

SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	Oxy Reverse C Valve Set 3 Release					
Company:	Solaris Water Midstream					
Section, Township and Range	Unit P	Sec. 24	T 24S	R 29E		
Lease Number:	API No.					
County:	Eddy County					
GPS:	32.198580° N			103.930730° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of HWY 128 & Twin Wells Road, travel South on Twin Wells Road for approximately 9.9 miles, turn WEST onto McDonald Road for 4.8 mi, turn NORTH onto Gavalin Road for 0.25 mi to location on SOUTHEAST side of lease road					

Release Data:

Date Released:	12/7/2019
Type Release:	Produced Water
Source of Contamination:	Valve Set Station
Fluid Released:	356 bbls
Fluids Recovered:	30 bbls

Official Communication:

Name:	Rob Kirk		Clair Gonzales
Company:	Solaris Water Midstream, LLC		Tetra Tech
Address:	907 Tradewinds Blvd		901 W. Wall St.
	Ste B		Ste 100
City:	Midland Texas, 79706		Midland, Texas, 79701
Phone number:	432-203-9020		(432) 687-8123
Fax:			
Release Data:	Rob.Kirk@solarismidstream.com		Clair.Gonzales@Tetrattech.com

Site Characterization

Depth to Groundwater:	231.02'
Karst Potential:	Low

Recommended Remedial Action Levels (RRALs)

Benzene	Total BTEX	TPH (GRO+DRO)	TPH (GRO+DRO+MRO)	Chlorides
10 mg/kg	50 mg/kg	100 mg/kg	100 mg/kg	600 mg/kg



April 1, 2020

Mr. Mike Bratcher
District Supervisor
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Monitoring Work Plan for the Solaris Water Midstream, LLC, Oxy Reverse C Valve Set 3 Release, Unit P, O, N, M, Section 24, Township 24 South, Range 29 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by Solaris Water Midstream, LLC (Solaris) to assess a release that occurred at a weld failure on a cross-manifold connecting multiple produced water lines, located in Unit P, Section 24, Township 24 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.198580°, -103.930730°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the release was discovered on December 7, 2019, and released approximately 356 barrels of produced water due to a weld failure on a manifold. Thirty (30) barrels of the produced water was recovered. The release occurred at the valve set station and began flowing Southeast, following the North shoulder of Gavalin Road, then flowed across McDonald Road into a clearing and migrated into the draw. The impacted areas measuring approximately 2400' x 4'. The C-141 Form is included in Appendix A.

Site Characterization

A site characterization was performed for the site and no lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. However, the site is in a low karst potential area and migrated into a draw. A watercourse is located within 300' of the site, according to the USGS topographic map.

The nearest water well is listed on the United States Geological Survey (USGS) national water information system, approximately 1.05 miles Northeast of the site, and has a reported depth to groundwater of 231.02' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is approximately 175' below surface. The site characterization data is shown in Appendix B.

Tetra Tech

901 West Wall St, Suite 100, Midland, TX 79701

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, updated August 14, 2018. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the site characterization, the proposed RRAL for TPH is 100 mg/kg (GRO + DRO + MRO). Additionally, based on the site characterization, the proposed RRAL for chlorides is 600 mg/kg.

Soil Assessment and Analytical Results

Lease Road Area

On December 17, 2019, Tetra Tech personnel were onsite to evaluate and sample the release area. A total of seven (7) auger holes (AH-1 through AH-7) were installed in the lease road area of the release, to total depths ranging from surface to 4.5' below surface. Soil samples were collected and submitted to the laboratory for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.

Referring to Table 1, none of the samples analyzed showed benzene, TPH, or total BTEX concentrations above the laboratory reporting limits. However, the area of AH-1 showed chloride concentrations above the RRAL from surface to 3.0'-3.5', ranging from 4,120 mg/kg to 9,440 mg/kg. The area of AH-2 showed chloride concentrations of 4,980 mg/kg at 0'-1' and 1,510 mg/kg at 1.0'-1.5' below surface. The area of AH-3 showed chloride concentrations of 615 mg/kg at 0-1'. The area of AH-5 showed a chloride concentration of 4,980 mg/kg from surface to 1.0' and then declined with depth to below the RRALs at 1.0'-1.5' below surface, then again showed an elevation at 1,250 mg/kg at 2.0'-2.5' below surface and 683 mg/kg at 3.0'-3.5' below surface. The area of AH-6 showed a chloride concentration of 902 mg/kg at 0'-1.0' and then declined with depth below the RRALs at 1.0'-1.5' below surface, then again showed an elevation at 2,420 mg/kg at 2.0'-2.5'. The area of AH-7 showed a chloride concentration above the RRAL at surface, reported as 2,970 mg/kg. The areas of AH-1, AH-6, and AH-7 were not vertically defined for chlorides; deeper samples were not collected due to the dense formation in the area.

Draw Area

A total of fourteen (14) auger holes were installed in the draw area (AH-8 through AH-21) to total depths ranging from surface to 3.5' below surface. A background auger hole was installed in order to evaluate the natural conditions of the soil. Selected soil samples were collected and submitted to the laboratory for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C and the results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.



Referring to Table 1, all the samples analyzed for benzene, total BTEX, and TPH were below the laboratory reporting limits. Also, the areas of auger holes (AH-8 through AH-21) all showed chloride concentrations above the RRAL, with concentrations ranging from 1,880 mg/kg to 8,220 mg/kg. None of the areas of the draw were vertically defined for chloride; deeper samples were not collected due to the dense formation of the draw.

Background

Referring to Table 1, the background samples showed chloride concentrations of 14.4 mg/kg, <5.03 mg/kg, 8.47 mg/kg for depths 0'-1.0', 1.0'-1.5', and 2.0'-2.5' below surface, respectively.

