	70.0	5833.38		
0846	6.75	17.70	151	5.55	2.2	74.9	5833.38		
0848	Sample 1CV + DP								61 gal. purged
0850	Sampling complete for 1CV + DP								
0851	6.76	17.45	153	5.28	5.2	81.6	5833.50	2.18	clear, odorless
0901	6.71	18.38	150	5.70	2.1	92.6	5833.36	2.18	
0911	6.74	18.51	150	5.64	2.0	97.4	5833.33		
0921	6.68	18.70	149	6.38	1.5	106.5	5833.34		
0931	6.63	18.58	149	6.39	1.4	113.6	5833.32		
~~0941~~ 0936 DF 1/23/14	6.57	18.68	150	6.47	1.3	117.7	5833.33		
0941	6.63	18.83	150	6.44	1.1	115.9	5833.34		
0943	Begin sampling IFGMP and 3CV + DP								181 gal purged
0949	Sampling complete for IFGMP and 3CV + DP								

WASTE			
Contact: 1 1/2 gal.	Drum#: Municipal		Final Water Level: 5833.33' msl
Purge Water: 181 (3CV) gal.	Drum#'s: 10171968		*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water: 775 gal.		1100	

David Fellows 1/23/14

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1/23/14

R-61S continued

1/23/14

David Fellows 1/23/14

Groundwater Sampling Log

Project: FWGMP MY2013	LSD: ft. msl	Well Diameter: inches	Date: 1/23/14
Watershed:	Water Level: ft. msl	Top of Screen: ft.	Notes: Page 2 of 3
Well:	*TD:	Bottom of Screen: ft.	
Sampling Device: See page 1 DF 1/23/14	DTW:	Water Column: ft.	
Measuring Point:	Drop Pipe: gal.	1CV: gal.	Packer Pressure
* Completion Depth:		3CV: gal.	Before: NA psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: NA psi
DTW = (LSD - Water Level). .Water Column = (TD - DTW). .Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: NA psi
1CV = (Water Column x Well Diameter Multiplier) . 3 CV = (1CV x 3)			After: NA psi

TIME (MST) DST	pH SU	TEMP. °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0951	6.65	17.57	151	6.62	1.2	121.9	5833.38	2.18	clear, odorless
1011 ~~100~~ DF 1/23/14	6.59	13.62	149	6.32	1.0	134.7	5833.34		
1031	6.75	16.86	148	6.40	0.8	127.0	5833.32		
1051	6.64	16.80	148	6.47	0.8	137.7	5833.32		
1106	6.60	16.73	149	6.46	0.7	143.3	5833.33		
1106	Begin sampling 6 CV's + DP								362 gal. purged
1110	Sampling complete for 6CV + DP								
1111	6.56	16.80	150	6.79	1.3	146.6	5833.32	2.18	clear, odorless
1131	6.59	13.76	149	6.35	0.5	148.8	5833.33		
1151	6.75	15.76	149	6.19	1.2	142.0	5833.32		
1211	6.65	16.02	148	6.40	1.0	148.3	5833.33		
1226	6.75	16.34	148	6.24	1.1	145.4	5833.32		
1229	Begin sampling 9CV + DP								543 gal. purged
1231	Sampling complete for 9CV + DP								
1236	6.63	15.17	148	~~6.64~~ 6.49	0.5	152.5	5833.32	2.18	clear, odorless
1251	6.56	12.73	147	DF 1/23/14 6.59	0.5	159.8	5833.32	2.18	clear, odorless

WASTE

Contact:		Drum#:	Final Water Level: See page 1
Purge Water: See page 1 DF 1/23/14	gal.	Drum#'s:	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	gal.		

David Fellows 1/23/14

R-61 S1 continued

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1/23/14

David Fellenz 1/23/14

Groundwater Sampling Log

Project: FWGMP MY2013	LSD: ft. msl	Well Diameter: inches	Date: 1/23/14
Watershed:	Water Level: ft. msl	Top of Screen: ft.	Notes:
Well:	*TD:	Bottom of Screen: ft.	Page 3 of 3
Sampling Device:	*DTW: See page 1	Water Column: ft.	
Measuring Point:	Drop Pipe: DF 1/23/14 gal.	1CV: gal.	Packer Pressure
* Completion Depth:		3CV: gal.	Before: NA psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: NA psi
DTW = (LSD - Water Level). .Water Column = (TD - DTW). .Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: NA psi
1CV = (Water Column x Well Diameter Multiplier) . 3 CV = (1CV x 3)			After: NA psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1311	6.82	18.17	148	6.08	1.8	144.5	5833.33	2.18	clear, odorless
1331	6.70	18.23	149	6.08	2.4	151.2 ~~14.~~ DF 1/23/14	5833.33	↓	↓
1351	6.71	18.62	148	6.05	1.8	152.2	5833.32		
1352	Begin sampling 12CV+DP								
1356	Sampling complete for 12CV+DP								724 gal. purged

David Fellenz 1/23/14

WASTE

Contact:	gal. Drum#:	Final Water Level: See page 1
Purge Water: See page 1	gal. Drum#'s:	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water: DF 1/23/14	gal.	

1/23/14

David Fellenz 1/23/14

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1/23/14

R-61 S1 continued

David Fellenz 1/23/14

DF 11/5/13
SOP-20032 ~~Rev. 4~~ Rev. 3 Compliance Checklist

Well Name: R-61 S1
Date: 1/23/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 45.2 3 CVs: 180.3	45.5	181	3.0	(Y) N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (<10 NTU) or ± 10%,	Comments:
0931	6.63	149	6.39	1.4	NA
0936	6.57	150	6.47	1.3	
0941	6.63	150	6.44	1.1	
Calculations:	Upper: 6.63 Lower: 6.57 Difference: 0.06	Median: 149 Upper: 153 Lower: 145	Upper: 6.47 Lower: 6.39 Difference: 0.08	Median: NA Upper: NA Lower: NA	
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	NA

David Fellenz 1/23/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53838

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		0853	MEDIA:	UA	
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2		FIELD PREP:	UF	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	TEST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-DRO	1 LITER AMBER GLASS	2	ICE	Y	NA

SAMPLE COMMENTS: Collect at DP+1CV; Diesel Generator running while sampling

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen 0.85 mg/L Flow (in gpm) 2.1 GPM Oxidation-Reduction Potential -111.9 mV

pH 6.60 SU Specific Conductance 195 uS/cm Temperature 18.89 deg C

Turbidity 5.8 NTU

COLLECTED BY (PRINT) J.Maze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Maze (Signature)	1/22/2014 1700	(Printed Name) Sherwood (Signature) Sheri Sherwood	1/22/2014 1700
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53848

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	ok
TIME COLLECTED (HH:MM):		0853	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2	↓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA

SAMPLE COMMENTS: Collect at DP+1CV

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ µS/cm Temperature _____ deg C

Turbidity _____ NTU

William Stacy 1/22/14

COLLECTED BY (PRINT) J Maze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Maze (Signature) Julie Maze	1/22/2014 1700	(Printed Name) S Sherwood (Signature) Sheri Sherwood	1/22/2014 1700
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53839

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1015	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / ~~NO~~ / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-DRO	1 LITER AMBER GLASS	2	ICE	Y	N/A
↓	WSP-EES6-ALK	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓
↓	WSP-EES6-TOC	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS: Collect at 3CV; Diesel generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen ~~2.6~~ 1.72 mg/L (DO) Flow (in gpm) 2.1 GPM Oxidation-Reduction Potential -71.0 mV

pH 6.54 SU Specific Conductance 192 uS/cm Temperature 19.29 deg C

Turbidity 2.6 NTU

COLLECTED BY (PRINT) W. Shaw

RELINQUISHED BY (Printed Name) William Shaw (Signature)	Date/Time 1/22/14 1700	RECEIVED BY (Printed Name) Sherwood (Signature) Sherwood	Date/Time 1/22/14 1700
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/22/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53849

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1015	MEDIA:	UA	
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	TEST	
BOTTOM DEPTH:			EXCAVATED:		YES (NO) / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA
	WSP-EES6-ANIONS	125 ML POLY	1	ICE		
	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE		

SAMPLE COMMENTS:

LOCATION COMMENTS: William Shaw 1/22/2014 3CV+DP

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shaw	1/22/14 1700	S. Sherwood	1/22/14 1700
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/22/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49684

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1017	MEDIA:	UA	✓
PRS ID:		ok	SAMPLE TECH CODE:	UA	G-SY
LOCATION ID:	R-61 S2	✓	FIELD PREP:	F	ok
LOCATION TYPE:	MON	✓	FIELD QC TYPE:	REG	✓
PORT:	P2A	✓	SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	N/A
✓	WSP-CR52/53	1 LITER POLY	1	ICE	✓	✓
✓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	✓	✓
✓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	✓	✓

SAMPLE COMMENTS:

LOCATION COMMENTS: William Shaw 1/22/2014

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) Julie Maze (Signature)	**Date/Time** 1/22/2014 1700	**RECEIVED BY** (Printed Name) J. Sherwood (Signature)	**Date/Time** 1/22/2014 1700
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4517

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-49673

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1017	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P2A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	MSGP-Hg	1 LITER POLY	1	HNO3	Y	N/A
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Diesel generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 1.72 mg/L Flow (in gpm) 2.1 GPM Oxidation-Reduction Potential -71.0 mV

pH 6.55 SU Specific Conductance 192 uS/cm Temperature 19.29 deg C

Turbidity 2.6 NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) Julie Maze (Signature)	**Date/Time** 1/22/2014 1700	**RECEIVED BY** (Printed Name) Sherwood (Signature) Sheri Sherwood	**Date/Time** 1/22/2014 1700
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53850

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	ok
TIME COLLECTED (HH:MM):		1218	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2		FIELD PREP:	F	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	TEST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-CR52/53	1 LITER POLY	1	ICE	Y	
	WSP-EES6-ANIONS	125 ML POLY	1	ICE		
	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE		

SAMPLE COMMENTS: Collect at GCV

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen 7.11 mg/L Flow (in gpm) GPM Oxidation-Reduction Potential _____ mV

pH 7.11 SU Specific Conductance 1227 uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) A Stacker

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Maze (Signature)	1/22/2014 1700	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	1/22/2014 1700
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53840

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	ok
TIME COLLECTED (HH:MM):		1218	MEDIA:	UA	
PRS ID:		ok	SAMPLE TECH CODE:	UA	G-SP
LOCATION ID:	R-61 S2		FIELD PREP:	UF	ok
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	TEST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-DRO	1 LITER AMBER GLASS	2	ICE	Y	NA
	WSP-EES6-ALK	125 ML POLY	1	ICE		
	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE		
	WSP-EES6-TOC	40 ML SEPTUM AMBER GLASS	2	ICE		

SAMPLE COMMENTS: Collect at GCV; Diesel Generator running while sampling

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 2.68 mg/L Flow (in gpm) 21 GPM Oxidation-Reduction Potential -57.5 mV

pH 6.57 SU Specific Conductance 181 uS/cm Temperature 18.34 deg C

Turbidity 1.4 NTU

COLLECTED BY (PRINT) A. Stacker

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Maze	1/22/2014 1700	(Printed Name) S. Sherwood	1/22/2014 1700
(Signature) [signature]		(Signature) [signature]	
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53841 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	ok
TIME COLLECTED (HH:MM):		1421	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	GSI
LOCATION ID:	R-61 S2	↓	FIELD PREP:	UF	ok
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-DRO	1 LITER AMBER GLASS	2	ICE	Y	N/A
↓	WSP-EES6-ALK	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓
↓	WSP-EES6-TOC	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS: Collect at 9CV; Diesel generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 2.80 mg/L Flow (in gpm) 2.1 GPM Oxidation-Reduction Potential -54.0 mV

pH 6.67 SU Specific Conductance 171 uS/cm Temperature 19.92 deg C

Turbidity 1.4 NTU

COLLECTED BY (PRINT) M. Tijerina

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Maze (Signature)	1/22/2014 1700	(Printed Name) S. Sherwood (Signature)	1/22/2014 1700
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53851

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	dk
TIME COLLECTED (HH:MM):		1421	MEDIA:	UA	
PRS ID:		dk	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2		FIELD PREP:	F	dk
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	TEST	
BOTTOM DEPTH:			EXCAVATED:		YES / (NO) / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-CR52/53	1 LITER POLY	1	ICE	X	N/A
	WSP-EES6-ANIONS	125 ML POLY	1	ICE		
	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE		

SAMPLE COMMENTS: Collect at QCV

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) M. Jojola

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Julie Maze	1/22/2014 1700	D. Sherwood	1/22/2014 1700
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53842

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	QC
TIME COLLECTED (HH:MM):		1624	MEDIA:	UA	↓
PRS ID:		QC	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-61 S2	↓	FIELD PREP:	UF	GK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
TOP DEPTH:		↓	SAMPLE USAGE:	TEST	↓
BOTTOM DEPTH:		↓	EXCAVATED:		YES / (NO) / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-DRO	1 LITER AMBER GLASS	2	ICE	↓	N/A
↓	WSP-EES6-ALK	125 ML POLY	1	ICE	↓	↓
↓	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE	↓	↓
↓	WSP-EES6-TOC	40 ML SEPTUM AMBER GLASS	2	ICE	↓	↓

SAMPLE COMMENTS: Collect at 1200; Diesel generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 3.47 mg/L Flow (in gpm) 2.1 GPM Oxidation-Reduction Potential -49.2 mV

pH 6.69 SU Specific Conductance 164 uS/cm Temperature 20.22 deg C

Turbidity 1.3 NTU

COLLECTED BY (PRINT) M Tojola

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Julie Maze	1/22/2014 1700	S. Sherwood	1/22/2014 1700
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4533

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 R-61 time series sampling

SAMPLE ID: CAMO-14-53852

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/22/2014	FIELD MATRIX:	W	OK
TIME COLLECTED (HH:MM):		1624	MEDIA:	UA	
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSI
LOCATION ID:	R-61 S2		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
TOP DEPTH:			SAMPLE USAGE:	TEST	
BOTTOM DEPTH:			EXCAVATED:		YES / NO / NA

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-CR52/53	1 LITER POLY	1	ICE	Y	NA
	WSP-EES6-ANIONS	125 ML POLY	1	ICE		
	WSP-EES6-MET	125 ML POLY	1	HNO3 ICE		

SAMPLE COMMENTS: Collect at 12CV

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) M Tofoya

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Mace (Signature)	1/22/2014 1700	(Printed Name) D. Sherwood (Signature)	1/22/2014 1700
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

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R-61 S2

1/22/14
0645 HTS tailgate conducted at TA-64 by W. Shaw per SOP's
Meter #10 calibrated by A. Stocker see log # EP2014-0075, at TA-64

0700 onsite
7 minute safety: slips, trips, falls, pressure systems electrical, weather
Weather: cloudy, 14°F
Fieldwork: W. Shaw, A. Stocker, J. Maze, M. Tojola
Objectives: Purge and Sample R-61 S2 with a GSP and Deltze Generator in accordance with the work plan and procedures onP 3

0720 Connect to transducer (level troll) & start logging water level on rugged reader #2
TOC = 5836.84' msl TD = 1251.6' bgs
LSD = 6940.12' msl
DTW = ~~(LSD − TOC)~~ = BOP = 1167.0' bgs
WC = (TD − BOP) = 1251.6' − 1167' = 84.6'
DP = DTW (0.041 gal/ft) = 1167' (0.041 gal/ft) = 47.8 gal
1CV = WC (1.020 gal/ft) = 84.6' (1.020 gal/ft) = 86.3 gal
3CV = 1CV(3) = 258.9 gal
6CV = 1CV(6) = 517.8 gal
9CV = 1CV(9) = 776.7 gal
12CV = 1CV(12) = 1035.6 gal
Initial packer pressure 200 psi
A pr opens at 360 psi

0741 pump on
0742 Water to surface
M Tojola measures flow rate $\frac{5 gal}{141}$ x 60 sec = 2.1 gpm

0812 DP cleared begin logging on YSI #40 using the sonde from meter #10
0853 1CV + DP cleared, begin sampling
0857 Sampling complete
1015 3CV + DP cleared, sampling begins
1017 not stable at 3CV + DP continued to purge 5 more minutes until stability was reached, sampling begins for IFGMP samples
1030 Sampling complete