Remediation Plan

Based on the laboratory results, Solaris proposes to excavate the areas of AH-1, AH-2, AH-3, AH-5, AH-6, and AH-7, as shown on Figure 4 and highlighted (green) on Table 1. Due to the location of the release and the flow path, safety concerns and traffic hazards will be considered during the excavation of the areas of AH-1, AH-2, AH-3, AH-5, AH-6, and AH-7, the areas of these augers will be excavated to between 1.0' and 2.0' below surface along the northern shoulder of the lease road to alleviate risk. Five (5) point composite bottom hole and sidewall confirmation samples will be collected every 200 sq. ft to ensure proper removal of the impacted soils. All excavation activities will be completed based on laboratory data unless safety concerns inhibit safe removal of impacted soils.

The proposed excavation depths may not be reached due to wall cave-ins and safety concerns for onsite personnel. Also, impacted soil around oil and gas equipment, structures or lines may not be viable or practicable to be removed due to safety concerns for on-site personnel. Additionally, numerous underground pipelines are in the area. As such, Solaris will excavate the impacted soils to the maximum extent practicable.

Once the excavation is complete, the areas will be backfilled with clean material to surface grade. Solaris estimates approximately 535 cubic yards will be excavated, and the remediation to be implemented 90 days after the work plan is approved.

Revegetation

Solaris proposes to perform reseeding at the site once the remediation is completed. Reseeding will be performed in June 2020 to coincide with the rainy season in Southeastern New Mexico and aid in revegetation. Based on the soils at the site, the BLM Loamy (L) Sites Seed Mixture will be used and will be planted in the amount specified in the pounds pure live seed (PLS) per acre. The seed mixture will be spread by a drill equipped with a depth regulator or a handheld broadcaster and raked. If a handheld broadcaster is used for dispersal, the pounds PLS per acre will be doubled. The soil survey information and BLM seed mixture to be used is included in Appendix D.

Proposed Monitoring Work Plan

Solaris proposes to monitor the draw area (AH-8 through AH-21) every quarter in 2020 and after heavy rainfall events. The draw area has limited access to remediate or access to perform the necessary work in the release area in a safe manner due to wall cave-ins and safety concerns for onsite personnel. Also, impacted soil around structures or lines may not be viable or practicable to be removed due to safety concerns for on-site staff.



Conclusion

Solaris requests an onsite meeting with NMOCD and BLM staff to visualize and discuss the access and safety issues at the site.

Once the monitoring activities have been completed, a final report will be submitted. If you have any questions or comments concerning the assessment or remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

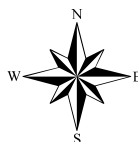
A handwritten signature in blue ink that reads 'Clair Gonzales'.

Clair Gonzales, P.G.
Project Manager

Figures



SITE LOCATION



0 10,416.5 20,833
Approximate Scale in Feet



STATE LOCATOR MAP

OVERVIEW MAP OXY REVERSE C

Property Located at coordinates 31.198580°, -103.930730°
EDDY COUNTY, NEW MEXICO

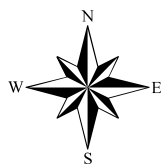


Project #: 212C-MD-02030
Date: 01-07-2020
Drawn By: MLM

FIGURE
1



SITE LOCATION



0 1,000 2,000

Approximate Scale in Feet

TOPOGRAPHIC MAP OXY REVERSE C

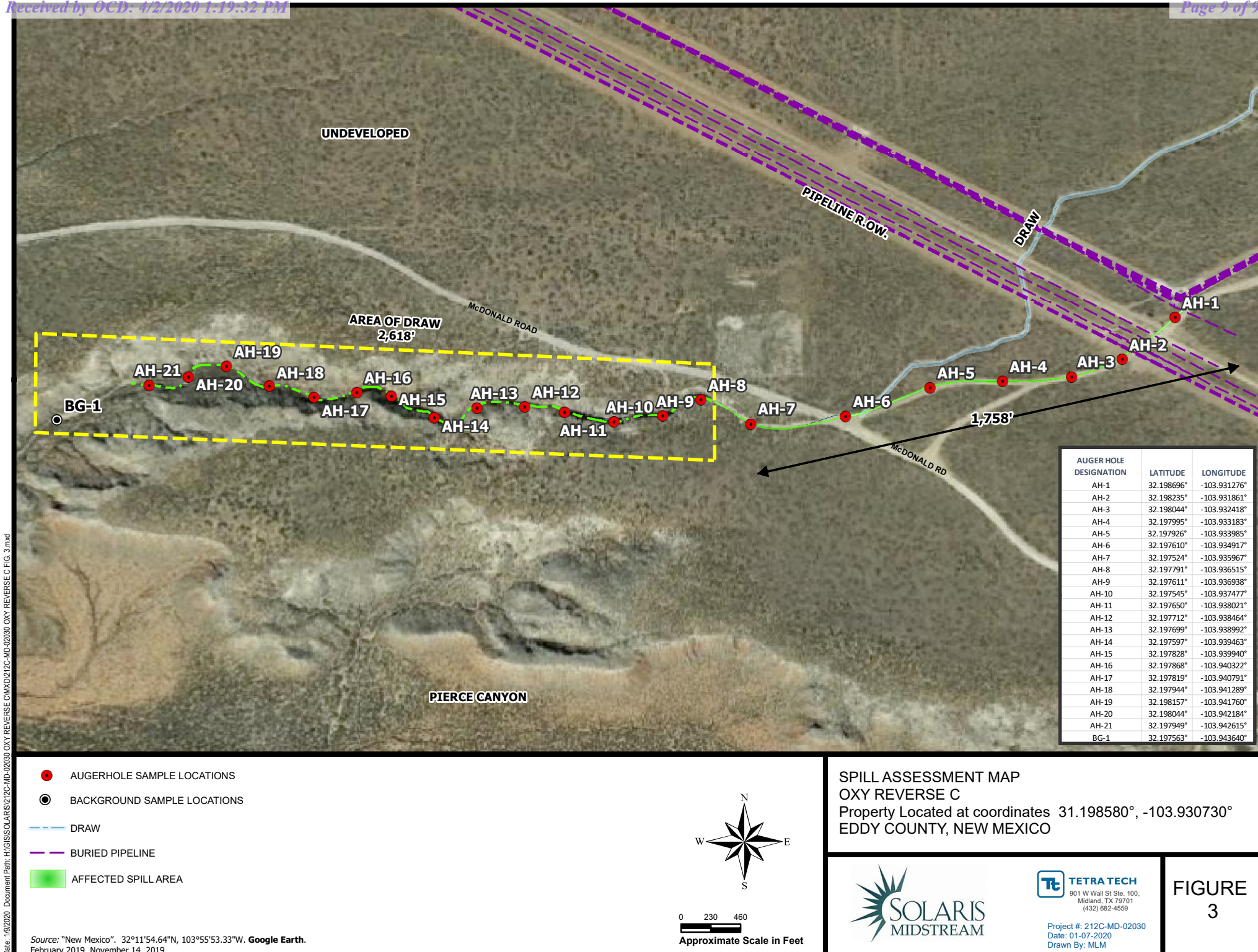
Property Located at coordinates 31.198580°, -103.930730°
EDDY COUNTY, NEW MEXICO