R-61 S2 Con't

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1-2/14

A Stocker preserves samples
1200 T McFarland, T. Goering onsite
1218 T McFarland, T. Goering offsite
6 CV + DP cleared; Begin sampling
1226 Sampling complete
J Maze preserves
J Maze measures flow rate $\frac{5gg}{140} \times 60 sec = 2.1 gpm$

1421 9 CV+DP cleared; sampling begins
1426 Sampling complete
A Stocker preserves samples
1624 12 CV's + DP purged; begin sampling
1629 Sampling complete / pump off
A. Stockers preserves samples
1632 APV closes
ending packer pressure 200psi
Objectives complete R-61 S2 purged and sampled using a GSP and Diesel generator in accordance with the work plan and the procedures on p 3
1650 offsite
Event ID# 4533, 4517
Sample ID#s CAMO-14-53839, 53849, 53840, 53850, 49684, 49673, 53841, 53851, 53852, 53842, 53848, 53838
1700 Relinquish samples at SMO c/o S. Sherwood

William Shaw

1/22/14 William Shaw

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6940.12 ft. msl	Well Diameter: 5 inches	Date: 1/22/14
Watershed: Mortandad	Water Level: 5836.84 ft. msl	Top of Screen: 5719.7 ft msl	Notes: p 1 of 2
Well: R-61 S2	*TD: 1251.0' bgs	Bottom of Screen: 5649.1 ft. msl	
Sampling Device: GSP	*DTW: (BOP) 1167.0' bgs	Water Column: 84.6 ft.	
Measuring Point: LSD	Drop Pipe: 47.8 gal.	1CV: 86.3 gal.	Packer Pressure
* Completion Depth: TD		3CV: 258.9 gal.	Before: 200 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 360 psi
			Opening: 205 psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier) 1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			After: 200 psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0741	pump on				usp22/44			2.1	
0742	water to surface				4				
0812	6.56	15.46	174	0.47	4.2	-142.1	5834.36		clear; organic odor
0832	6.51	18.22	197	0.55	8.4	-133.6	5834.39		
0852	6.59	18.85	195	0.91	5.9	-111.4	5834.37		
0853	6.60	18.89	195	0.85	5.8	-111.9	5834.35		1CV+DP
0912	6.57	18.93	195	1.18	3.9	-98.4	5834.38		clear organic odor
0932	6.55	19.25	193	1.41	2.9	~~-97.8~~ -82.1	5834.39		
0952	6.55	19.09	193	1.59	2.5	-42.4	5834.40		
1002	6.56	19.28	191	1.61	2.4	-70.9	5834.40		
1007	6.56	19.31	191	1.73	2.3	-70.5	5834.40		
1012	6.57	19.22	192	1.82	2.1	-71.3	5834.41		
1015	6.54	19.23	193	1.72	2.6	-73.4	5834.37		3CV+DP
1017	6.55	19.29	192	1.72	2.6	-71.0	5834.40		clear effervescent organic odor
1117	6.56	17.80	184	2.37	1.7	-64.1	5834.43		
1217	6.57	18.34	181	2.68	1.4	-53.5	5834.47		

WASTE			
Contact:	1.0 gal.	Drum#: Municipal	Final Water Level: 5834.68' msl
*Purge Water:	762.5 gal.	Drum#'s: 10171957	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	1169.7 gal.		

1/22/14

William Shaw

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Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: ft. msl	Well Diameter: 2 4 inches	Date: 1/22/14
Watershed:	Water Level: ft. msl	Top of Screen: ft.	Notes: p 2 of 2
Well:	*TD:	Bottom of Screen: ft.	
Sampling Device:	*DTW:	Water Column: ft.	
Measuring Point:	Drop Pipe: gal.	1CV: gal.	Packer Pressure
* Completion Depth:		3CV: gal.	Before: 200 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 360 psi
			Opening: 205 psi
			After: 200 psi

DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1317	6.59	18.08	175	3.04	1.4	-47.0	5834.53	2.1	clear; effervescent organic odor
1417	6.66	20.01	171	2.92	1.5	-50.9	5834.50		d
1421	6.67	19.92	171	2.80	1.4	-54.0	5834.51		9CV HDP
1517	6.66	20.23	167	2.18	1.4	-49.8	5834.52		clear effervescent organic odor
1617	6.69	20.21	165	3.57	1.3	-49.0	5834.56		1
1622	6.69	20.22	164	3.59	1.3	-49.3	5834.54		1
1624	6.69	20.22	164	3.47	1.3	-49.2	5834.52	1	12CV HDP
1629	pump off								

William Shaw 1/22/14

WASTE

Contact: see page 1	gal.	Drum#: William Shaw	Final Water Level: See page 1
*Purge Water:	gal.	Drum#'s:	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	gal.		

William Shaw 1/22/14

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W. Wan Shaw 1/22/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-61 S2

Date: 1/22/2014

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments: N/A
Flow Meter (Manual)	Drop Pipe: 47.8 3 CVs: 258.9	63	262.5	3.0	(Y) N	

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments: N/A
1007	6.56	191	1.73	2.3	
1012	6.57	192	1.82	2.1	
1017	6.55	192	1.72	2.6	
Calculations:	Upper: 6.57 Lower: 6.55 Difference: 0.02	Median: 192 Upper: 192 Lower: 191	Upper: 1.82 Lower: 1.72 Difference: 0.10	Median: 2.3 Upper: 2.6 Lower: 2.1	
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments: N/A
(Y) N	

Will Wan Shaw 1/22/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49692

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/13/14	**FIELD MATRIX:**	WG	o/c
TIME COLLECTED (HH:MM):		1106	**MEDIA:**	UA	↓
PRS ID:		o/c	**SAMPLE TECH CODE:**	UA	RSP
LOCATION ID:	SCI-2	↓	**FIELD PREP:**	UF	o/c
LOCATION TYPE:	MON	↓	**FIELD QC TYPE:**	REG	↓
PORT:	SINGLE COMPLETION	↓	**SAMPLE USAGE:**	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	y	NA
NA	WSP-CN(T)	250 ML POLY	1	NAOH	y	NA
NA	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	y	NA

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS: NA

Dissolved Oxygen 9.66 mg/L Flow (in gpm) 0.70 GPM Oxidation-Reduction Potential 155.7 mV

pH 7.45 SU Specific Conductance 617 uS/cm Temperature 13.87 deg C

Turbidity 1.7 NTU

COLLECTED BY (PRINT) J. MAZE

RELINQUISHED BY (Printed Name) Maurice Shendo (Signature)	Date/Time 1/13/14 1200	**RECEIVED BY** (Printed Name) M. Montoya (Signature)	Date/Time 1/13/14 1200
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	**RECEIVED BY** (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49698

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/13/14	**FIELD MATRIX:**	WG	o/c
TIME COLLECTED (HH:MM):		1106	**MEDIA:**	UA	↓
PRS ID:		o/c	**SAMPLE TECH CODE:**	UA	RSP
LOCATION ID:	SCI-2	↓	**FIELD PREP:**	F	o/c
LOCATION TYPE:	MON	↓	**FIELD QC TYPE:**	REG	↓
PORT:	SINGLE COMPLETION	↓	**SAMPLE USAGE:**	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	NA
NA	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	Y	NA
NA	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	Y	NA

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. MAZE

RELINQUISHED BY (Printed Name) Maurice Shendo (Signature)	Date/Time 1/13/14 1200	**RECEIVED BY** (Printed Name) M. Montoya (Signature)	Date/Time 1/13/14 1200
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	**RECEIVED BY** (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

SCI-2

1/13/14

700 Tailgate Safety Meeting conducted by will Shaw.
730 D. Woody Calibrates YSI #20 @ TA-64 see Calibration log Book EP2011-0072 page 58 for Details.
945 on site @ SCI-2
2min Safety Meeting: Cold weather, warm clothes, pressure Systems
Crew: M. Shando & J. Maze.
~~95~~ 1/13/14 objective: Purge & Sample SCI-2 per Applicable documents on p. 3.
1000 ~~Connecting~~ MS 1/13/14 Connecting to Russed Reader But Russed Reader Not powering on.

Note: This is a Single completion well with dedicated RSP pump.
TOC: 6207.45' msl LSD: 6735.85' msl
TD: 570.' bgs
DTW = LSD − TOC = 528.4' bgs
DP = (0.006 gal/ft) DTW = 3.17 gal
WC = TD − DTW = 41.6 gal
1CV = (0.163 gal/ft) WC = 6.78 gal
3CV = 1CV × 3 = 20.34 gal DP + 3CV = 23.51 gal
Nitrogen at 110 psi.
Q = 0.75

1023 pump on, water to Surface
1028 start logging parameters.
1046 J. Maze checks Q = 0.69 gpm
1056 purged 3 cv's DO not in compliance. I will taking samples. purge on.
~~100~~ 1106 Start Sampling.
1111 Stop Sampling /End sampling
1112 Pump off. J. Maze preserves Samples. M. Shando QC's.
See page 140 for Groundwater Sampling log.
See page 141 for Compliance checklist.
Crew purged & Sampled SCI-2 per Applicable documents on page 3. objective met.
1145 off site
1158 @ SMO relinquishing ~~Sampled~~ MS 1/13/14 Samples to M. Montoya.
Event ID: 4518
Sample ID: CASA-14-49692, 49698

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SCI-2

1/13/14

MS

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6735.85 ft. msl	Well Diameter: 2 inches	Date: 1/13/14
Watershed: Sandia/Mortandad	Water Level: 6207.45 ft. msl	Top of Screen: 6187.85 ft.	Notes:
Well: SCI-2	*TD: 570	Bottom of Screen: 6167 ft.	NA
Sampling Device: RSP	*DTW: 528.4' bgs	Water Column: 41.685 ft.	
Measuring Point: LSD	Drop Pipe: 3.17 gal.	1CV: 6.78 gal.	Packer Pressure
* Completion Depth: TD		3CV: 20.34 gal.	Before: NA psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: NA psi
DTW = (LSD - Water Level). .Water Column = (TD - DTW). .Drop Pipe = (DTW x Drop Pipe Diameter Multiplier) 1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			Opening: NA psi
			After: NA psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. MSL	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1023	Pump on, water to surface								
1028	7.33	11.55	605	3.60	5.5	160.3	6201.95	0.75	clear, no odor
1035	7.38	13.61	604	7.74	6.5	150.1	6201.67		
1040	7.42	13.76	610	8.81	9.2	150.3	6201.27		
1045	7.45	13.74	612	8.95	6.1	150.6	6200.95		
1050	7.46	13.83	614	9.16	3.5	151.5	6200.85	0.70	clear, no odor
1055	7.42	13.88	614	9.51	2.3	155.3	6200.46		clear, no odor 3 cv's purged.
1100	7.46	14.08	615	9.66	1.9	154.2	6200.51		"
1105	7.45	13.87	617	9.66	1.7	155.7	6200.53		"
1106	Start sampling.								
1111	stop sampling.								
1112	Pump off.								

MS 1/13/14

WASTE				
Contact:	1/2 gal.	Drum#:	Municipal	Final Water Level: 6200.14
Purge Water:	35.71 gal.	Drum#'s:	NA	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	38.6 gal.			

MS 1/13/14

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SCI-2

MS 1/13/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: SCI-2

Date: 1/13/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 3.17 3 CVs: 20.34	3.25	35	5	Y N	Dissolved oxygen Not in compliance at 3 CV's.

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (<10 NTU) or ± 10%,	Comments:
1055	7.42	614	9.51	2.3	Dissolved Oxygen Not in compliance at 3 CV's Purged 5 CV's.
1100	7.46	615	9.66	1.9	
1105	7.45	617	9.66	1.7	
Calculations:	Upper: 7.46 Lower: 7.42 Difference: 0.04	Median: 615 Upper: 633 Lower: 597	Upper: 9.66 Lower: 9.51 Difference: 0.15 MS ~~1.5~~ 0.15	Median: NA Upper: NA Lower: NA	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	None

MS 1/13/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49687

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/9/2014	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1251	**MEDIA:**	UA	↓
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-11	↓	**FIELD PREP:**	UF	OK
LOCATION TYPE:	MON	↓	**FIELD QC TYPE:**	REG	↓
PORT:	SINGLE COMPLETION	↓	**SAMPLE USAGE:**	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	MSGP-Hg	1 LITER POLY	1	HNO3	X	N/A
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Diesel Generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 7.17 mg/L Flow (in gpm) 3.0 GPM Oxidation-Reduction Potential -38.0 mV

pH 8.00 SU Specific Conductance 230 uS/cm Temperature 20.87 deg C

Turbidity 0.4 NTU

COLLECTED BY (PRINT) M. Shado

RELINQUISHED BY (Printed Name) (Signature) William Shar	**Date/Time** 1/9/14 13:45	**RECEIVED BY (Printed Name) (Signature)** M. Martinez	**Date/Time** 1/9/14 13:45
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49693

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/9/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1251	MEDIA:	UA	
PRS ID:		OK	SAMPLE TECH CODE:	UA	G.SP
LOCATION ID:	R-11		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
MA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	MA
	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) M. Shendo

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
William Shaw	1/9/14 13:45		1/9/14 13:45
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

R-11

1/9/2014

0700 HTS tailgate conducted at TA-54 by W. Shaw per SOP
0750 Meter #10 calibrated by M Shendo at TA-54 see log # BP 2014-0072
1100 onsite
2 minute safety: slips, trips, falls, heavy lifting, electrical connections, careful while disposing of contaminated waste
Field crew: W. Shaw, J. Maze, M Shendo
Weather: Sunny 42°
Objectives: Purge and sample R-11 with a GSP and Deisel generator in accordance with procedures on P3
1132 connect to transducer (level troll) neither rugged reader #1 or #4 will turn on connected to power source and let charge for a few minutes and then #4 worked, begin logging on rugged reader #4
TOC = 5834.62' msl
LSD = 6673.72' msl TD = 901.7' bgs
DTW = LSD − TOC = 6673.72 − 5834.62 = 839.1' bgs
WC = (TD − DTW) = 901.7' − 839.1' = 62.6'
DP = DTW (0.041 gal/ft) = 839.1' (0.041 gal/ft) = 34.4 gal
1CV = WC (0.826 gal/ft) = 62.6' (0.826 gal/ft) = 51.7 gal
3CV = 1CV(3) = 155.1 gal
Total purge until sampling begins = 190 gal
1146 pump on / water to surface
J Maze measures flow rate $\frac{6 \text{ gal}}{9 \text{ s}} \times 60 \text{ sec} = 3.0 \text{ gpm}$
1158 DP cleared begin logging on ~~rugged re~~ WSI 1/9/14 YSI #10
1228 M. Dale onsite
1250 DP + 3CVs cleared parameters stable see compliance checklist for R-11 Q2 Pajarito/Mort/Sandia MY 2014
1251 Begin Sampling
1258 End Sampling
NMED still sampling
1301 pump off
Objectives complete R-11 purged and sampled in accordance with procedures on P3
1310 Offsite

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1/9/14

R-11 cont

Event ID # 4518
CASA-14-49693, 49687 = Sample ID#s
Julie maze preserves samples, M Shand, QCS
1345 Relinquish samples at SMO c/o M. Motoya

William Shaw 1/9/14

1/9/14 **SOP-20032 Rev. 1 Compliance Checklist**

Well Name: R-~~39~~-11
Date: 1/9/2014

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 34.4 3 CVs: 155.1	36	159	3	(Y) N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1238	8.02	231	7.17	0.4	NA
1243	8.01	230	7.18	0.4	
1248	8.00	230	7.17	0.4	
Calculations:	Upper: 8.02 Lower: 8.00 Difference: 0.02	Median: 230 Upper: 231 Lower: 230	Upper: 7.18 Lower: 7.17 Difference: 0.01	Median: 0.4 Upper: 0.4 Lower: 0.4	
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	NA

William Shaw 1/9/14

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William Shaw 1/9/2014

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6673.72 ft. msl	Well Diameter: 4.5 inches	Date: 1/9/2014
Watershed: Sandia	Water Level: 5834.62 ft. msl	Top of Screen: 5818.72 ft. msl	Notes: N/A
Well: R-11 well 14	*TD: 901.7	Bottom of Screen: 5795.82 ft. msl	
Sampling Device: ~~GS~~ GSP	*DTW: 839.1	Water Column: 62.6 ft.	
Measuring Point: LSD	Drop Pipe: 34.4 gal.	1CV: 51.7 gal.	Packer Pressure
* Completion Depth: TD		3CV: 155.1 gal.	Before: N/A psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: ____ psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: ____ psi
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			After: ____ psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1146	pump on / water to surface							3.0	
1158	7.68	14.86	232	6.95	0.4	29.9	5834.49		clear, odorless
1203	7.77	15.46	229	7.17	1.1	12.0	5834.39		
1208	7.79	16.88	225	7.27	0.8	-3.7	5834.54		
1213	7.92	18.42	224	7.25	0.6	-17.0	5834.53		
1218	7.98	19.55	226	7.16	0.5	-28.7	5834.52		
1223	8.02	20.37	227	7.17	0.4	-42.1	5834.53		
1228	8.07	20.45	229	7.17	0.4	-45.9	5834.53		
1233	8.04	20.50	230	7.16	0.4	-44.4	5834.54		
1238	8.02	20.68	231	7.17	0.4	-40.8	5834.51		
1243	8.01	20.68	230	7.18	0.4	-39.7	5834.53		
1248	8.00	20.87	230	7.17	0.4	-38.0	5834.53		
1251	Begin Sampling								
1258	End Sampling								
			William Shaw						
							1/9/14		

WASTE			
Contact:	0.5 gal.	Drum#: Municipal	Final Water Level: 5834.54 msl
*Purge Water:	159 gal.	Drum#'s: 1017 1969	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	195 gal.		

1/9/14

William Shaw

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49688

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/16/2014	**FIELD MATRIX:**	WG	ok
TIME COLLECTED (HH:MM):		500	**MEDIA:**	UA	✓
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-35a	✓	**FIELD PREP:**	UF	ok
LOCATION TYPE:	MON	✓	**FIELD QC TYPE:**	REG	✓
PORT:	SINGLE COMPLETION	✓	**SAMPLE USAGE:**	INV	✓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
✓	WSP-CN(T)	250 ML POLY	1	NAOH	✓	✓
✓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	✓	✓

SAMPLE COMMENTS: Diesel Generator running while sampling

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 4.84 mg/L Flow (in gpm) 3.9 GPM Oxidation-Reduction Potential 176.6 mV

pH 7.96 SU Specific Conductance 246 uS/cm Temperature 24.02 deg C

Turbidity 0.83 NTU

COLLECTED BY (PRINT) JMaze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) William Shaw (Signature)	1/16/14 1533	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	1/16/14 1533
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49694

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/16/2014	**FIELD MATRIX:**	WG	ok
TIME COLLECTED (HH:MM):		1500	**MEDIA:**	UA	✓
PRS ID:		ok	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-35a	✓	**FIELD PREP:**	F	ok
LOCATION TYPE:	MON	✓	**FIELD QC TYPE:**	REG	✓
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	N/A
✓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	✓	✓
✓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	✓	✓

SAMPLE COMMENTS:

LOCATION COMMENTS:

W. Wam Shan 1/16/2014

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) D Fellows

RELINQUISHED BY (Printed Name) W. Wam Shan **(Signature)**	**Date/Time** 1/16/14 1533	**RECEIVED BY (Printed Name)** S. Sherwood **(Signature)** Sheri Sherwood	**Date/Time** 1/16/14 1533
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

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R-35a

1/14/14

0700 W. Shaw conducts health and safety tailgate at TA-64
0835 Crew on site at R-35a (D. Fellenz, M. Jojola, B. Rappe)
Note: M. Jojola notes that fuel has spilled out through fuel vent and is leaking on ground from generator
0838 T. McFarland notified of situation, crew advised to clean up spill and return generator to TA-64.
0858 Crew cleans up contamination. About 2 gallons are scooped up and put into 5 gallon pail.
0905 Crew off site
0912 Crew attempts to bring generator through the guard shacks at Diamond and Trinity, but told they need a pass to bring generator through
0920 Crew arrives at Post 10 and is 'sniffed', however, fuel is leaking from generator and crew told to wait to see if they will be allowed to proceed
0930 Crew contacts T. McFarland to inform her of events
0935 Pro-Force commander arrives on site to investigate
0945 Crew informed that HAZMAT has been called and will be on site, crew told they cannot proceed
0945 Crew calls T. McFarland who will be on site soon
1000 B. Anderson and HAZMAT team arrive and secure area
1005 T. McFarland on site
1020 M. Alexander on site
Note: HAZMAT spreads 'powder' on spill, containerizes waste and washes pavement
1045 Trailer released, crew moves generator to R-12
1100 Crew off site, M. Alexander and 3 Heavy equipment personnel remain at R-12
Note: Waste, both from R-35a (2 gallons) and Post 10 (2 gallons) relinquished to A. Vigil and J. Jordan for them to take to NM Special Waste container at Sigma Yard.

David Fellenz 1/14/14

1/15/14
0700
0735
0855
0909
Note:
Note:
0916
0919
0920
0935
0939
0940
0955
Note
Summary

R-35a

1/15/14

0700 W. Shaw conducts health and safety tailgate at TA-64

0735 D. Fellenz calibrates YSI # 10 at TA-64, see calibration log book EP2011-0072 page 65 for details

0855 Crew (D. Fellenz, M. Jojola, J. Maze) on site at R-35a
2 Minute Safety: Electrical systems, close to road, splashes, trips
Weather: 40's, Sunny, breezy
Objective: Purge and sample R-35a per applicable documents on p.3

0904 Connect to transducer (level tool) with Rugged Reader # 1

Note: This is a single completion well with a dedicated GSP pump

Note: The following data is from historicals and well completion info
LSD = 6623.06' msl I = 5829.10' msl
TD = 1086.2' bgs DTW = LSD - I = 793.96' bgs
DP = (0.041 gal/ft) DTW = 32.5 gal WC = TD - DTW = 292.24'
1CV = (0.826 gal/ft) WC = 241.4 gal
3CV = 3(1CV) = 724.2 gal
Total to sample = 3CV + DP = 756.7 gal

0916 Generator on, breaker trips

0919 Crew calls T. McFarland to inform her of situation, T. McFarland will call M. Vargas and inform him as well

0920 Crew calls A. Vigil who will deliver another generator

0935 Crew informed that they cannot sample well because breaker trip while the generator was plugged into the well, even though the well was off and it is electrically impossible for this to be the cause

0939 Crew packs up

0940 Disconnect from transducer

0955 Crew off site

Note: As crew was leaving site, A. Vigil and J. Romero arrived at R-35a with generator. Generator left on site

Summary: all personnel off site; Objective not met!

David Fellenz 1/15/14

R-35a

1/16/14.

HTS tailgate meeting conducted at TA-64 by W. Shaw per SOP
Meter #20 calibrated at TA-64 by J. Jordan see log# EP 2011-0073

1047 onsite
2 minute safety: slips, trips, falls, electrical connections
Fieldcrew: W. Shaw, J. Maze, J. Jordan
Weather: Sunny 40's, windy
Objectives: Purge and Sample R-35a with a diesel generator and GSP in accordance with procedures on p3
Connect to transducer (level troll): begin logging on rugged reader #2 ~~1/16/14~~
~~V = 6623.06~~ 5829.23' msl TD = 1086.2' bgs
LSD: 6623.06' msl
DTW = (LSD − V) = 6623.06 − 5829.23' = 793.83' bgs
WC = (TD − DTW) = 1086.2 − 793.83' = 292.37'
DP = DTW(0.041 gal/ft) = 793.83'(0.041 gal/ft) = 33 gal
1CV = WC(0.826 gal/ft) = 292.37'(0.826 gal/ft) = 241.5 gal
3CV = 1CV(3) = 724.5 gal
Total purge until sampling begins = 757.5 gal
~~pump on~~ 1/16/14 Generator turns on but no power to control box; well will not pump on; T McFarland notified

1120 D Pehoski, B Rappe onsite
1134 S. Maze onsite
Generator turned off and on multiple times with the same results.
1141 2nd generator onsite and hooked up; pump on power on and working pump off.
1142 pump on
1144 Water to surface; G Holland onsite
J. Jordan measures flow rate $\frac{5 gal}{77 sec} \times 60 sec \approx 3.9 gpm$
~~1/16/14~~ 1/17/14 ~~1011~~ 1153 DP clears begin logging parameters on YSI #26
G Holland offsite
1200 S. Maze offsite
1330 J. Jordan B Rappe offsite
1423 Turbidimeter #2 start measuring turbidity
M. Vargas onsite

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R-35a cont

1/16/14

1434 M. Dale onsite, P. Longmeyer onsite
~~M Vargas H offsite~~ as 1/16/14

1500 Sampling begins

1502 Sampling complete

1504 pump off

1505 M Dale, P Longmeyer offsite

Objectives complete R-35a purged and sampled in accordance with procedures on p3.

D. Fellenz preserves samples

1520 offsite

1533 relinquish samples at SWO c/o S. Sherwood

Event ID # 4518

Sample ID CASA-14-49688, 49694

William Shaw 1/16/14

1/16/14

Groundwater Sampling Log

Project: IWGMP MY2013	LSD: 6623.06 ft. msl	Well Diameter: 4.5 inches	Date: 1/16/14
Watershed: Sandia	Water Level: 5829.23 ft. msl	Top of Screen: 5609.76 ft. msl	Notes: N/A
Well: R-35a	*TD: 1086.2 bgs	Bottom of Screen: 5560.36 ft. msl	
Sampling Device: GSP	*DTW: 793.83 bgs	Water Column: 292.37 ft.	
Measuring Point: LSD	Drop Pipe: 33 gal.	1CV: 241.5 gal.	Packer Pressure
* Completion Depth: TD		3CV: 724.5 gal.	Before: N/A psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: ___ psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: ___ psi
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			After: ___ psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1142	pump on								
1144	water	to surface						3.9	c
1153	8.14	17.28	236	4.22	14.8	157.9	5821.51		clear, odorless
1223	8.15	23.55	245	4.67	1.1	163.0	5821.57		
1253	8.05	23.81	244	4.72	3.5	168.6	5821.59		
1323	8.04	24.13	245	4.74	0.4	169.6	5821.57		
1353	7.99	24.06	245	4.79	0.4	172.3	5821.63		
1423	7.99	24.11	245	4.82	1.04	173.8	5821.64		
1433	7.96	24.06	246	4.83	0.91	174.7	5821.70		
1443	7.97	24.10	246	4.83	0.94	175.1	5821.66		
1448	7.96	24.09	246	4.83	1.10	176.8	5821.73		
1453	7.96	24.10	246	4.84	1.95	176.8	5821.67		
1458	7.96	24.02	246	4.84	0.83	176.6	5821.69		
1500	Sampling begins								
1502	Sampling ends								
						William Shaw		1/16/14	

WASTE

Contact:	0.5 gal.	Drum#: Municipal	Final Water Level: 5821.86' msl
*Purge Water:	729.3 gal.	Drum#'s: 1017 1972	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	764.4 gal.		

William Shaw 1/16/14

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W. Wan Shan 1/16/2014

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-35a
Date: 1/16/2014

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 33 3 CVs: 724.5	35.1	729.3	3.0	(Y) N	N/A

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (<10 NTU) or ± 10%,	Comments:
1448	7.96	246	4.83	1.10	N/A
1453	7.96	246	4.84	1.95	
1458	7.96	246	4.84	0.83	
Calculations:	Upper: 7.96 Lower: 7.96 Difference: 0.0	Median: 246 Upper: 246 Lower: 246	Upper: 4.84 Lower: 4.83 Difference: 0.01	Median: 1.10 Upper: 1.95 Lower: 0.83	
(Y) N	(Y) N	Y N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	N/A

W. Wan Shan 1/16/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49689

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/15/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1217	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-35b	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator.

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 6.17 mg/L Flow (in gpm) 2.97 GPM Oxidation-Reduction Potential -49.5 mV

pH 7.44 SU Specific Conductance 172 uS/cm Temperature 20.67 deg C

Turbidity 0.6 NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) Julie Maze (Signature)	Date/Time 1/15/2014 1300	RECEIVED BY (Printed Name) (Signature)	Date/Time 1/15/2014 1300
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49695

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/15/2014	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1217	**MEDIA:**	UA	↓
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-35b	↓	**FIELD PREP:**	F	OK
LOCATION TYPE:	MON	↓	**FIELD QC TYPE:**	REG	↓
PORT:	SINGLE COMPLETION	↓	**SAMPLE USAGE:**	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	NA
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY (Printed Name) Julie Maze (Signature)	**Date/Time** 1/15/2014 1300	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time** 1/15/2014 1300
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 01/06/2014

R - 35 b

1/15/14

0700 W. Shaw conducts health and safety tailgate at TA-64
0735 D. Fellenz calibrates YSI # 10 at TA-64 see calibration log book EP2011-0072 page 65 for details
1030 Crew (D. Fellenz, J. Maze, M. Jojola) on site at R-35b
Note: See page 57 of this log book for difficulties encountered at R-35a and reason crew on site at R-35b so late
2 Minute Safety: Electrical system, trips, splashes
Weather: 40's, Sunny, breezy
Objective: Purge and sample R-35b per applicable docs on p.3
Note: This is a single completion well with a dedicated GSP pump
Note: The following data is from historicals and well completion info

LSD = 6625.21' msl
TD = 872.2' bgs
DP = (0.041 gal/ft) DTW = 32.5 gal
1CV = (0.826 gal/ft) WC = 66.6 gal
3CV = 3 (1CV) = 199.8 gal
Total to sample = 3CV + DP = 232.3 gal

IV = 5833.63' msl
DTW = LSD - IV = ~~5833.63~~ 791.58' bgs OF 1/15/14
WC = TD - DTW = 80.62'

1053 Generator on
1057 Pump on
1057 Water to surface; Q = 2.83 gpm (manual using carboy)
Note: Crew connected to transducer (level troll) at 1040 with Rugged Reader # 1
1109 DP clear (34 gal), begin logging parameters (File: R-35b2)
1110 Q = 2.97 gpm (manual using carboy)
1201 M. Dale on site (NMED)
1217 Begin sampling
1224 Sampling complete, pump off; Generator off
1225 M. Dale off site
Note: J. Maze preserves all samples; M. Jojola QA's
1230 Disconnect from transducer
Note: See pages 59-60 of this log book for parameters, final IV, final parameters, waste info, compliance checklist
Summary: Crew successfully samples R-35b (Objective met!)
1245 Crew off site
1300 Relinquish samples to SMO c/o: M. Montoya
Event ID: 4518; Sample ID's: CASA-14-49695, 49689

~~R-35b~~ R-35b continued
OF 1/15/14

1/15/14

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David Fellenz 1/15/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6625.21 ft. msl	Well Diameter: 4.5 inches	Date: 1/15/14
Watershed: N Sandia OF 1/15/14	Water Level: 5833.63 ft. msl	Top of Screen: 5799.81 ft. msl	Notes:
Well: R-35b	*TD: 872.2 bgs	Bottom of Screen: 5776.71 ft. msl	NA
Sampling Device: GSP	*DTW: 791.58' bgs	Water Column: 80.82 ft.	
Measuring Point: LSD	Drop Pipe: 32.5 gal.	1CV: 66.6 gal.	Packer Pressure
* Completion Depth: TD		3CV: 199.8 gal.	Before: NA psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: NA psi
DTW = (LSD - Water Level). Water Column = (TD - DTW). Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: NA psi
1CV = (Water Column x Well Diameter Multiplier) . 3 CV = (1CV x 3)			After: NA psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1057	Pump on, water to surface								
1109	6.87	16.34	169	6.10	1.6	-48.8	5833.36	2.97	clear, odorless
1119	7.48	19.13	169	6.74	0.7	-62.8	5833.38		
1129	7.83	20.00	170	6.74	0.6	-70.1	5833.41		
1139	7.84	20.11	171	6.65	1.0	-66.3	5833.42		
1149	7.56	20.24	171	6.33	1.1	-57.0	5833.44		119 gal. purged
1159	7.45	20.32	171	6.26	0.7	-51.0	5833.43		clear, odorless
~~1209~~ 1204 OF 1/15/14	7.44	20.48	171	6.25	0.7	-50.3	5833.44		
1209	7.44	20.44	171	6.23	0.6	-49.4	5833.44		
1214	7.44	20.67	172	6.17	0.6	-49.5	5833.45		
1217	Begin sampling								202 gal. purged
1224	Sampling complete, pump off								

David Fellenz 1/15/14

WASTE

Contact: 1/2 gal.	Drum#: Municipal		Final Water Level:
Purge Water: 202 gal.	Drum#'s: 10171973	1550	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water: 245 gal.			