TETRA TECH
901 W Wall St Ste. 100,
Midland, TX 79701
(432) 682-4559

Project #: 212C-MD-02030
Date: 01-07-2020
Drawn By: MLM

**FIGURE
2**



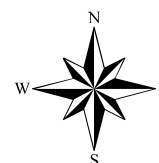


- AUGERHOLE SAMPLE LOCATIONS
- ⊙ BACKGROUND SAMPLE LOCATIONS

--- DRAW

--- BURIED PIPELINE

▨ PROPOSED 2.0' EXCAVATION DEPTH AREA



0 100 200
Approximate Scale in Feet

PROPOSED EXCAVATION MAP
OXY REVERSE C
 Property Located at coordinates 31.198580°, -103.930730°
 EDDY COUNTY, NEW MEXICO



Project #: 212C-MD-02030
 Date: 01-07-2020
 Drawn By: MLM

FIGURE
4

Tables

Table 1
Solaris
Oxy Reverse C Release
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	ORO	Total						
AH-1	12/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	5730
	"	1-1.5	-	X		<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	9440
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	7950
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	-	4120
AH-2	12/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	4980
	"	1-1.5	-	X		<49.8	<49.8	<49.8	<49.8	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	1510
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	49.3
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	-	16.5
AH-3	12/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	615
	"	1-1.5	-	X		<49.9	<49.9	<49.9	<49.9	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	371
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	123
AH-4	12/17/2019	0-1	-	X		<49.8	<49.8	<49.8	<49.8	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	243
	"	1-1.5	-	X		<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	107
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	27.0
AH-5	12/17/2019	0-1	-	X		<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	4,980
	"	1-1.5	-	X		<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	308
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	1,250
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	-	683
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	-	32.8
AH-6	12/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	902
	"	1-1.5	-	X		<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	382
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	2,420
AH-7	12/17/2019	0-1	-	X		<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	2,970
AH-8	12/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	4,730
	"	1-1.5	-	X		<49.8	<49.8	<49.8	<49.8	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	7,820
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	5,930
AH-9	12/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	6,340
AH-10	12/17/2019	0-1	-	X		<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	8,220
AH-11	12/17/2019	0-1	-	X		<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	3,420
	"	1-1.5	-	X		<50.0	<50.0	<50.0	<50.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	3,370

Table 1
Solaris
Oxy Reverse C Release
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	ORO	Total						
AH-12	12/17/2019	0-0.5	-	X		<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	3,830
	"	0.5-1	-	X		<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	3,580
AH-13	12/17/2019	0-1	-	X		<49.9	<49.9	<49.9	<49.9	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	3,130
	"	1-1.5	-	X		<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	6,600
AH-14	12/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	3,870
AH-15	12/17/2019	0-1	-	X		<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	2,780
AH-16	12/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	2,820
	"	1-1.5	-	X		<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	2,700
AH-17	12/17/2019	0-0.5	-	X		<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	3,390
AH-18	12/17/2019	0-1	-	X		<49.9	<49.9	<49.9	<49.9	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	4,080
	"	1-1.5	-	X		<49.9	<49.9	<49.9	<49.9	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	5,140
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	1,880
AH-19	12/17/2019	0-1	-	X		<49.8	<49.8	<49.8	<49.8	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	3,920
	"	1-1.5	-	X		<50.0	<50.0	<50.0	<50.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	3,790
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	5,530
AH-20	12/17/2019	0-1	-	X		<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	3,440
	"	1-1.5	-	X		<49.8	<49.8	<49.8	<49.8	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	3,820
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	4,730
AH-21	12/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	3,450
	"	1-1.5	-	X		<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	5,490
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	4,390
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	-	8,180
Background	12/17/2019	0-1	-	X		-	-	-	-	-	-	-	-	-	14.4
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	-	<5.03
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	-	8.47

(-)

Not Analyzed



Proposed Excavation Depths

Photos

Solaris Water Midstream, LLC
Oxy Reverse C Valve 3 Release
Eddy County, New Mexico



TETRA TECH



Area of AH-8– View Southeast



Overlook of canyon into direction of spill– View Northwest

Solaris Water Midstream, LLC
Oxy Reverse C Valve 3 Release
Eddy County, New Mexico



Approximate location of end of spill per client– View Southeast



Looking down spill path– View Northwest

Solaris Water Midstream, LLC
Oxy Reverse C Valve 3 Release
Eddy County, New Mexico



TETRA TECH



View upstream near AH-15 – View Southeast



View of BG-1 – View Southwest

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	Solaris Water Midstream, LLC	OGRID 371643
Contact Name	Rob Kirk	Contact Telephone O-432 -203 9020 C-469-978-5620
Contact email	rob.kirk@solarismidstream.com	Incident # (assigned by OCD)
Contact mailing address	907 Tradewinds Blvd., Suite B, Midland, TX 79706	