David Fellenz 1/15/14

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1/15/14

R-35 b Continued

David Fellenz 1/15/14

DF 11/5/13
SOP-20032 ~~Rev. 4~~ Compliance Checklist
Rev 3

Well Name: R-35b
Date: 1/15/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 32.5 3 CVs: 199.8	34	202	3.0	(Y) N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (≤10 NTU) or ± 10%,	Comments:
1204	7.44	171	6.25	0.7	NA
1209	7.44	171	6.23	0.6	
1214	7.44	172	6.17	0.6	
Calculations:	Upper: 7.44 Lower: 7.44 Difference: 0.0	Median: 171 Upper: 176 Lower: 166	Upper: 6.25 Lower: 6.17 Difference: 0.08	Median: NA Upper: NA Lower: NA	
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	NA

David Fellenz 1/15/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49690 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/21/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1220	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A		SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS:
Sampled within 50' of running diesel generator

LOCATION COMMENTS:

FIELD PARAMETERS:
Dissolved Oxygen 6.79 mg/L Flow (in gpm) 1.2 GPM Oxidation-Reduction Potential 169.7 mV
pH 8.27 SU Specific Conductance 186 uS/cm Temperature 18.26 deg C
Turbidity 0.27 NTU

COLLECTED BY (PRINT) J. Jordan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Maze (Signature) [signature]	1/21/2014 1510	(Printed Name) S. Sherwood (Signature) Sharon Sherwood	1/21/2014 1510
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518 **EVENT NAME:** Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49696 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/21/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1220	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S1	↓	FIELD PREP:	F	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P1A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	↓	NA
↓	WSP-CR52/53	1 LITER POLY	1	ICE	↓	↓
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Maze (Signature) [signature]	1/21/2014 1510	(Printed Name) S. Sherwood (Signature) [signature]	1/21/2014 1510
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49685

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/21/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1220	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S1	↓	FIELD PREP:	UF	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT:	P1A	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Jordan

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Maze (Signature)	1/21/2014 1510	(Printed Name) S. Sherwood (Signature)	1/21/2014 1510
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49686

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/21/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1220	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S1	↓	FIELD PREP:	F	OK
LOCATION TYPE:		↓	FIELD QC TYPE:	FD	↓
PORT:	P1A	↓	SAMPLE USAGE:	QC	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	NA
↓	WSP-CR52/53	1 LITER POLY	1	ICE	↓	↓
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Julie Maze (Signature) [signature]	1/21/2014 1510	(Printed Name) D. Sherwood (Signature) [signature]	1/21/2014 1510
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

R-43 S1

1/21/14

0700 W. Shaw conducts health and safety tailgate at TA-64

0730 J. Jordan calibrates YSI #20 at TA-64, see calibration log book EP2011-0073 page 59 for details

0840 Crew (D. Fellenz, J. Maze, J. Jordan) on site at R-43

2 Minutes safety: Electrical and pressure systems, trips, splashe

Weather: 40's, Sunny, calm

Objective: Purge and sample R-43 S1 per applicable docs. on p. 3

0852 Generator on

0855 Connect to transducer (level troll) with YSI #1

Note: This is a dual screened Baski with a dedicated GSP pump

Note: The following data is from historicals and well completion data

LSD = 6732.65' msl IV = 5836.23' msl

TD = TOP = 960.7' bgs DTW = LSD − IV = 896.42' bgs

DP = (0.041 gal/ft) DTW = 36.8 gal WC = TD − DTW = 64.28'

1CV = (1.02 gal/ft) WC = 65.6 gal

3CV = 3(1CV) = 196.8 gal; Total to sample = 3CV + DP = 233.6 gal

0902 ~~0920~~ Open APV, beginning packer pressure 235 psi, opens to 240 psi with 580 ps

0904 Pump on

0904 Water to surface; Q = 1.2 gpm (manual using carboy)

0935 DP clear (37 gal), begin logging parameters (File: R-43 S1)

Note: Hach #2 used for turbidity (YSI reads negative)

1220 Begin sampling

1236 Sampling complete, pump off

Note: Crew collected sample for NMED

Note: J. Jordan preserves all samples; J. Maze QA's

1237 ~~1221~~ Close APV, final packer pressure 238 psi

1237 ~~1221~~ Disconnect from transducer

1238 ~~1223~~ Begin setting up for R-43 S2

Note: See pages 68-69 of this log book for parameters, final IV, final parameters, waste info, compliance checklist

Summary: Crew successfully samples R-43 S1 (Objective met!)

1445 Crew off site

1510 Relinquish samples to SMO c/o: S. Sherwood

Event ID: 4518

Sample ID's: CASA-14-49690, 49696, 49685, 49686

David Fellenz 1/21/14

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1/21/14

R-43 S1 continued

1/21/14

David Fellenz 1/21/14

Groundwater Sampling Log

Project: IDWGMP MY2013	LSD: 6732.65 ft. msl	Well Diameter: 5 inches	Date: 1/21/14
Watershed: Sandia	Water Level: 5836.23 ft. msl	Top of Screw: 5828.8 ft msl	Notes: Hach #2
Well: R-43 S1	*TD: TOP=960.7' bgs	Bottom of Screw: 5808.1 ft msl	used for
Sampling Device: GSP	*DTW: 896.42' bgs	Water Column: 64.28 ft.	Turbidity
Measuring Point: LSD	Drop Pipe: 36.8 gal.	1CV: 65.6 gal.	Packer Pressure
* Completion Depth: TD		3CV: 196.8 gal.	Before: 235 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 580 psi
			Opening: 240 psi
DTW = (LSD - Water Level). .Water Column = (TD - DTW). .Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			After: 238 psi
1CV = (Water Column x Well Diameter Multiplier) . 3 CV = (1CV x 3)			

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0904	Pump on, water to surface								
0935	8.61	11.07	191	3.12	1.04	173.6	5835.13	1.2	clear, odorless
0955	8.45	12.99	189	4.18	0.41	165.8	5835.15		
1015	8.39	14.93	182	5.72	0.31	162.8	5835.15		
1035	8.40	16.41	181	6.49	0.11	162.1	5835.17		
1055	8.34	16.61	183	6.73	0.16	166.6	5835.16		
1115	8.34	16.76	184	6.71	0.30	167.0	5835.16		
1135	8.32	17.08	184	6.77	0.30	166.9	5835.17		144 gal. purged
1155	8.29	17.48	186	6.77	0.13	167.3	5835.18		clear, odorless
1210	8.30	17.72	186	6.76	0.30	167.8	5835.19		
1215	8.26	17.79	186	6.76	0.27	170.1	5835.22		
1220	8.27	18.26	186	6.79	0.27	169.7	5835.21		198 gal purged
1220	Begin sampling								
1236	Sampling complete, pump off								
	David Fellenz 1/21/14								

David Fellenz 1/21/14

WASTE

Contact: 3/4 gal.	Drum#: Municipal	Final Water Level: 5835.41' msl	
Purge Water: 198 gal.	Drum#'s: 10171970 305	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)	
Total Waste Water: 240 gal.			

David Fellenz 1/21/14

R-43 S1 continued

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1/21/14

David Fellenz 1/21/14

DF 11/5/13

SOP-20032 ~~Rev. 4~~ Rev. 3 Compliance Checklist

Well Name: R-43 S1

Date: 1/21/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter	Drop Pipe: 36.8	37.0	198.0	3.0	Y N	NA
Manual	3 CVs: 196.8					

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1216	8.30	186	6.76	0.30	NA
1215	8.26	186	6.76	0.27	
1220	8.27	186	6.79	0.27	
Calculations:	Upper: 8.30	Median: 186	Upper: 6.79	Median: NA	
	Lower: 8.26	Upper: 192	Lower: 6.76	Upper: NA	
	Difference: 0.04	Lower: 180	Difference: 0.03	Lower: NA	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	NA

1/21/14

David Fellenz 1/21/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49691

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/21/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1411	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-43 S2	↓	FIELD PREP:	UF	OK
LOCATION TYPE:	MON	↓	FIELD QC TYPE:	REG	↓
PORT:	P2A	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	MSGP-Hg	1 LITER POLY	1	HNO3	Y	NA
↓	WSP-CN(T)	250 ML POLY	1	NAOH	↓	↓
↓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: Sampled within 50' of running diesel generator

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 3.28 mg/L Flow (in gpm) 1.35 GPM Oxidation-Reduction Potential 173.3 mV

pH 8.64 SU Specific Conductance 198 uS/cm Temperature 19.95 deg C

Turbidity 0.35 NTU

COLLECTED BY (PRINT) J. Maze

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Jaley Maze (Signature) [signature]	1/21/2014 1510	(Printed Name) S. Sherwood (Signature) [signature]	1/21/2014 1510
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4518

EVENT NAME: Mortandad/Sandia (Chromium Investigation) MY2014 Q2 Watershed Sampling_Sandia

SAMPLE ID: CASA-14-49697

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/21/2014	**FIELD MATRIX:**	WG	OK
TIME COLLECTED (HH:MM):		1411	**MEDIA:**	UA	↓
PRS ID:		OK	**SAMPLE TECH CODE:**	UA	GSP
LOCATION ID:	R-43 S2	↓	**FIELD PREP:**	F	OK
LOCATION TYPE:	MON	↓	**FIELD QC TYPE:**	REG	↓
PORT:	P2A		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	NA
↓	WSP-CR52/53	1 LITER POLY	1	ICE	↓	↓
↓	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE	↓	↓
↓	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4	↓	↓

SAMPLE COMMENTS: NA

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen NA mg/L Flow (in gpm) NA GPM Oxidation-Reduction Potential NA mV

pH NA SU Specific Conductance NA uS/cm Temperature NA deg C

Turbidity NA NTU

COLLECTED BY (PRINT) J. Jordan

RELINQUISHED BY (Printed Name) Julie Maze (Signature)	**Date/Time** 1/21/2014 1510	**RECEIVED BY** (Printed Name) S. Sherwood (Signature)	**Date/Time** 1/21/2014 1510
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY** (Printed Name) (Signature)	**Date/Time**

Report Date 01/06/2014

70 R-43 S2

1/21/14

0700 W. Shaw conducts health and safety tailgate at TA-64
0730 J. Jordan calibrates YSI #20 at TA-64, see calibration log book EP2011-0073 page 59 for details
0840 Crew (D. Fellenz, J. Maze, J. Jordan) on site at R-43
2 Minute Safety: Electrical, pressure systems, trips, splashes
Weather: 40's, Sunny, light breeze
Objective: Purge and sample R-43 S2 per applicable docs. on p.3
1240 Connect to transducer (level troll) with Rugged Reader #1
Note: This is a dual screened Baski with a dedicated GSP pump
Note: The following data is from historicals and well completion info
LSD = 6732.65' msl IV = 5835.39' msl
TD = 990.4' bgs DTW = BOP = 965.4' bgs
DP = (0.0419 gal/ft) DTW = 39.6 gal WC = TD - DTW = 25.0'
1CV = (1.02 gal/ft) ~~D~~ WC = 25.5 gal DF 1/21/14
3CV = 3 (1CV) = 76.5 gal; Total to sample = 3CV + DP = 116.1 gal
1243 Open APV, begin packer pressure 238 psi, opened to 242 psi with 560 psi
1244 Pump on
1244 Water to surface; Q = 1.35 gpm (manual using carboy)
1314 DP clear (40.5 gal), begin logging parameters
Note: Due to YSI reading negative turbidities, Hach #2 used
1401 P. Longmire, M. Dale (NMED) on site
1411 Begin sampling
1415 Sampling complete, pump off; Generator off
1417 NMED off site
Note: J. Maze preserves all samples; J. Jordan QA's
1421 Disconnect from transducer
1424 Close APV, final packer pressure 240 psi
Note: See pages 71-72 of this log book for parameters, final IV, final parameters, waste info, compliance checklist
Summary: Crew successfully samples R-43 S2 (Objective met!)
1445 Crew off site
1510 Relinquish samples to SMO c/o: S. Sherwood
Event ID: 4518
Sample ID's: CASA-14-49691, 49697

David Fellenz 1/21/14

1/21/14

David Fellenz

R-43 S2 continued

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1/21/14

David Fellenz 1/21/14

Groundwater Sampling Log

Project: NWGMP MY2013	LSD: 6732.65 ft. msl	Well Diameter: 5 inches	Date: 1/21/14
Watershed: Sandia	Water Level: 5835.39 ft. msl	Top of Screen: 5763.6 ft.	Notes: Hach #2 used for turbidity
Well: R-43 S2	*TD: 990.4' bgs	Bottom of Screen: 5753.6 ft.	
Sampling Device: GSP	*DTW: BOP=965.4' bgs	Water Column: 25.0 ft.	
Measuring Point: LSD	Drop Pipe: 39.6 gal.	1CV: 25.5 gal.	Packer Pressure
* Completion Depth: TD		3CV: 76.5 gal.	Before: 238 psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: 560 psi
DTW = (LSD - Water Level). .Water Column = (TD - DTW). .Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: 242 psi
1CV = (Water Column x Well Diameter Multiplier) . 3 CV = (1CV x 3)			After: 240 psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1244	Pump on, water to surface								
1314	8.28	18.84	188	6.96	0.70	170.0	5834.43	1.35	clear, odorless
1324	9.09	19.65	189	1.83	0.35	164.7	5834.43		
1334	8.97	19.68	190	1.95	0.49	167.7 GDF 1/21/14	5834.42		
1344	8.80	19.72	199	2.89	0.34	168.7	5834.46		
1354	8.76	19.84	200	3.21	0.45	169.3	5834.45		
1359	8.73	19.93	200	3.25	0.21	169.9	5834.46		
1404	8.70	19.87	199	3.30	0.32	171.6	5834.47		
1409	8.64	19.95	198	3.28	0.35	173.3	5834.45		
1411	Begin sampling								77 gal. purged
1415	Sampling complete, pump off								

David Fellenz 1/21/14

WASTE

Contact: 3/4 gal.	Drum#: Municipal		Final Water Level: 5834.67' msl
Purge Water: 77 gal.	Drum#'s: 10171971	305	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water: 120 gal.			