Location of Release Source

Latitude 32.19858 Longitude -103.93073
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Oxy Reverse C Valve Set 3	Site Type	Valve Set Station
Date Release Discovered	12/07/2019	API# (if applicable)	

Unit Letter	Section	Township	Range	County
SESE	24	24 S	29 E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (Name: Solaris Water Midstream LLC)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 356	Volume Recovered (bbls) 30
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

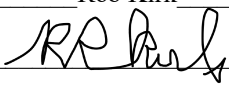
A weld failed on a cross-manifold connecting multiple Produced Water lines. The leak was stopped, and the pipe section was replaced. The released water flowed in a narrow channel near Rawhide Road and then McDonald Road following another narrow-bladed area. The areas impacted covers approximately 2,400 feet by 4 feet or an estimated 9,600 square feet. Release volume was determined by the square footage of the area impacted, the estimated flow rate at the weld failure, and the duration of the leak. The free-standing liquid was cleaned-up. Final residual remediation and reclamation will follow NMOCD recommended guidelines for leaks and spills.

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The volume of Produced Water released.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc.)? Notice given by submittal of this Form C-141 by Rob Kirk, General Manager, HSE and Compliance, Solaris Water Midstream as required by NMOCD.	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped. ☒ The impacted area has been secured to protect human health and the environment. ☐ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. ☐ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: Initial observations indicate that released material absorbed into the soil in the area described. Some of the liquid and impacted recoverable material was captured at the time of the release.	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Rob Kirk</u>	Title: <u>General Manager, HSE and Compliance</u>
Signature: 	Date: <u>12/08/2019</u>
email: <u>rob.kirk@solarismidstream.com</u>	Telephone: <u>O-432-203-9020</u>
<u>OCD Only</u> Received by: _____ Date: _____	

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☐ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☐ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☐ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☐ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☐ No
Did the release impact areas not on an exploration, development, production, or storage site?	☐ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: Each of the following items must be included in the report.

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

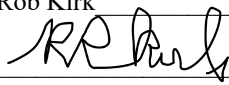
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Rob Kirk Title: General Manager, HSE & ComplianceSignature:  Date: 04/02/2020email: rob.kirk@solarismidstream.com Telephone: 432-203-9020**OCD Only**

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____ Title: _____
Signature: RP Paul Date: _____
email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
Solaris Water Midstream, LLC - Oxy Reverse C Valve Set 3 Release
Eddy County, New Mexico

23 South			28 East		
6	16.5	5	4	3	2
7	26.5	8	9	10	11
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			29 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			30 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			28 East		
6	70	5	30	4	30
7	8	50	9	10	11
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			29 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			30 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			28 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			29 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			30 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

[Save file of selected sites](#) to local disk for future upload

USGS 321205103544701 24S.30E.19.42113

Eddy County, New Mexico

Latitude 32°12'05", Longitude 103°54'47" NAD27

Land-surface elevation 3,188 feet above NAVD88

The depth of the well is 452 feet below land surface.

This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

[Table of data](#)

[Tab-separated data](#)

[Graph of data](#)

[Reselect period](#)

Date	Time	Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	Water-level accuracy	Status	Method of measurement	Measuring agency	Source of measurement	Water-level approval status
1958-10-24		D	227.70			2		U		U	A
1959-03-19		D	227.75			2		U		U	A
1975-12-10		D	231.78			2		U		U	A
1976-01-16		D	237.26			2		U		U	A
1976-12-01		D	230.73			2		U		U	A
1977-01-14		D	230.62			2		U		U	A
1983-02-01		D	235.93			2		U		U	A
1987-10-15		D	233.30			2		S		U	A
1998-01-27		D	231.02			2		S		U	A

Explanation

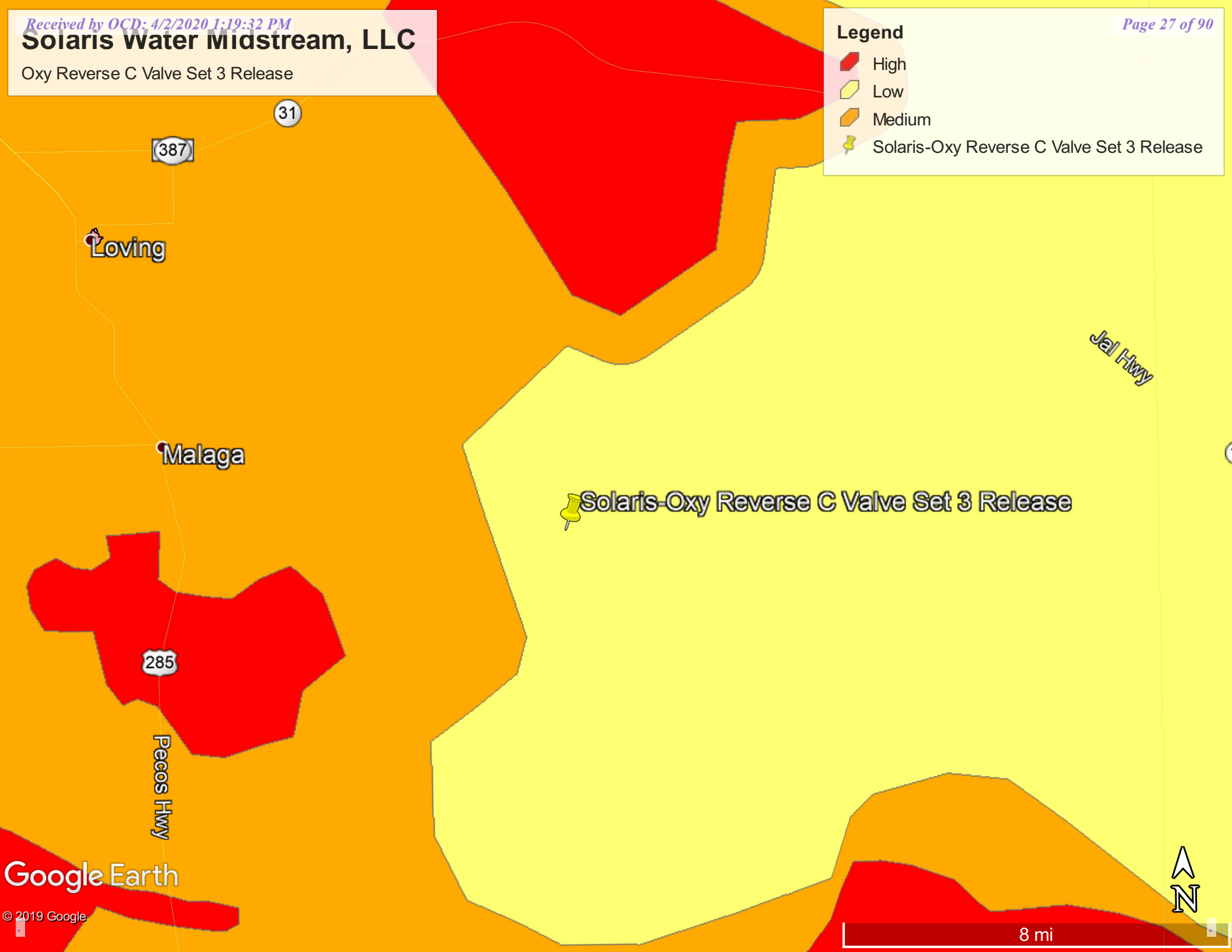
Section	Code	Description
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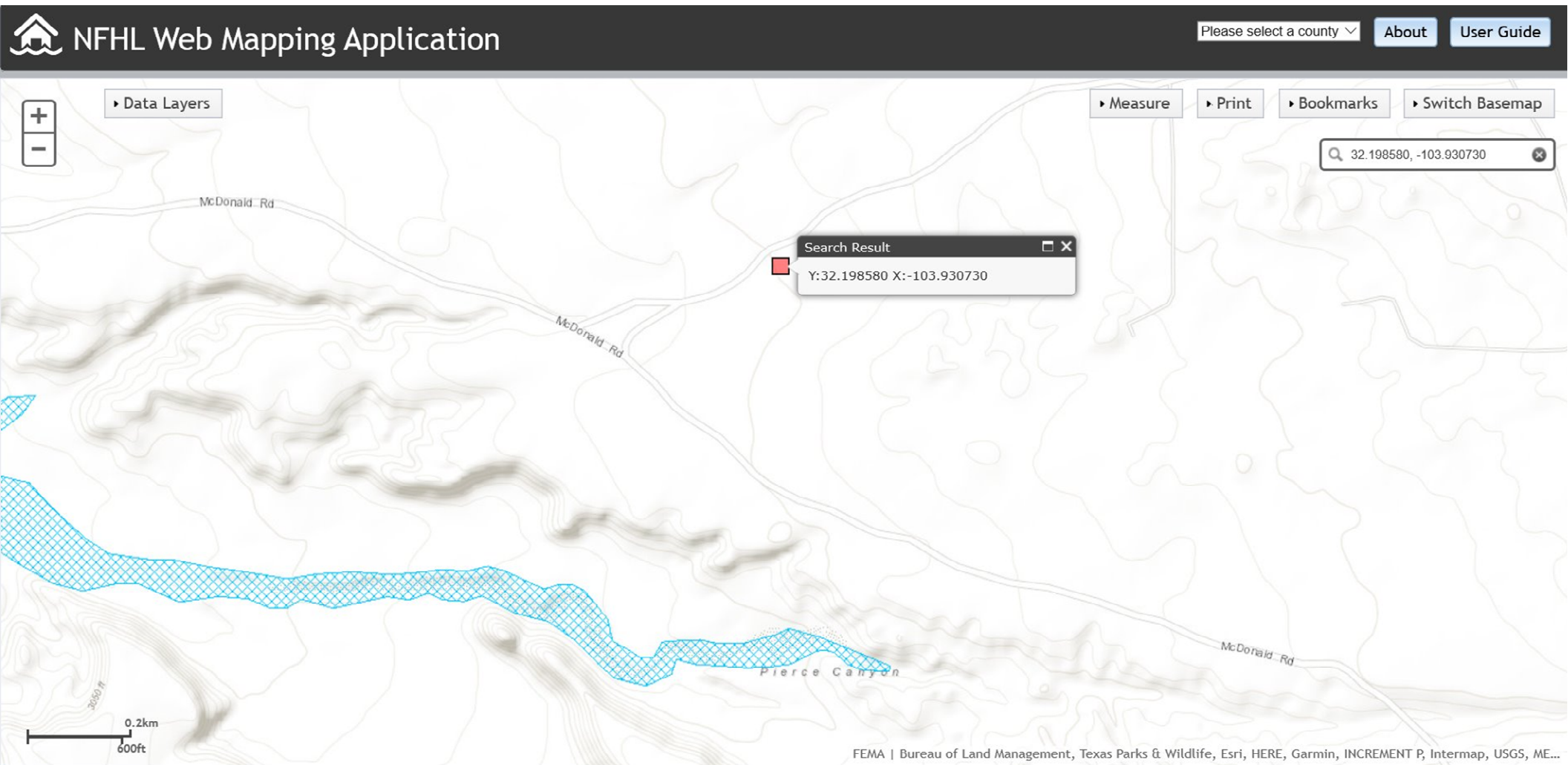
Solaris Water Midstream, LLC

Oxy Reverse C Valve Set 3 Release

Legend

- High
- Low
- Medium
- Solaris-Oxy Reverse C Valve Set 3 Release





Appendix C

Analytical Report 647094

for
Tetra Tech- Midland

Project Manager: Rob Kirk

Solaris Oxy Reverse C

212C-MD-02030

23-DEC-19

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Tampa: Florida (E87429), North Carolina (483)