David Fellenz 1/21/14

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1/21/14

R-43 S2 continued

David Fellenz 1/21/14

DF 11/5/13
SOP-20032 ~~Rev. 4~~ Compliance Checklist
Rev. 3

Well Name: R-43 S2
Date: 1/21/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 39.6 3 CVs: 76.5	40.5	77	3.0	(Y) N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1359	8.73	200	3.25	0.21	NA
1404	8.70	199	3.30	0.32	
1409	8.64	198	3.28	0.35	
Calculations:	Upper: 8.73 Lower: 8.64 Difference: 0.09	Median: 199 Upper: 205 Lower: 193	Upper: 3.30 Lower: 3.25 Difference: 0.05	Median: NA Upper: NA Lower: NA	
(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	

SOP Requirements Met?	Comments:
(Y) N	NA

David Fellenz 1/21/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4525

EVENT NAME: Mortandad/Sandia (General Surveillance) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-53218

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/17/2014	**FIELD MATRIX:** WG		OK
TIME COLLECTED (HH:MM):		1204	**MEDIA:** UA		✓
PRS ID:		OK	**SAMPLE TECH CODE:** UA		GSP
LOCATION ID: R-34		✓	**FIELD PREP:** UF		OK
LOCATION TYPE: MON		✓	**FIELD QC TYPE:** REG		✓
PORT: SINGLE COMPLETION		✓	**SAMPLE USAGE:** INV		✓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	MSGP-Hg	1 LITER POLY	1	HNO3	Y	N/A
✓	WSP-CN(T)	250 ML POLY	1	NAOH	✓	✓
✓	WSP-TKN+TOC	500 ML AMBER GLASS	1	H2SO4	✓	✓

SAMPLE COMMENTS: Diesel generator running while sampling

LOCATION COMMENTS: NA

FIELD PARAMETERS:

Dissolved Oxygen 8.01 mg/L Flow (in gpm) 2.8 GPM Oxidation-Reduction Potential -67.6 mV

pH 8.28 SU Specific Conductance 153 uS/cm Temperature 20.55 deg C

Turbidity 0.8 NTU

COLLECTED BY (PRINT) J Maze

RELINQUISHED BY (Printed Name) (Signature) William Shaw	**Date/Time** 1/17/14 12:50	**RECEIVED BY (Printed Name) (Signature)** Sheri Sherwood	**Date/Time** 1/17/14 12:50
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4525

EVENT NAME: Mortandad/Sandia (General Surveillance) MY2014 Q2 Watershed Sampling_Mortandad

SAMPLE ID: CAMO-14-53219

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		1/7/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		1204	MEDIA:	UA	
PRS ID:		OK	SAMPLE TECH CODE:	UA	GSP
LOCATION ID:	R-34		FIELD PREP:	F	OK
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	WSP-All Metals	1 LITER POLY	1	HNO3 ICE	Y	N/A
	WSP-GENINORG+PerChlorate	1 LITER POLY	1	ICE		
	WSP-NH3+NO3/NO2+PO4	500 ML AMBER GLASS	1	H2SO4		

SAMPLE COMMENTS:

LOCATION COMMENTS: William Sherwood 1/7/2014

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT) J Maze

RELINQUISHED BY (Printed Name) (Signature) William Sherwood	**Date/Time** 1/7/14 12:50	**RECEIVED BY (Printed Name) (Signature)** S. Sherwood Sherri Sherwood	**Date/Time** 1/7/14 1250
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

W. William Shaw 1/17/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: R-34

Date: 1/17/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: 32.7 3 CVs: 102.5	33.6	344.4	3.4	Y N	Dissolved oxygen not stable at 3 CVs; purged an additional 0.4 CVs to obtain stability

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity (<10 NTU) or ± 10%,	Comments:
1251	8.29	154	8.00	0.8	N/A
1256	8.29	154	7.96	1.0	
1201	8.28	153	8.01	0.8	
Calculations:	Upper: 8.29 Lower: 8.28 Difference: 0.01	Median: 154 Upper: 154 Lower: 153	Upper: 8.01 Lower: 7.96 Difference: 0.05	Median: 0.8 Upper: 1.0 Lower: 0.8	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	NA

W. William Shaw 1/17/14

48

1/17/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6629.99 ft. msl	Well Diameter: 4.5 inches	Date: 1/17/14
Watershed: Mortandad	Water Level: 5831.35 ft. msl	Top of Screen: ~~5476.57~~ 5462.28 ft. msl	Notes: N/A
Well: R-34	*TD: 920.7 bgs	Bottom of Screen: 5723.28 ft. msl	
Sampling Device: GSP	*DTW: 798.64	Water Column: 122.06 ft.	
Measuring Point: LSD	Drop Pipe: 32.7 gal.	1CV: 100.8 gal.	Packer Pressure
* Completion Depth: TD		3CV: 302.5 gal.	Before: N/A psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: psi
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			After: psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. msl	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
0949	pump on / water to surface							2.8	
1001	7.65	13.48	153	6.68	0.8	-38.9	5828.25		effervescent/odorless
1016	7.68	17.39	151	5.34	4.4	-60.1	5828.20		
1031	8.18	19.95	154	5.75	5.6	-85.6	5828.16		
1046	8.27	20.17	153	5.37	4.1	-81.7	5828.20		
1101	8.28	20.30	154	5.49	2.3	-78.9	5828.23		
1116	8.29	20.33	153	6.63	1.9	-75.3	5828.17		
1131	8.28	20.50	153	5.71	1.0	-77.9	5828.15		
1136	8.30	20.71	152	7.51	0.8	-69.9	5828.16		
1141	8.30	20.62	153	6.78	0.7	-68.6	5828.18		
1146	8.28	20.53	154	7.03	0.9	-65.7	5828.14		
1151	8.29	20.44	154	8.00	0.8	-67.3	5828.19		
1156	8.29	20.54	154	7.96	1.0	-66.6	5828.15		
1201	8.28	20.55	153	8.01	0.8	-67.6	5828.18		
1204	Sampling begins								
1210	Sampling ends / pump off								

WASTE				Final Water Level: 5828.58 msl
Contact:	0.5 gal.	Drum#:	Municipal	
*Purge Water:	3444 gal.	Drum#'s:	10168180.	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water:	378 gal.			

1/17/14

R-34

1/7/14
0700 HFS Tailgate meeting conducted at TA-64 by W. Shaw per SOP
0719 Meter #10 calibrated at TA-64 by W. Shaw see log # 2011-EP 0072 Meter #40 calibrated for SC only per work plan see log # 2011-EP
0920 onsite
2 minute safety: Slips, trips, falls, electrical
Weather: Sunny 14 48°
Field crew: W. Shaw, J. Maze
Objectives: Purge and sample R-34 with a GSP and deisel generator in accordance with the work plan and procedures on p3
0935 Connect to transducer (level troll); start logging water level on rugged reader #1
$\underline{V}$ = 5831.35 TD = 920.7' bgs
LSD = 6629.99' msl
DTW = (LSD − $\underline{V}$) = 6629.99' − 5831.35' = 798.64' bgs
WC = (TD − DTW) = 920.7' − 798.64' = 122.06'
DP = DTW (0.041 gal/ft) = 798.64' (0.041 gal/ft) = 32.7 gal
1CV = WC (0.826 gal/ft) = 122.06' (0.826 gal/ft) = 100.8 gal
3CV = 1CV(3) = 302.5 gal
Total purge until sampling begins ≈ 335.2 gal
0949 pump on/water to surface
J Maze measures flow rate $\frac{5 gal}{105}$ x 60 sec = 2.8 gpm
1001 DP cleared begin logging parameters on YSI #10; SC will be measured independently on YSI #40 per the work plan
1149 3CV's + DP cleared DO not stable continue to purge
1201 Parameters stable see compliance checklist for R-34 Pajarito/Mortandad Q2
1204 Sampling begins
1210 Sampling complete/pump off
Objectives completed R-34 purged and sampled in accordance with the work plan and procedures on p3
J Maze preserves samples
1237 offsite
Event ID# 4525; Sample ID# CAMO-14-53218, 53219
Relinquish samples at SMO c/o

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529

EVENT NAME: Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53813

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			FIELD MATRIX:	WG	
TIME COLLECTED (HH:MM):			MEDIA:	UA	
PRS ID:			SAMPLE TECH CODE:	UA	
LOCATION ID:	CDBO-6		FIELD PREP:	UF	
LOCATION TYPE:	MON		FIELD QC TYPE:	REG	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	Anions-W	125 ML POLY	1	ICE		
	GrossA	1 LITER POLY	1	HNO3 ICE		
	MSGP-Hg	1 LITER POLY	1	HNO3		
	NH3+NO2NO3+TKN	250 ML AMBER GLASS	1	H2SO4		
	Ra226+228	1 GAL POLY	1	HNO3		
	TDS	250 ML POLY	1	ICE		
	WSP-8082-PCB	1 LITER AMBER GLASS	3	ICE		
	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL		
	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE		
	WSP-CL04	250 ML POLY	1	ICE		

Analyses continued on next page

DRY
AS 1/23/14
not collected

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529

EVENT NAME: Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53813

WORK ORDER: NA

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

DRY
1/23/14
not collected

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529 **EVENT NAME:** Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53817 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):			**MEDIA:**	UA	
PRS ID:			**SAMPLE TECH CODE:**	UA	
LOCATION ID:	CDBO-6		**FIELD PREP:**	F	
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	Tal Metals	1 LITER POLY	1	HNO3 ICE		
	WSP-CN(T)	250 ML POLY	1	NAOH		
	WSP-Molybdenum	500 ML POLY	1	HNO3 ICE		

SAMPLE COMMENTS: DRY

LOCATION COMMENTS: JS 1/23/14

FIELD PARAMETERS: not collected

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529

EVENT NAME: Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53821

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):			**MEDIA:**	UA	
PRS ID:			**SAMPLE TECH CODE:**	UA	
LOCATION ID:	CDBO-6		**FIELD PREP:**	F	
LOCATION TYPE:	MON		**FIELD QC TYPE:**	REG	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	INV	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	NH3+NO2NO3+TKN	250 ML AMBER GLASS	1	H2SO4		
	NPDES-TDS+Cl	1 LITER POLY	1	ICE		

SAMPLE COMMENTS: quarterly sample

LOCATION COMMENTS: DRY not collected

FIELD PARAMETERS: 1/23/14

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529

EVENT NAME: Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53810

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			FIELD MATRIX:	WG	
TIME COLLECTED (HH:MM):			MEDIA:	UA	
PRS ID:			SAMPLE TECH CODE:	UA	
LOCATION ID:	CDBO-6		FIELD PREP:	UF	
LOCATION TYPE:			FIELD QC TYPE:	FD	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	Anions-W	125 ML POLY	1	ICE		
	GrossA	1 LITER POLY	1	HNO3 ICE		
	MSGP-Hg	1 LITER POLY	1	HNO3		
	NH3+NO2NO3+TKN	250 ML AMBER GLASS	1	H2SO4		
	Ra226+228	1 GAL POLY	1	HNO3		
	TDS	250 ML POLY	1	ICE		
	WSP-8082-PCB	1 LITER AMBER GLASS	3	ICE		
	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL		
	WSP-8270C-SVOA	1 LITER AMBER GLASS	3	ICE		
	WSP-CL04	250 ML POLY	1	ICE		

Analyses continued on next page

DRY
AS 1/23/14
not collected

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529

EVENT NAME: Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53810

WORK ORDER:

unfiltered
DRY
AS 1/23/14

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**
RELINQUISHED BY **(Printed Name)** **(Signature)**	**Date/Time**	**RECEIVED BY** **(Printed Name)** **(Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529

EVENT NAME: Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53811

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			FIELD MATRIX:	WG	
TIME COLLECTED (HH:MM):			MEDIA:	UA	
PRS ID:			SAMPLE TECH CODE:	UA	
LOCATION ID:	CDBO-6		FIELD PREP:	F	
LOCATION TYPE:			FIELD QC TYPE:	FD	
PORT:	SINGLE COMPLETION		SAMPLE USAGE:	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	Tal Metals	1 LITER POLY	1	HNO3 ICE		
	WSP-CN(T)	250 ML POLY	1	NAOH		
	WSP-Molybdenum	500 ML POLY	1	HNO3 ICE		

SAMPLE COMMENTS: not collected DRY AS 1/23/14

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529

EVENT NAME: Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53812

WORK ORDER:

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):			**FIELD MATRIX:**	WG	
TIME COLLECTED (HH:MM):			**MEDIA:**	UA	
PRS ID:			**SAMPLE TECH CODE:**	UA	
LOCATION ID:	CDBO-6		**FIELD PREP:**	UF	
LOCATION TYPE:			**FIELD QC TYPE:**	FTB	
PORT:	SINGLE COMPLETION		**SAMPLE USAGE:**	QC	

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
	WSP-8260B-VOA	40 ML SEPTUM AMBER GLASS	2	HCL		

SAMPLE COMMENTS:

JS 1/23/14
not collected
DRY

LOCATION COMMENTS:

FIELD PARAMETERS:

Dissolved Oxygen _____ mg/L Flow (in gpm) _____ GPM Oxidation-Reduction Potential _____ mV

pH _____ SU Specific Conductance _____ uS/cm Temperature _____ deg C

Turbidity _____ NTU

COLLECTED BY (PRINT)

RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**
RELINQUISHED BY (Printed Name) (Signature)	**Date/Time**	**RECEIVED BY (Printed Name) (Signature)**	**Date/Time**

Report Date 01/06/2014

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529 **EVENT NAME:** Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53818 **WORK ORDER:** NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/21/2014	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1126	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	BP
LOCATION ID:	MCO-4B	↓	FIELD PREP:	F	ok
LOCATION TYPE:	OBS	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	NH3+NO2NO3+TKN	~~250~~ 500 ML AMBER GLASS (as 1/21/14)	1	H2SO4	Y	NA
↓	TDS	250 ML POLY	1	ICE	↓	↓
↓	WSP-CL04	250 ML POLY	1	ICE	↓	↓
↓	WSP-Fluoride	125 ML POLY	1	ICE	↓	↓

SAMPLE COMMENTS:
NA

LOCATION COMMENTS:
NA

FIELD PARAMETERS:

Dissolved Oxygen 5.27 mg/L Flow (in gpm) 0.11 GPM Oxidation-Reduction Potential -38.0 mV
pH 6.08 SU Specific Conductance 1316 uS/cm Temperature 11.13 deg C
Turbidity 1.2 NTU

COLLECTED BY (PRINT) W. Shaw + M. Zapata

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Andrea Stryker (Signature) [signature]	1/21/14 1310	(Printed Name) S. Sherwood (Signature) Sheri Sherwood	1/21/14 1310
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

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1/21/14 MCO-4B

0700 HeS footgate performed by W.Shaw @ TA-64
0728 YSI #10 calibrated by W.Shaw @ TA-64, see calibration log EP2011-0072 pg 65
0845 crew onsite
crew: A.Stocker, M.Sajola, W.Shaw
weather: 30s-40s, clear
2-non-safety: slips, trips, falls, cold
Objectives: purge + sample MCO-4B per SOPs and referenced documents on pg. 3, using MPIS backpack controller
0847 tag waterlevel DTW = 25.56' TOC
0850 DTW = 25.94' TOC
0853 DTW = 25.94' TOC, mTD = 26.31' TOC = top of pump
WC = 9.53' cTD = 35.47' TOC
2150 1CV = (0.163 gal/ft × WC) = 1.6 gal
3CV = = 4.8 gal
0900 batteries dead on MPIS controller, switch with turbidimeter batteries
0915 no batteries make MPIS work, leave site to get more batteries and another controller, coordinate
1038 crew onsite with MP10 controller + Nitrogen, set up
1041 well head frozen, water not coming out
1050 put top of pump into sun + attempt to thaw
1104 pump thawed, prepare to pump on
1105 Pump on @ 30psi
1108 pump paused to fix flow-through cell of YSI b/c of leak
1108 pump on
1110 Begin logging parameters on Groundwater Sampling log, see SOP Compliance checklist for stability
1123 Parameters stable, 1.25 CVs purged, ~~Begin~~ Pump paused
1126 Begin sampling, pump on
1130 Pump off, sampling complete, Specific Conductance is very high but is consistent with historical value
Objectives Complete to purge + sample MCO-4B per SOPs, samples preserved by M.Sajola, well plunged
1145 crew offsite
1310 submit samples to SNO. Event ID: 4529; Sample ID: CAMO-14-3818

AS 1/24/14

DS 1/21/14

51

Groundwater Sampling Log

Project: IFWGMP MY2013	**LSD:** 6886.75 ft. msl	**Well Diameter:** 2 inches	**Date:** 1/21/14
Watershed: Mortandad	**Water Level:** NA ft. msl	**Top of Screen:** 10.47 ft BTOC	**Notes:**
Well: MCO-4B	***TD:** 35.47 ft TOC	**Bottom of Screen:** 30.47 ft BTOC	NA
Sampling Device: MPIS bailer + CO_2	***DTW:** 25.94 ft TOC	**Water Column:** 9.53 ft.	
Measuring Point: +1.57	**Drop Pipe:** NA gal.	**1CV:** 1.6 gal.	**Packer Pressure**
***Completion Depth:** 35.47 ft TOC		**3CV:** 4.8 gal.	**Before:** ____ psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		**Actuation:** DS psi
DTW = (LSD - Water Level)..... **Water Column =** (TD - DTW)..... **Drop Pipe =** (DTW x Drop Pipe Diameter Multiplier)			**Opening:** 1/21/14 psi
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			**After:** ____ psi

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. ft TOC	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
	~~pump on @ 25 psi~~ DS 1/21/14								
~~1044~~	~~pump on @ 25 psi~~ ~~30 psi~~ DS 1/21/14				DS 1/21/14				
1105	pump on @	30 psi, water to surface							
1108	pump	paused	to flt	YSI	flow through cell				
1109	Pump on								
1110	6.02	9.10	1262	6.30	12.0	-37.0	25.96	0.11	slightly cloudy
1113	6.02	9.10	1262	6.30	12.0	-37.0	25.98	0.11	YSI frozen, slightly cloudy
1116	6.03	10.83	1312	5.35	3.7	-36.6	25.95	0.11	YSI fixed, less ~~slightly~~ cloudy DS 1/21/14
1119	6.08	11.02	1314	5.27	2.0	-38.0	26.00	0.11	clear, odorless
1122	6.08	11.13	1316	5.27	1.2	-38.0	26.00	0.11	clear, odorless
1123	Pump	paused, ~~3 CVs~~ 1.25 CVs purged DS 1/21/14			parameters	stable			
1126	Begin sampling, pump on								
1130	Pump off, sampling complete								
					DS	1/21/14			

WASTE

Contact:	1/2 gal.	**Drum#:**	DS 1/21/14 ~~Municipal~~ Sigma 55 gal drum 10171907
***Purge Water:**	DS 1/21/14 X 2.0 gal.	**Drum#'s:**	10166183 15 gal poly
Total Waste Water:	2.2 gal.		

Final Water Level: 25.96 ft TOC

*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)

DS 1/21/14

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AS 1/21/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: MCO-4B
Date: 1/21/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: NA 3 CVs: 4.8	NA	2	1.25	Y N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1116	6.03	1312	5.35	3.7	NA
1119	6.08	1314	5.27	2.0	
1122	6.08	1316	5.27	1.2	
Calculations:	Upper: 6.08 Lower: 6.03 Difference: 0.05	Median: 1314 Upper: 1353 Lower: 1275	Upper: 5.35 Lower: 5.27 Difference: 0.08	Median: 2.0 Upper: <10 Lower: <10	
	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	parameters stable after 1.25 CVs purged, all SOPs met, specific conductance is very high but consistent with historical value

AS 1/21/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529

EVENT NAME: Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53819

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/21/2014	FIELD MATRIX:	WG	ok
TIME COLLECTED (HH:MM):		1232	MEDIA:	UA	↓
PRS ID:		ok	SAMPLE TECH CODE:	UA	BP
LOCATION ID:	MCO-6	↓	FIELD PREP:	F	ok
LOCATION TYPE:	OBS	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
NA	NH3+NO2NO3+TKN	~~250~~ 500 ML AMBER GLASS BP 1/21/14	1	H2SO4	Y	NA
↓	TDS	250 ML POLY	1	ICE	↓	↓
↓	WSP-CL04	250 ML POLY	1	ICE	↓	↓
↓	WSP-Fluoride	125 ML POLY	1	ICE	↓	↓

SAMPLE COMMENTS:

NA

LOCATION COMMENTS:

NA

FIELD PARAMETERS:

Dissolved Oxygen 7.55 mg/L Flow (in gpm) 0.20 GPM Oxidation-Reduction Potential -47.1 mV

pH 6.47 SU Specific Conductance 1082 uS/cm Temperature 10.23 deg C

Turbidity 0.40 NTU

COLLECTED BY (PRINT) W. Shaw, M. Jojola

RELINQUISHED BY (Printed Name) Andy Mike (Signature)	Date/Time 1/21/14 1310	RECEIVED BY (Printed Name) S. Sherwood (Signature) Sheri Sherwood	Date/Time 1/21/14 1310
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

1/21/14 MCO-6

1150 crew onsite, see pg. 50 for morning activities
crew: A. Stokes, W. Shan, M. Fojola
weather: 40s-50s, clear
2-min-safety: whip restraints, potholes
Objectives: purge + sample MCO-6 per SOPs and referenced documents, on pg. 3 using MP-10 controller + Nitrogen
1155 DTW = 38.16' TOC
1158 DTW = 38.16' TOC, in TD = 45.26' TOC, WC = 7.1'
4" SS 1CV = (0.653 gal/ft × WC) = 4.6 gal
3CV = = 13.9 gal
1203 pump on @ 40 psi
1204 water to surface
1206 Begin logging parameters on Groundwater Sampling Log, see SOP Compliance Checklist for stability
1216 Begin using HACH Turbidimeter 4S because of negative turbidity on YSI
1229 pump paused, 4.6 gal (1CV) purged, parameters stable
1232 Begin sampling
1237 sampling complete, pump off, Objectives complete to purge + sample per SOPs and referenced documents
samples preserved by M. Fojola
1248 crew offsite
1310 submitted samples to SMO: Event ID: 4529; Sample ID: CAMO-14-53819

JS 1/21/14

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BS 1/21/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6849.48 ft. msl	Well Diameter: 4 inches	Date: 1/21/14
Watershed: Mortandad	Water Level: NA ft. msl	Top of Screen: 29.66 ft. toc	Notes:
Well: MCO-6	*TD: 45.26' 6 Toc	Bottom of Screen: 49.66 ft. toc	NA
Sampling Device: BI + MP10 + N_2	*DTW: 38.16' 6 Toc	Water Column: 7.1 ft.	
Measuring Point: + 2.66'	Drop Pipe: NA gal.	1CV: 4.6 gal.	Packer Pressure
* Completion Depth: TD		3CV: 13.9 gal.	Before: ____ psi
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials		Actuation: BS psi
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)			Opening: 1/21/14 psi
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)			After: ____ psi

TIME (MST) / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. 6 Toc	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1203	Pump on @ 40 psi.								
1204	water to surface								
1206	6.65	10.33	858	8.04	1.5	-89.9	38.25	0.20	clear, odorless
1211	6.54	10.27	1082	7.68	0.0	-66.0	38.21	0.20	
1216	6.51	10.24	1084	7.63	*0.45	-56.1	38.21	0.20	
1221	6.49	10.21	1083	7.56	0.65	-50.8	38.25	0.20	
1226	6.47	10.23	1082	7.55	0.40	-47.1	38.28	0.20	
1229 ~~1225~~ BS 1/21/14	Pump paused, 4.6 gal purged + parameters stable								
1232	Begin sampling								
1237	Sampling complete, pump off								
				BS 1/21/14					

WASTE

Contact:	½ gal.	Drum#: BS 1/21/14 ~~Municipal~~ Siena 55 gal drum 10171407	Final Water Level: 38.25' 6 Toc
*Purge Water: BS 4.6	gal.	Drum#'s: 10166182 30 gal poly	*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)
Total Waste Water: 1/21/14 BS 4.5	gal.		

BS 1/21/14 * Switching HACH Turbidimeter #5 because of negative turb on YSI

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SS 1/21/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: MCO-6

Date: 1/21/14

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: NA 3 CVs: 13.9	NA	4.6	1	Y N	NA

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1216	6.51	1084	7.63	0.45	NA
1221	6.49	1083	7.56	0.65	
1226	6.47	1082	7.55	0.40	
Calculations:	Upper: 6.51 Lower: 6.47 Difference: 0.04	Median: 1083 Upper: 1115 Lower: 1051	Upper: 7.63 Lower: 7.55 Difference: 0.08	Median: 0.45 Upper: <10 Lower: <10	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	SOPs met all objectives complete - parameters stable

SS 1/24/14

Los Alamos National Laboratory

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 4529

EVENT NAME: Mortandad/Sandia MY2014 Q2 Watershed Sampling_Discharge Permit Sampling

SAMPLE ID: CAMO-14-53820

WORK ORDER: NA

	AS PLANNED	AS COLLECTED		AS PLANNED	AS COLLECTED
DATE COLLECTED (MM/DD/YYYY):		01/29/2014	FIELD MATRIX:	WG	OK
TIME COLLECTED (HH:MM):		11:42	MEDIA:	UA	↓
PRS ID:		OK	SAMPLE TECH CODE:	UA	~~GSP~~ ~~GSL~~ 1/29/14 BP
LOCATION ID:	MCO-7	↓	FIELD PREP:	F	OK
LOCATION TYPE:	OBS	↓	FIELD QC TYPE:	REG	↓
PORT:	SINGLE COMPLETION	↓	SAMPLE USAGE:	INV	↓

PRIORITY	ORDER	CONTAINER	#	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
N/A	NH3+NO2NO3+TKN	250 ML AMBER GLASS	1	H2SO4	Y	N/A
↓	TDS	250 ML POLY	1	ICE	Y	↓
↓	WSP-CL04	250 ML POLY	1	ICE	Y	↓
↓	WSP-Fluoride	125 ML POLY	1	ICE	Y	↓

SAMPLE COMMENTS: N/A

LOCATION COMMENTS: N/A

FIELD PARAMETERS:

Dissolved Oxygen 8.42 mg/L Flow (in gpm) 0.18 GPM Oxidation-Reduction Potential -1.8 mV

pH 6.11 SU Specific Conductance 511 uS/cm Temperature 10.12 deg C

Turbidity 1.9 NTU

COLLECTED BY (PRINT) A. Stocker

RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time
Julie Maze	1/29/14 1220		1/29/14 1220
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

Report Date 01/06/2014

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MCO-7

1/29/2014
0700 H&S tailgate conducted at TA-64 by W. Shaw geo Op
0726 Meter #10 calibrated at TA-64 by W. Shaw
Log # BP 2011 - 0072
0950 onsite
2 minute Safety: Slips, trips, falls, Heavy lifting, pressure systems, bats, locate yourself upwind of gases, waste
Field crew: W. Shaw, J Maze, A. Stocker
Weather: 40's Sunny
Objectives: purge and sample MCO-7 with N_2 and a Bladder pump in accordance with procedures on p3

1003 mDTW = 41.13' bTOC
1006 mDTW = 41.13' bTOC
mTD = 55.04' bTOC ~~73.36~~ 71.18' TD = 71.18' bTOC ~~bgs = 73.36' bTOC~~
WC = TD - mDTW = ~~71.18~~ - 41.13 = ~~30.05~~ 30.05' ~~32.23'~~
ICV = (0.367 gal/ft) WC = (0.367 gal/ft)(30.05') = 11.03 gal
3W = ICV(3) = 33.1 gal
1033 pump on at 40 psi water to surface
1035 parameters begin logging on YSI #10
A Stocker measures flow rate $\frac{.700L}{3.8L} \times 1gal = 0.18$
1056 A Stocker measures flow rate $\frac{.700L}{3.8L} \times 1gal = 0.18$ gpm
1105 J. Maze measures flow rate $\frac{.650L}{3.8L} \times 1gal = 0.17$ gpm
1120 J Maze measures flow rate $\frac{.700}{3.8L} \times 1gal = 0.18$ gpm
1140 pump paused
1142 pump on begin sampling
1144 sampling complete pump off
A Stocker preserves samples
Objectives complete MCO7 purged and sampled in accordance with procedures on p3
1149 W. Shaw plunges well
1200 offsite
1320 Relinquish samples at SNL c/o N Montoya

MCO-7 cont

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1/29/14

Event ID # 4529
Sample ID # CAMO-14-53820

William Shaw 1/29/14

SOP-20032 Rev. 1 Compliance Checklist

Well Name: MCO-7
Date: 1/29/2014

Discharge calculation method	Calculated volumes (gal):	Drop pipe volume purged (gal)	Purge water volume purged (gal)	CV's Purged before sampling	Minimum Purge Met?	Comments:
Flow Meter (Manual)	Drop Pipe: N/A 3 CVs: 33.1	N/A	11.7	1 CV	Y N	N/A

Parameters collected at proper intervals? (HH:MM)	Stable for three consecutive readings? pH ≤ 0.2 STU variance	Specific Conduct. ± 3% (>100) ± 5% (≤100)	Dissolved Oxygen ≤ 0.2 mg/l variance	Turbidity <10 NTU or ± 10%,	Comments:
1130	6.08	511	8.44	2.3	
1135	6.10	511	8.42	2.0	
1140	6.11	511	8.42	1.9	
Calculations:	Upper: 6.11 Lower: 6.08 Difference: 0.03	Median: 511 Upper: 511 Lower: 511	Upper: 8.44 Lower: 8.42 Difference: 0.02	Median: 2.0 Upper: 2.3 Lower: 1.9	
Y N	Y N	Y N	Y N	Y N	

SOP Requirements Met?	Comments:
Y N	yes 1/29/14 N/A

William Shaw 1/29/14

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William Shaw 1/29/14

Groundwater Sampling Log

Project: IFWGMP MY2013	LSD: 6827.31	ft. msl	Well Diameter: 3	inches	Date: 1/29/14		
Watershed: Mortandad	Water Level: N/A	ft. msl	Top of Screen: 41.18	ft.bTIC	Notes: N/A		
Well: MCO-7	*TD: 71.18 bTOC		Bottom of Screen: 71.18	ft.bTIC			
Sampling Device: BP	DTW: 41.13' bTOC		Water Column: 30.05	ft.			
Measuring Point: bTOC	Drop Pipe: N/A	gal.	1CV: 11.03	gal.	Packer Pressure		
* Completion Depth: TD			3CV: 33.1	gal.	Before: N/A	psi	
[* ft. BTOC / BTIC / BGS / MSL]	Note height of TOC/TIC on MP for Alluvials				Actuation:	psi	
DTW = (LSD - Water Level).....Water Column = (TD - DTW).....Drop Pipe = (DTW x Drop Pipe Diameter Multiplier)					Opening:	psi	
1CV = (Water Column x Well Diameter Multiplier)..... 3 CV = (1CV x 3)					After:	psi	

TIME MST / DST	pH SU	TEMP °C	SPEC COND µs/cm	DO mg/l	Turb NTU	ORP mV	Water Level* ft. bTOC	Discharge Rate (GPM)	NOTES
Stability:	≤ 0.2 STU variance		± 3% (>100) ± 5% (≤100)	≤ 0.2 mg/l variance	<10 or ± 10%				
1033	pump on / water to surface								
1035	6.52	8.88	470	8.95	18.5	-33.4	41.31	0.18	clear, odorless
1105	6.04	10.04	512	8.52	5.9	-2.5	41.43	0.17	
1120	6.07	10.07	511	8.46	3.0	-1.7	41.45	0.18	
1125	6.07	10.10	511	8.44	2.7	-1.7	41.41	0.18	
1130	6.08	10.07	511	8.44	~~1.5~~ 2.3 NTU	-1.5	41.43		
1135	6.10	10.11	511	8.42	2.0	-1.5	41.42		
1140	6.11	10.12	511	8.42	1.9	-1.8	41.45		
1140	pump paused								
1142	pump on begin sampling								
1144	Sampling complete / pump off								

William Shaw 1/29/2014

WASTE			
Contact:	1 gal.	Drum#: 10171907	
*Purge Water:	11.7 gal.	Drum#'s: 10166181	
Total Waste Water:	11.7 gal.		

Final Water Level: 41.25' bTOC

*Purge: Formation water purged prior to sampling (excluding drop pipe water and sampling water)

1/24/14

William Shaw

Watershed/ Monitoring Group/or Dates Included: Mortandad/ Pajarito Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/29/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew	crew	crew W. Shaw, A Stader	crew A. Vigil, J. Jordan
	1/29/14	J Maze	
sites ~~MC~~ WS	sites	sites MCO-7	sites R-61
			Land Appr

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- by stander effect
- hydrate

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☒ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☐ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities: WS 1/29/14

☒ Emergency Communications/Access Control
☒ Point-of-Contact R. Reynolds
☒ Fire Danger Status Moderate
☒ Weather H 40's partly cloudy
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics ELK

Name (*print*)	Signature	Z Number
Meeting Conducted By: William Shaw		234056
Maurice Shando		169197
Julie Maze		181893
Andrew Vigil		096552
David Fellenz		272463

* This form is intended to encourage identification of potential hazards encountered during sampling activities in accordance with Attachment F10-1 of Exhibit F for the Sampling MTOA.. It is NOT intended to serve as a comprehensive list of all hazards. Further safety information can be found in applicable ISDs, SOPs, IWDs, etc.