23-DEC-19

Project Manager: **Rob Kirk**

Tetra Tech- Midland

901 West Wall ST

Midland, TX 79701

Reference: XENCO Report No(s): **647094**

Solaris Oxy Reverse C

Project Address: Eddy County, New Mexico

Rob Kirk:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 647094. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 647094 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer

Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

**Sample Cross Reference 647094****Tetra Tech- Midland, Midland, TX**

Solaris Oxy Reverse C

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BG-1 (0'-1')	S	12-17-19 00:00		647094-001
BG-1 (1'-1.5')	S	12-17-19 00:00		647094-002
BG-1 (2'-2.5')	S	12-17-19 00:00		647094-003



CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: Solaris Oxy Reverse C

Project ID: 212C-MD-02030
Work Order Number(s): 647094

Report Date: 23-DEC-19
Date Received: 12/19/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3111362 Inorganic Anions by EPA 300/300.1

Lab Sample ID 647094-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 647094-001, -002.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analysis Summary 647094

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 23-DEC-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	647094-001	647094-002	647094-003			
	<i>Field Id:</i>	BG-1 (0'-1')	BG-1 (1'-1.5')	BG-1 (2'-2.5')			
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00			
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:10			
	<i>Analyzed:</i>	Dec-20-19 19:21	Dec-20-19 17:50	Dec-20-19 15:44			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		14.4 5.02	<5.03 5.03	8.47 5.04			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
 The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
 XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
 Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer
Project Assistant



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



BS / BSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647094

Project ID: 212C-MD-02030

Analyst: CHE

Date Prepared: 12/20/2019

Date Analyzed: 12/20/2019

Lab Batch ID: 3111362

Sample: 7692998-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.858	250	252	101	250	253	101	0	90-110	20	

Analyst: CHE

Date Prepared: 12/20/2019

Date Analyzed: 12/20/2019

Lab Batch ID: 3111363

Sample: 7693002-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<5.00	250	264	106	250	264	106	0	90-110	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$ Blank Spike Recovery [D] = $100 * (C)/[B]$ Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647094

Project ID: 212C-MD-02030

Lab Batch ID: 3111362

QC- Sample ID: 647094-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	14.4	301	282	89	301	315	100	11	90-110	20	X

Lab Batch ID: 3111362

QC- Sample ID: 647094-002 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	3.05	302	312	102	302	316	104	1	90-110	20	

Lab Batch ID: 3111363

QC- Sample ID: 646744-005 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	423	251	661	95	251	659	94	0	90-110	20	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647094

Project ID: 212C-MD-02030

Lab Batch ID: 3111363

QC- Sample ID: 647094-003 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	8.47	252	260	100	252	254	97	2	90-110	20	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

077094

Page 1 of 1

ORIGINAL COPY

Final 1.000



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 12/19/2019 02:54:00 PM

Work Order #: 647094

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist**Comments**

#1 *Temperature of cooler(s)?	.6
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Date: 12/19/2019

Checklist reviewed by:

Jessica Kramer

Date: 12/19/2019

Analytical Report 647093

for
Tetra Tech- Midland

Project Manager: Rob Kirk

Solaris Oxy Reverse C

212C-MD-02030

27-DEC-19

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Tampa: Florida (E87429), North Carolina (483)



27-DEC-19

Project Manager: **Rob Kirk**

Tetra Tech- Midland

901 West Wall ST

Midland, TX 79701

Reference: XENCO Report No(s): **647093**

Solaris Oxy Reverse C

Project Address: Eddy County, New Mexico

Rob Kirk:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 647093. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 647093 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer

Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 647093

Tetra Tech- Midland, Midland, TX

Solaris Oxy Reverse C

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 (0'-1')	S	12-17-19 00:00		647093-001
AH-1 (1'-1.5')	S	12-17-19 00:00		647093-002
AH-1 (2'-2.5')	S	12-17-19 00:00		647093-003
AH-1 (3'-3.5')	S	12-17-19 00:00		647093-004
AH-2 (0'-1')	S	12-17-19 00:00		647093-005
AH-2 (1'-1.5')	S	12-17-19 00:00		647093-006
AH-2 (2'-2.5')	S	12-17-19 00:00		647093-007
AH-2 (3'-3.5')	S	12-17-19 00:00		647093-008
AH-3 (0'-1')	S	12-17-19 00:00		647093-009
AH-3 (1'-1.5')	S	12-17-19 00:00		647093-010
AH-3 (2'-2.5')	S	12-17-19 00:00		647093-011
AH-4 (0'-1')	S	12-17-19 00:00		647093-012
AH-4 (1'-1.5')	S	12-17-19 00:00		647093-013
AH-4 (2'-2.5')	S	12-17-19 00:00		647093-014
AH-5 (0'-1')	S	12-17-19 00:00		647093-015
AH-5 (1'-1.5')	S	12-17-19 00:00		647093-016
AH-5 (2'-2.5')	S	12-17-19 00:00		647093-017
AH-5 (3'-3.5')	S	12-17-19 00:00		647093-018
AH-5 (4'-4.5')	S	12-17-19 00:00		647093-019
AH-6 (0'-1')	S	12-17-19 00:00		647093-020
AH-6 (1'-1.5')	S	12-17-19 00:00		647093-021
AH-6 (2'-2.5')	S	12-17-19 00:00		647093-022
AH-7 (0'-1')	S	12-17-19 00:00		647093-023
AH-8 (0'-1')	S	12-17-19 00:00		647093-024
AH-8 (1'-1.5')	S	12-17-19 00:00		647093-025
AH-8 (2'-2.5')	S	12-17-19 00:00		647093-026
AH-9 (0'-1')	S	12-17-19 00:00		647093-027
AH-10 (0'-1')	S	12-17-19 00:00		647093-028
AH-11 (0'-1')	S	12-17-19 00:00		647093-029
AH-11 (1'-1.5')	S	12-17-19 00:00		647093-030
AH-12 (0"-6")	S	12-17-19 00:00		647093-031
AH-12 (6"-1')	S	12-17-19 00:00		647093-032
AH-13 (0'-1')	S	12-17-19 00:00		647093-033
AH-13 (1'-1.5')	S	12-17-19 00:00		647093-034
AH-14 (0'-1')	S	12-17-19 00:00		647093-035
AH-15 (0'-1')	S	12-17-19 00:00		647093-036
AH-16 (0'-1')	S	12-17-19 00:00		647093-037
AH-16 (1'-1.5')	S	12-17-19 00:00		647093-038
AH-17 (0"-6")	S	12-17-19 00:00		647093-039
AH-18 (0'-1')	S	12-17-19 00:00		647093-040
AH-18 (1'-1.5')	S	12-17-19 00:00		647093-041
AH-18 (2'-2.5')	S	12-17-19 00:00		647093-042
AH-19 (0'-1')	S	12-17-19 00:00		647093-043