Watershed/ Monitoring Group/or Dates Included:
Date:

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
Andrew Stocker	Andrew Stocker	238905
James Jordan	James Jordan	176595

Watershed/ Monitoring Group/or Dates Included: Mortandad / Pajarito Q 2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☐ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/28/2014 0720

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew	crew	crew	crew A. VIGIL, J. JORDAN
	1/28/2014 A.V.		M. Shendo
sites	sites	sites	sites cdv-16-21r
			R-47
			R-4, R-50, R-61

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☒ WM ☐ WL ☐ S Mortandad/ Sandia
☒ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☐ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:
1/28/2014 A.V.

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
① PPE-
② Slips, Trips, Falls and careful lifting Container AND TRASH pump.
③ Ladder Spotter 3 Points of contact

☒ Emergency Communications/Access Control
☒ Point-of-Contact R. Reynolds
☒ Fire Danger Status Moderate
☒ Weather 40°
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☐ Generators, Electrical N/A

☐ Pressure Systems/Nitrogen Tank Transport N/A
☐ Sample Collection N/A
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics hydrate

	Name (*print*)	Signature	Z Number
Meeting Conducted By:	ANDREW VIGIL	[signature]	096552
	Maurice Shendo	[signature]	169197
	James Jordan	[signature]	176595

* This form is intended to encourage identification of potential hazards encountered during sampling activities in accordance with Attachment F10-1 of Exhibit F for the Sampling MTOA.. It is NOT intended to serve as a comprehensive list of all hazards. Further safety information can be found in applicable ISDs, SOPs, IWDs, etc.

Watershed/ Monitoring Group/or Dates Included:

Date:

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number

Watershed/ Monitoring Group/or Dates Included: Mortandad/ Pajarito Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☐ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/27/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew	crew	crew	crew A. VIGIL, M. Shendo
	1/27/2014 A.V.		
sites	sites	sites	sites CdV-16-21R
			R-47i
			R-4, R-61

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:

PPE - Glove, Safety Shoes
Safety Glasses

WINDY - Stay warm
stay Focused

WATERSHED:
☒ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☐ S Mortandad/ Sandia
☒ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☐ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:
1/27/2014 A.V.

☒ Emergency Communications/Access Control
☒ Point-of-Contact R. Reynolds
☒ Fire Danger Status Moderate
☒ Weather Windy High 40°
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☐ Generators, Electrical N/A

☐ Pressure Systems/Nitrogen Tank Transport N/A
☐ Sample Collection N/A
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics Hydrate

Name (*print*)	Signature	Z Number
Meeting Conducted By: Andrew Vigil	[signature]	096552
Maurice Shendo	[signature]	169197
James Jordan	[signature]	176595

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Watershed/ Monitoring Group/or Dates Included:

Date:

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number

Watershed/ Monitoring Group/or Dates Included: Pajarito / Mortandad Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☐ Waste Management (WM)

DATE/TIME: 1/24/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew M. Shendo, I. Jordan	crew W. Shaw, A. Vigil	crew	crew 1/24/14
M. Jojola		WS	
sites R-39	sites MCO-7	sites	sites

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Housekeeping

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☒ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities: WS 1/24/14

☒ Emergency Communications/Access Control
☒ Point-of-Contact R. Reynolds
☒ Fire Danger Status Moderate
☒ Weather Partly cloudy 40s
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics Hydrate

	Name (*print*)	Signature	Z Number
Meeting Conducted By:	William Shaw		234056
	Jordan		176595
	ANDREW VIGIL		096552
	Mickey Jojola		232320
	Kevin Read		111646

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Watershed/ Monitoring Group/or Dates Included:

Date: 1/24/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
Maurice Shendo	[illegible]	169197
Tracy McFarland	[illegible]	113022

Watershed/ Monitoring Group/or Dates Included: Pajarito / Mortandad

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☐ Waste Management (WM)

DATE/TIME: 1/23/2014 0630

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew B Fellenz, W Shan	crew M Shendo, J. Jordan	crew WS 1/23/14	crew A. Vigil, J. Romero
J Maze	A. Stalker		
sites R-61 S1	sites R-56 S1	sites	sites CDV-16-4.p

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Short cuts
- If you take them you might not come back

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☒ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities: WS 1/23/14

☒ Emergency Communications/Access Control
☒ Point-of-Contact R-Reynolds
☒ Fire Danger Status Moderate
☒ Weather Cold 20°
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics ECE

	Name (*print*)	Signature	Z Number
Meeting Conducted By:	William Shan		274056
	Maurice Shendo		169197
	James Jordan		176595
	ANDREW VIGIL		096552
	Kevin Reed		111640

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Watershed/ Monitoring Group/or Dates Included:

Date: 1/23/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
Tracy McFarland		113622
David Fellers		272463
Julie Maze		181893
Jonathan Romero		176677

Watershed/ Monitoring Group/or Dates Included: Pajarito / Mortandad Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☑ Samplers (S) ☐ Water Level (WL)
☑ Waste Management (WM)

DATE/TIME: 1/22/2014 WS 1/22/14 6:30

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew W. Shaw, A. Stocker	crew D. Fellenz, J. Jordan	crew	crew A. Vigil, J. Romero
J Maze, M. Jojola	M. Shendo		
sites R-61 52	sites R-37 S1	sites	sites Consolidations
			CN-16-4iP
			CdV-R-37-2

David Fellenz 1/22/14

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Early, dark start
- Eye injuries
  ↳ wear protection

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☒ S Mortandad/ Sandia
☒ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:
WS 1/22/14

☒ Emergency Communications/Access Control
☒ Point-of-Contact ~~T. McFarland~~ R. Reynolds
☒ Fire Danger Status Moderate
☒ Weather 40°, cloudy
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics Darkness

Name (print)	Signature	Z Number
Meeting Conducted By: William Shaw		Z34056
Mickey Jojola		233320
Andrew Stocker		238905
Julie Maze		181893
James Jordan		176595

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Watershed/ Monitoring Group/or Dates Included:
Date: 1/22/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
ANDREW UIGIC	[illegible]	096552
David Felleuz	[illegible]	272463
Tracy McFarland	[illegible]	113022
Kevin Reid	[illegible]	111646
Maurice Shendo	[illegible]	169197
Jonathan Romero	[illegible]	176827

Watershed/ Monitoring Group/or Dates Included: Pajarito / Mortandad Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/21/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew D. Fellenz	crew A. Stocker, W. Shaw	crew	crew A. Vigil, J. Romero
J Maze, J. Jordan	M. Dojka		
sites R-43 S1/S2	sites MCO-4b/ MCO-6	sites	sites Land Appl.

WS 1/21/14

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Use the appropriate glove for the work/hazard you are handling
- Safe driving practices

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☒ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:
WS 1/21/14

☒ Emergency Communications/Access Control
☒ Point-of-Contact T. McFarland
☒ Fire Danger Status Moderate
☒ Weather Sunny 40s
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☐ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics hydrate

	Name (*print*)	Signature	Z Number
Meeting Conducted By:	William Shaw		234056
	ANDREW VIGIL		096852
	Jonathan Romero		176877
	James Jordan		176595
	Mikey Dojka		233320

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Watershed/ Monitoring Group/or Dates Included:
Date: 1/21/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
Kevin Read	Kevin Read	111646
David Fellenz	[illegible]	272463
Andrew Stocke	[illegible]	238905
Tracy McFarland	Tracy [illegible]	113022
Julie Maze	[illegible]	181893

Watershed/ Monitoring Group/or Dates Included: Pajarito/Mortandad Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☐ Waste Management (WM)

DATE/TIME: 1/17/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew W. Shaw, J Maze	crew D. Fellenz, M Tojola	crew	crew
sites R-34	sites MCOI-6	sites WS 1/17/14	sites

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Carbon monoxide poisoning
- hydrate

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☒ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities: WS 1/17/14

☒ Emergency Communications/Access Control
☒ Point-of-Contact R. Bohn
☒ Fire Danger Status Moderate
☒ Weather 40's Sunny
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics DIK

	Name (print)	Signature	Z Number
Meeting Conducted By:	William Shaw	[signature]	234056
	David Fellenz	[signature]	273463
	Julie Maze	[signature]	181893
	Mikey Tojola	[signature]	233320

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Watershed/ Monitoring Group/or Dates Included:
Date:

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number

Watershed/ Monitoring Group/or Dates Included: Pajarito/Mortandad Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/16/2014 0700 WS 1/16/14

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew W. Shaw, J. Maze, J. Jordan	crew D. Fellenz, B. Rappe	crew WS 1/16/14	crew A. Vigil, J. Romero
sites R-37 S1	sites R-41 S2	sites	sites Consolidation Land App.

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Aggresive driving
- Take it easy and get there safely

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☒ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☒ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities: WS 1/16/14

☒ Emergency Communications/Access Control
☒ Point-of-Contact T. McFarland
☒ Fire Danger Status Moderate
☒ Weather Sunny 40's
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics Elk

	Name (*print*)	Signature	Z Number
Meeting Conducted By:	William Shaw		234056
	James Jordan		176595
	BRappe	BRappe	220479
	ANDREW VIGIL		096552
	Tracy McFarland	Tracy McFarland	113022

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Watershed/ Monitoring Group/or Dates Included:
Date: 1/16/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
Kevin Reid	Kevin Reid	111644
David Fellenz	[illegible]	272463

Watershed/ Monitoring Group/or Dates Included: Pajarito/Mortandad Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/15/14 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew D. Fellenz, J Maze	crew W. Shaw, B Rappe	crew	crew A. Vigil, J. Romero
M. Jojola	J. Jordan		
sites R-35a	sites R-50 S1	sites WS 1/14/14	sites Consolidation

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- lock out/tag out procedures
- pause work
- Generators
- Fuel spills

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☒ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☒ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities: WS 1/14/14

☒ Emergency Communications/Access Control
☒ Point-of-Contact T. McFarland
☒ Fire Danger Status Moderate
☒ Weather Sunny 40's
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics FIK

Name (*print*)	Signature	Z Number
Meeting Conducted By: William Shaw		234056
BRappe	BRappe	220479
James Jordan		176595
Mickey Jojola		233320
David Fellenz		272463

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Watershed/ Monitoring Group/or Dates Included:
Date: 1/15/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
Julie Maze	[illegible]	181893
Jonathan Romero	[illegible]	176877
ANDREW UIGIC	[illegible]	096552
Tracy McFarland	[illegible]	113022

Watershed/ Monitoring Group/or Dates Included: Pajarito / Mortandad Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☐ Waste Management (WM)

DATE/TIME: 1/14/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew W. Shaw, M Shendo	crew D Fellenz, B Rappe	crew	crew A. Vigil, J Jordan
J Maze	M. Tojola		
sites R-45 51/52	sites R-35a	sites	sites Consolidations

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Road rage
- Keep hands clean

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☒ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:
W 1/14/14

☒ Emergency Communications/Access Control
☒ Point-of-Contact T. McFarland
☒ Fire Danger Status Moderate
☒ Weather 40's Sunny
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics Sunscreen

	Name (*print*)	Signature	Z Number
Meeting Conducted By:	William Shaw		194056
	Maurice Shendo		169197
	David Fellenz		272463
	Julie Maze		181893
	ANDREW VIGIL		096552

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Watershed/ Monitoring Group/or Dates Included:
Date: 1/14/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
BRapple	BRapple	220479
James Jordan	[illegible]	176595
Mickey Jojola	[illegible]	233300
Beryl Cruz	[illegible]	099183
Tracy McFarland	Tracy McFarland	113022

Watershed/ Monitoring Group/or Dates Included: Pajarito Q2 January 2014

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/13/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew M. Shando	crew W. Shaw, D. Fellenz	crew	crew A. Vigil, J. Romero
J. Maze	B. Rappe		J. Jordan
sites SCI-2	sites R-44 51/52	sites	sites Consolidations

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Know the difference between stop work and pause work
- hydrate
- eat regularly
- Hazard trees

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:

☒ Emergency Communications/Access Control	☒ Vehicle Safety Inspection	☒ Pressure Systems/Nitrogen Tank Transport
☒ Point-of-Contact T. McFarland	☒ 360° Walk Around	☒ Sample Collection
☒ Fire Danger Status Moderate	☒ Vehicle Operations	☒ Personal Protective Equipment (PPE)
☒ Weather Sunny 40's wind	☒ Distracted Driving	☒ TA-64, TA-59
☒ Slips/Trips/Falls/Lifting	No cell phone or 2-way radio use while driving	☒ Fire Extinguishers
☒ Pinch Points/Crushing	☒ Towing	☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Mechanical/Winches/Tools	☒ Spotter	☒ Unplanned or Abnormal Events
☒ Biological/Environmental Hazards	☒ Generators, Electrical	☒ Additional Safety Topics wind

Name (*print*)	Signature	Z Number
Meeting Conducted By: William Shaw		234056
Maurice Shando		169197
David Fellenz		222463
Kevin Reed		111646
Julie Maze		181893

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Watershed/ Monitoring Group/or Dates Included:
Date: 1/13/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
Bobbie Rappe	BRappe	220479
Jonathan Romero	Jonathan Romero	176877
ANDREW VIGIL	[illegible]	096652
James Jordan	[illegible]	176595
D Woody	David Woody	235360
Tracy McFarland	Tracy McFarland	113022

Watershed/ Monitoring Group/or Dates Included: Mortandad/Pajarito Q2

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☐ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/10/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew	crew	crew	crew A. Vigil, J. Jordan
	1/10/2014 A.V.		M. Shendo
sites	sites	sites	sites Pajarito, Mortandad
			LAWD Application

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS: Stop work - if unsure
PPE - Gloves, shoes, Glasses, Jackets,
Very windy, Cold
30 to 40 miles a hour Gusts
20 mile, winds
Partly Cloudys
Stay warm

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☒ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☒ WM ☐ WL ☐ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities: 1/10/2014 A.V.

☒ Emergency Communications/Access Control
☒ Point-of-Contact T. Mc Farland
☒ Fire Danger Status Moderate
☒ Weather ~ 30° 33° High
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☐ Generators, Electrical N/A

☐ Pressure Systems/Nitrogen Tank Transport N/A
☐ Sample Collection N/A
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics

Name (*print*)	Signature	Z Number
Meeting Conducted By: Andrew Vigil	Andrew Vigil	096552
Tracy McFarland	Tracy McFarland	113022
James Jordan	James Jordan	176595
Maurice Shendo	Maurice Shendo	169197

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Watershed/ Monitoring Group/or Dates Included:
Date:

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number

Watershed/ Monitoring Group/or Dates Included: Pajarito Q2 1/9/2014

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/9/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew D. Wadey, B Rappe	crew W. Shaw, M Shendo	crew	crew A. Vigil, J Romero
M. Tajola	J Maze		J Jordan
sites R-37 S1	sites R-39	sites	sites Mobe
			hand tools
			Reconsolidation

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Changing weather conditions
- sunscreen
- stay hydrated/fed

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☒ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:

☒ Emergency Communications/Access Control
☒ Point-of-Contact T. McFarlane
☒ Fire Danger Status Moderate
☒ Weather 42° part cloudy
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics Waste disposal

Name (*print*)	Signature	Z Number
Meeting Conducted By: William Shaw		234056
Maurice Shendo		169197
David Fellenz		272463
Julie Maze		181893
Jonathan Romero		176877

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Watershed/ Monitoring Group/or Dates Included:
Date: 1/9/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
ANDREW VIGIL	[illegible]	096552
Bobbie Rappe	Bobbie Rappe	220479
D Woody	David Woody	235360
M. Tajok	[illegible]	233320
Tracy McFarland	Tracy McFarland	113022
James Jack	[illegible]	176595

Watershed/ Monitoring Group/or Dates Included: Pajarito Q2 1/8/2014

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☒ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/8/2014 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew D. Fellenz, D. Woody	crew W. Shaw, ~~J. Jordan~~	crew	crew A. Vigil, J. Romero
B. Rappe, ~~M. Shenk~~	M. Jolly, M. Shenk		J. Maze
sites ~~R-56~~	sites R-5751	sites	sites Waste Sampling
R-5551			Mobe
			Reconsolidation

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Burnout
- get more rest
- take breaks
- eat regularly

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☒ WM ☐ WL ☒ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:

☒ Emergency Communications/Access Control
☒ Point-of-Contact T. McFarland
☒ Fire Danger Status Moderate
☒ Weather Sunny 40's
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☒ Generators, Electrical