Sample Cross Reference 647093

Tetra Tech- Midland, Midland, TX

Solaris Oxy Reverse C

AH-19 (1'-1.5')	S	12-17-19 00:00	647093-044
AH-19 (2'-2.5')	S	12-17-19 00:00	647093-045
AH-20 (0'-1')	S	12-17-19 00:00	647093-046
AH-20 (1'-1.5')	S	12-17-19 00:00	647093-047
AH-20 (2'-2.5')	S	12-17-19 00:00	647093-048
AH-21 (0'-1')	S	12-17-19 00:00	647093-049
AH-21 (1'-1.5')	S	12-17-19 00:00	647093-050
AH-21 (2'-2.5')	S	12-17-19 00:00	647093-051
AH-21 (3'-3.5')	S	12-17-19 00:00	647093-052

**CASE NARRATIVE****Client Name: Tetra Tech- Midland****Project Name: Solaris Oxy Reverse C**

Project ID: 212C-MD-02030
Work Order Number(s): 647093

Report Date: 27-DEC-19
Date Received: 12/19/2019

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3111361 Inorganic Anions by EPA 300/300.1

Lab Sample ID 647062-004 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3111362 Inorganic Anions by EPA 300/300.1

Lab Sample ID 647094-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3111368 Inorganic Anions by EPA 300/300.1

Lab Sample ID 647093-020 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 647093-012, -013, -014, -015, -016, -017, -018, -019, -020, -021, -022, -023, -024, -025, -026, -027, -028.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3111753 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Lab Sample ID 647093-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). m,p-Xylenes recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 647093-001, -002, -005, -006, -009, -010, -012, -013, -015, -016, -020, -021, -023, -024, -025, -027, -028, -029, -030, -031.

The Laboratory Control Sample for m,p-Xylenes is within laboratory Control Limits, therefore the data was accepted.



CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: Solaris Oxy Reverse C

Project ID: 212C-MD-02030
Work Order Number(s): 647093

Report Date: 27-DEC-19
Date Received: 12/19/2019

Batch: LBA-3111790 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analysis Summary 647093

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 27-DEC-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	647093-001	647093-002	647093-003	647093-004	647093-005	647093-006
	<i>Field Id:</i>	AH-1 (0'-1')	AH-1 (1'-1.5')	AH-1 (2'-2.5')	AH-1 (3'-3.5')	AH-2 (0'-1')	AH-2 (1'-1.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-24-19 14:45	Dec-24-19 14:45			Dec-24-19 14:45	Dec-24-19 14:45
	<i>Analyzed:</i>	Dec-25-19 20:20	Dec-25-19 20:40			Dec-25-19 21:00	Dec-25-19 21:21
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL			mg/kg RL	mg/kg RL
Benzene		<0.00198 0.00198	<0.00202 0.00202			<0.00200 0.00200	<0.00201 0.00201
Toluene		<0.00198 0.00198	<0.00202 0.00202			<0.00200 0.00200	<0.00201 0.00201
Ethylbenzene		<0.00198 0.00198	<0.00202 0.00202			<0.00200 0.00200	<0.00201 0.00201
m,p-Xylenes		<0.00396 0.00396	<0.00403 0.00403			<0.00401 0.00401	<0.00402 0.00402
o-Xylene		<0.00198 0.00198	<0.00202 0.00202			<0.00200 0.00200	<0.00201 0.00201
Total Xylenes		<0.00198 0.00198	<0.00202 0.00202			<0.00200 0.00200	<0.00201 0.00201
Total BTEX		<0.00198 0.00198	<0.00202 0.00202			<0.00200 0.00200	<0.00201 0.00201
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Dec-20-19 11:15	Dec-20-19 11:15	Dec-20-19 11:15	Dec-20-19 11:15	Dec-20-19 11:15	Dec-20-19 11:15
	<i>Analyzed:</i>	Dec-20-19 15:06	Dec-20-19 15:12	Dec-20-19 15:39	Dec-20-19 15:46	Dec-20-19 16:05	Dec-20-19 16:12
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		5730 49.6	9440 50.4	7950 49.5	4120 25.1	4980 25.0	1510 25.2
TPH By SW8015 Mod	<i>Extracted:</i>	Dec-20-19 10:00	Dec-20-19 10:00			Dec-20-19 10:00	Dec-20-19 10:00
	<i>Analyzed:</i>	Dec-20-19 12:57	Dec-20-19 14:00			Dec-20-19 14:21	Dec-20-19 14:42
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL			mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.0 50.0			<50.0 50.0	<49.8 49.8
Diesel Range Organics (DRO)		<50.0 50.0	<50.0 50.0			<50.0 50.0	<49.8 49.8
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0			<50.0 50.0	<49.8 49.8
Total TPH		<50.0 50.0	<50.0 50.0			<50.0 50.0	<49.8 49.8

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
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Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Version: 1.0%