☒ Pressure Systems/Nitrogen Tank Transport
☒ Sample Collection
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics Sickness/Illness

	Name (*print*)	Signature	Z Number
Meeting Conducted By:	William Shaw		Z34056
	David Fellenz		Z72463
	D Woody	David Woody	Z35360
	Julie Maze		Z81893
	Bobbie Rappe	B Rappe	Z20479

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Watershed/ Monitoring Group/or Dates Included:
Date: 1/8/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
Jonathan Ramero		176877
ANDREW VIGIL		096852
Nicky Jojola		233320
Tracy McFarland		113022
Maurice Shendo		169197
James Jordan		176595

Watershed/ Monitoring Group/or Dates Included: Pajarito Q2 1/7/14

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☑ Samplers (S) ☐ Water Level (WL)
☑ Waste Management (WM)

DATE/TIME: 1/7/14 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	~~Alluvial/ Water Level~~ Regional	Waste Management
crew	crew	crew	crew
D. Fellenz, M. Shendo	D. Woody, Julie Maze	DF 1/7/14	A. Vigil, J. Romero
M. Jojola	J. Jordan		B. Rappe
sites	sites	sites	sites
R-37 S2	R-23	~~R-50 S1~~	Mobing

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
- Kick off for Mort/Sand/Paj
- Flu
  ↳ wash your hands often
- Cold weather

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☑ WM ☐ WL ☑ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities: DF 1/7/14

☑ Emergency Communications/Access Control
☑ Point-of-Contact T. McFarland
☑ Fire Danger Status Moderate
☑ Weather Sunny, 40's
☑ Slips/Trips/Falls/Lifting
☑ Pinch Points/Crushing
☑ Mechanical/Winches/Tools
☑ Biological/Environmental Hazards

☑ Vehicle Safety Inspection
☑ 360° Walk Around
☑ Vehicle Operations
☑ Distracted Driving
No cell phone or 2-way radio use while driving
☑ Towing
☑ Spotter
☑ Generators, Electrical

☑ Pressure Systems/Nitrogen Tank Transport
☑ Sample Collection
☑ Personal Protective Equipment (PPE)
☑ TA-64, TA-59
☑ Fire Extinguishers
☑ First Aid Kit & Blood Borne Pathogen Kit
☑ Unplanned or Abnormal Events
☑ Additional Safety Topics Flu

Name (*print*)	Signature	Z Number
Meeting Conducted By: David Fellenz	[signature]	272463
Maurice Shendo	[signature]	169197
Julie Maze	[signature]	181893
Bobbie Rappe	[signature]	220479
Dave Woody	David Woody	235360

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Watershed/ Monitoring Group/or Dates Included:
Date: 1/7/14

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number
Mckay Tagle		233320
Jonathan Romero		176877
Andrew Stoker		238908
ANDREW UIGIL		096552
Tracy McFarland		113022
James Jordan		176595
Kevin Reed		111646
Tim Goering		140890

Watershed/ Monitoring Group/or Dates Included: ~~Mortandad/Sandia Q2~~ W3 1/3/14 NA

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☐ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 1/3/14 7:25

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew	crew	crew	crew J. Romero, M Shando
	1/3/14	1/3/14	M. Jojola
sites 1/3/14 JR	sites 1/3/14 JR	sites JR	sites hand Apps

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☒ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☐ WM ☐ WL ☐ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:
1/3/14 JR

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
Cold weather - Dress accordingly and in layers
cold stress - prevent exposure
Take breaks.
hydrate - drink lots of water

☒ Emergency Communications/Access Control
☐ Point-of-Contact Roy B.
☒ Fire Danger Status Moderate
☐ Weather mostly sunny 48°
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☐ Towing NA
☒ Spotter
☐ Generators, Electrical NA

☐ Pressure Systems/Nitrogen Tank Transport NA
☐ Sample Collection NA
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics

Name (*print*)	Signature	Z Number
Meeting Conducted By: Jonathan Romero	Jonathan Romero	176877
Michael Jojola		
Mauricio Shando		169197

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Watershed/ Monitoring Group/or Dates Included: N/A

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☐ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 12/24/2013 0800

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew	crew	crew	crew A. Vigil J. Romero
	12/24/2013 A.V.		M. JoJola, M Shendo
sites	sites	sites	sites R-51
			R-36

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
PPE - Gloves, Safety Shoes
Glasses,
Lifting - TRASH pump
Containers
Happy Holidays!

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☒ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☒ WM ☐ WL ☐ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:
12/24/2013 A.V.

☒ Emergency Communications/Access Control
☒ Point-of-Contact Roy B.
☒ Fire Danger Status moderate
☒ Weather 40°
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☐ Generators, Electrical N/A

☐ Pressure Systems/Nitrogen Tank Transport N/A
☐ Sample Collection N/A
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics

Name (*print*)	Signature	Z Number
Meeting Conducted By: Andrew Vigil	Andrew Vigil	096552
Jonathan Romero	Jonathan Romero	176877
Maurice Shendo	Maurice Shendo	169197
Mickey Jojola	[illegible]	233320

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Watershed/ Monitoring Group/or Dates Included:

Date:

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number

Watershed/ Monitoring Group/or Dates Included: N/A

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☐ Samplers (S) ☐ Water Level (WL)
☒ Waste Management (WM)

DATE/TIME: 12/23/2013 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew	crew	crew	crew A. VIGIL, J. Romero
	12/23/2013 A.V.		M. Sodola
sites	sites	sites	sites Pajarito
			Land Application
			Consolidations

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
ICE, IN TANKS
PPE, Gloves, Shoes

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☒ WM ☐ WL ☐ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:
12/23/2013 A.V.

☒ Emergency Communications/Access Control
☒ Point-of-Contact Roy B.
☒ Fire Danger Status moderate
☒ Weather 40°
☒ Slips/Trips/Falls/Lifting
☒ Pinch Points/Crushing
☒ Mechanical/Winches/Tools
☒ Biological/Environmental Hazards

☒ Vehicle Safety Inspection
☒ 360° Walk Around
☒ Vehicle Operations
☒ Distracted Driving
No cell phone or 2-way radio use while driving
☒ Towing
☒ Spotter
☐ Generators, Electrical N/A

☐ Pressure Systems/Nitrogen Tank Transport N/A
☐ Sample Collection N/A
☒ Personal Protective Equipment (PPE)
☒ TA-64, TA-59
☒ Fire Extinguishers
☒ First Aid Kit & Blood Borne Pathogen Kit
☒ Unplanned or Abnormal Events
☒ Additional Safety Topics

	Name (*print*)	Signature	Z Number
Meeting Conducted By:	ANDREW VIGIL	[signature]	096552
	Mickey Jojola	[signature]	233360
	Jonathan Romero	[signature]	126877
	Maurice Shendo	[signature]	169197

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Watershed/ Monitoring Group/or Dates Included:

Date:

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number

Watershed/ Monitoring Group/or Dates Included: NA

Daily Tailgate Safety Form

PROJECT: MTOA T.O. 11; #63485-000-10
ACTIVITY DESCRIPTION: Groundwater Sampling and Site-wide Monitoring Support

FIELD TEAMS:
☐ Samplers (S) ☐ Water Level (WL)
☑ Waste Management (WM)

DATE/TIME:
10/20/2013 0700

DAILY ACTIVITIES:

Intermediate/Regional	Intermediate/Regional	Alluvial/ Water Level	Waste Management
crew	crew	crew	crew Jordan, JoJola
sites	sites WS 10/20/2013	sites	sites Pajarito water shed

SPECIAL SAFETY TOPIC OF DAY and/or COMMENTS:
Avoid back injuries: lift w/ legs, don't twist while lifting

WATERSHED:
☐ WM ☐ WL ☐ S Los Alamos/ Pueblo
☐ WM ☐ WL ☐ S Mortandad/ Sandia
☐ WM ☐ WL ☐ S Water/ Cañon de Valle
☐ WM ☐ WL ☐ S Ancho
☑ WM ☐ WL ☐ S Pajarito/ Potrillo/ Fence
☐ WM ☐ WL ☐ S White Rock

Other Activities:
collect composite waste sample of field parameter calibration fluids in TA 64

☑ Emergency Communications/Access Control
☐ Point-of-Contact 2nd ~~Roy Bohor~~ T. McFarland 10-20-13
☑ Fire Danger Status Mod
☑ Weather overcast, cold, 40% chance snow
☑ Slips/Trips/Falls/Lifting
☑ Pinch Points/Crushing
☑ Mechanical/Winches/Tools
☑ Biological/Environmental Hazards

☑ Vehicle Safety Inspection NA
☑ 360° Walk Around
☑ Vehicle Operations
☑ Distracted Driving
No cell phone or 2-way radio use while driving
☐ Towing NA
☑ Spotter
☑ Generators, Electrical

☐ Pressure Systems/Nitrogen Tank Transport
☑ Sample Collection
☑ Personal Protective Equipment (PPE)
☑ TA-64, TA-59
☑ Fire Extinguishers
☑ First Aid Kit & Blood Borne Pathogen Kit
☑ Unplanned or Abnormal Events
☑ Additional Safety Topics_____

Name (*print*)	Signature	Z Number
Meeting Conducted By: James Jordan	James Jordan	176595
Mickey Jojola		233320
Tracy McFarland	Tracy McFarland	113022

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Watershed/ Monitoring Group/or Dates Included:

Date:

Daily Tailgate Safety Form (Continued)

Name (*print*)	Signature	Z Number

Appendix D

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FW: Discharge permit sampling next quarter
McFarland, Tracy L
to:
Baucom, Pattie C, Reid, Kevin D
12/17/2013 04:09 PM
Hide Details
From: "McFarland, Tracy L" <tlmcf@lanl.gov>
To: "Baucom, Pattie C" <pbaucom@terranearpmc.com>, "Reid, Kevin D" <kreid@terranearpmc.com>
History: This message has been replied to.

I'll prepare a DCO, but wanted to give you a heads up.

From: Beers, Bob
Sent: Tuesday, December 17, 2013 3:42 PM
To: McFarland, Tracy L
Cc: Saladen, Michael T
Subject: RE: Discharge permit sampling next quarter

Tracy,

Below are the Discharge Permit sampling plans for the 1st quarter of CY14.

I have removed MCO-3 from the DP-1132 sampling plan because the well was destroyed in the Sept floods.

CDBO-6 was dry during all of CY13. If there is sufficient water for sampling in January then both the quarterly and the annual samples should be collected.

Let me know if you have questions.

Thanks and Happy Holidays,

Bob

Voluntary Groundwater Monitoring for Discharge Permit Application DP-1132 (CY14)

Sampling Activity	Frequency	Locations	Analytes	Field Prep
groundwater	quarterly	MCO-4B, MCO-6, MCO-7	ClO4, NO3+NO2-N, TKN, NH3-N, TDS, F	filtered

Groundwater Monitoring for Discharge Permit DP-857 (CY14)

Sampling Activity	Frequency	Locations	Analytes	Field Prep
Groundwater	quarterly	CDBO-6	ClO4, NO3+NO2-N, TKN, NH3-N, TDS, F	filtered
Groundwater	annual	CDBO-6	Full Suite[1]	per list below

[1]Full Suite-water means the following:
(1) filtered metals: As, Ba, Cd, CN, Cr, Pb, Se, Ag, U, Cu, Fe, Mn, Zn, Al, B, Co, Mo, Ni.
(2) unfiltered metals: Hg
(3) unfiltered general inorganics: Cl, NO3+NO2-N, TKN, NH3-N, TDS, ClO4, SO4, F.
(4) unfiltered organics: VOA, SVOA, PCBs (Aroclor method)
(5) unfiltered radiologicals: gross alpha, Ra-226 and Ra-228.

From: McFarland, Tracy L
Sent: Tuesday, December 17, 2013 9:37 AM
To: Beers, Bob
Subject: Discharge permit sampling next quarter

Hi Bob,

Can you please send me the sampling plan for the discharge permit samples for next quarter. TPMC will be sampling in January.

Thanks,
Tracy

Tracy L. McFarland
Los Alamos National Laboratory

606-8186 (w)
412-7429 (c)

1/8/14
R3b

Sampling Work Plan for Mortandad/Sandia Q2 (Chromium Investigation and General Surveillance) and Pajarito Q2 (TA-54 Monitoring Group)
January 2014

Mortandad/Sandia Well-Specific Guidance:

R-34: Measure specific conductance manually due to effervescence.

R-50 S2: Purge R-50 S2 at approximately 1.5 gpm to prevent pump problems. Screen shows significant effervescence; measure specific conductance manually (outside of the flow-through cell) to minimize interference.

R-61 S1 and S2: Conduct a 12-CV extended purge on both screens, sampling for the analytes listed in the table below. The Interim Monitoring Plan (IFGMP) sample for offsite analysis should be collected per the Groundwater Sampling SOP between 3 and 6 CVs. Measure specific conductance manually in R-61 S1 due to effervescence.

Samples analyzed at GGRL are screening samples, and should be coded as Sample Type "W". Sampling and analytical costs for these additional analyses should go to Project Code MR3A 0516 BZA0.

Table 1. Analytes and sampling frequency intervals for R-61 S1 and S2

Suite	Field Prep	Lab	1 CV + DP	3 CVs	6 CVs	9 CVs	12 CVs
Anions	F	GGRL	—	X	X	X	X
Alkalinity/pH	NF	GGRL	—	X	X	X	X
Filtered Metals	F	GGRL	—	X	X	X	X
Non-Filtered Metals	NF	GGRL	--	X	X	X	X
TOC	NF	GGRL	—	X	X	X	X
TPH-DRO	NF	GEL	X	X	X	X	X
Chromium isotopes	F	offsite	X	X	X	X	X
IFGMP Sample	F / NF	GEL	—	Collect IFGMP Sample per SOP		—	—

Pajarito (TA-54 Monitoring Group) Well Specific Guidance:

No special samples are required for this campaign. Well screens R-37 S2 and R-57 S1 have shown effervescence during recent sampling events; however, the level of effervescence does not significantly affect the measurement of field parameters, and no modifications to the sampling routine are necessary. Sample all wells per the Groundwater Sampling SOP.

Appendix L

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MORTANDAD.SANDIA Q2 2014—WASTE SUMMARY				
Location Name	**Sample Date**	**Contact Waste**	**Purge Water**	**Decon Water**
CDBO-6	.	.	.	.
MCO-4B	1/21/2014	0.5	2.2	.
MCO-6	1/21/2014	0.5	5	.
MCO-7	1/29/2014	1	11.7	.
MCOI-6	1/17/2014	0.5	170	.
R-11	1/9/2014	0.5	195	.
R-28	.	.	.	.
R-34	1/17/2014	0.5	378	.
R-35a	1/16/2014	0.5	764.4	.
R-35b	1/15/2014	0.5	245	.
R-37 S1	.	.	.	.
R-37 S2	1/7/2014	0.25	290	.
R-42	.	.	.	.
R-43 S1	1/21/2014	0.75	240	.
R-43 S2	1/21/2014	0.75	120	.
R-44 S1	1/13/2014	0.5	210	.
R-44 S2	1/13/2014	0.5	275	.
R-45 S1	1/14/2014	0.25	205.2	.
R-45 S2	1/14/2014	0.25	316.8	.
R-50 S1	1/15/2014	0.5	197.6	.
R-50 S2	1/15/2014	0.5	338.4	.
R-55 S1	1/8/2014	0.25	385	.
R-61 S1	1/23/2014	1.5	775	.
R-61 S2	1/22/2014	1	1169.7	.
SCI-2	1/13/2014	0.5	.	.
	Totals	**12**	**6294**	**0**
*All volumes are given in gallons				

PAJARITO Q2 2014 —WASTE SUMMARY				
Location Name	**Sample Date**	**Contact Waste**	**Purge Water**	**Decon Water**
R-23	1/7/2014	0.5	250	.
R-39	1/24/2014	0.25	175	.
R-41 S2	1/16/2014	0.5	145	.
R-56 S1	1/23/2014	0.5	290	.
R-57 S1	1/8/2014	0.25	255.6	.
Totals		**2**	**1115.6**	**0**
*All volumes are given in gallons				