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 647093

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 27-DEC-19
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	647093-007	647093-008	647093-009	647093-010	647093-011	647093-012
	Field Id:	AH-2 (2'-2.5')	AH-2 (3'-3.5')	AH-3 (0'-1')	AH-3 (1'-1.5')	AH-3 (2'-2.5')	AH-4 (0'-1')
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00
BTEX by EPA 8021B	Extracted:			Dec-24-19 14:45	Dec-24-19 14:45		Dec-24-19 14:45
	Analyzed:			Dec-25-19 21:41	Dec-25-19 22:02		Dec-25-19 22:22
	Units/RL:			mg/kg RL	mg/kg RL		mg/kg RL
Benzene				<0.00202 0.00202	<0.00198 0.00198		<0.00201 0.00201
Toluene				<0.00202 0.00202	<0.00198 0.00198		<0.00201 0.00201
Ethylbenzene				<0.00202 0.00202	<0.00198 0.00198		<0.00201 0.00201
m,p-Xylenes				<0.00403 0.00403	<0.00396 0.00396		<0.00402 0.00402
o-Xylene				<0.00202 0.00202	<0.00198 0.00198		<0.00201 0.00201
Total Xylenes				<0.00202 0.00202	<0.00198 0.00198		<0.00201 0.00201
Total BTEX				<0.00202 0.00202	<0.00198 0.00198		<0.00201 0.00201
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-20-19 11:15	Dec-20-19 11:15	Dec-20-19 11:15	Dec-20-19 11:15	Dec-20-19 11:15	Dec-20-19 12:15
	Analyzed:	Dec-20-19 16:18	Dec-20-19 16:25	Dec-20-19 16:32	Dec-20-19 16:38	Dec-20-19 16:45	Dec-20-19 12:37
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		49.3 5.02	16.5 5.03	615 4.99	371 5.04	123 5.00	243 4.95
TPH By SW8015 Mod	Extracted:			Dec-20-19 10:00	Dec-20-19 10:00		Dec-20-19 10:00
	Analyzed:			Dec-20-19 15:03	Dec-20-19 15:24		Dec-20-19 15:45
	Units/RL:			mg/kg RL	mg/kg RL		mg/kg RL
Gasoline Range Hydrocarbons (GRO)				<50.0 50.0	<49.9 49.9		<49.8 49.8
Diesel Range Organics (DRO)				<50.0 50.0	<49.9 49.9		<49.8 49.8
Motor Oil Range Hydrocarbons (MRO)				<50.0 50.0	<49.9 49.9		<49.8 49.8
Total TPH				<50.0 50.0	<49.9 49.9		<49.8 49.8

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Version: 1.9%

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 647093

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 27-DEC-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	647093-013	647093-014	647093-015	647093-016	647093-017	647093-018
	<i>Field Id:</i>	AH-4 (1'-1.5')	AH-4 (2'-2.5')	AH-5 (0'-1')	AH-5 (1'-1.5')	AH-5 (2'-2.5')	AH-5 (3'-3.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-24-19 14:45		Dec-24-19 14:45	Dec-24-19 14:45		
	<i>Analyzed:</i>	Dec-25-19 22:43		Dec-25-19 23:03	Dec-25-19 23:23		
	<i>Units/RL:</i>	mg/kg RL		mg/kg RL	mg/kg RL		
Benzene		<0.00199 0.00199		<0.00200 0.00200	<0.00199 0.00199		
Toluene		<0.00199 0.00199		<0.00200 0.00200	<0.00199 0.00199		
Ethylbenzene		<0.00199 0.00199		<0.00200 0.00200	<0.00199 0.00199		
m,p-Xylenes		<0.00398 0.00398		<0.00399 0.00399	<0.00398 0.00398		
o-Xylene		<0.00199 0.00199		<0.00200 0.00200	<0.00199 0.00199		
Total Xylenes		<0.00199 0.00199		<0.00200 0.00200	<0.00199 0.00199		
Total BTEX		<0.00199 0.00199		<0.00200 0.00200	<0.00199 0.00199		
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15
	<i>Analyzed:</i>	Dec-20-19 13:03	Dec-20-19 13:08	Dec-20-19 13:24	Dec-20-19 13:29	Dec-20-19 13:34	Dec-20-19 13:39
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		107 5.03	27.0 5.02	4980 25.2	308 4.98	1250 4.96	683 4.96
TPH By SW8015 Mod	<i>Extracted:</i>	Dec-20-19 10:00		Dec-20-19 10:00	Dec-20-19 10:00		
	<i>Analyzed:</i>	Dec-20-19 16:06		Dec-20-19 16:27	Dec-20-19 16:48		
	<i>Units/RL:</i>	mg/kg RL		mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0		<49.9 49.9	<49.9 49.9		
Diesel Range Organics (DRO)		<50.0 50.0		<49.9 49.9	<49.9 49.9		
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0		<49.9 49.9	<49.9 49.9		
Total TPH		<50.0 50.0		<49.9 49.9	<49.9 49.9		

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Version: 1.9%

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 647093

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 27-DEC-19
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	647093-019	647093-020	647093-021	647093-022	647093-023	647093-024
	Field Id:	AH-5 (4'-4.5')	AH-6 (0'-1')	AH-6 (1'-1.5')	AH-6(2'-2.5')	AH-7 (0'-1')	AH-8 (0'-1')
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00
BTEX by EPA 8021B	Extracted:		Dec-24-19 14:45	Dec-24-19 14:45		Dec-24-19 14:45	Dec-24-19 14:45
	Analyzed:		Dec-26-19 01:02	Dec-26-19 01:22		Dec-26-19 01:43	Dec-26-19 02:03
	Units/RL:		mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL
Benzene			<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00202 0.00202
Toluene			<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00202 0.00202
Ethylbenzene			<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00202 0.00202
m,p-Xylenes			<0.00399 0.00399	<0.00402 0.00402		<0.00402 0.00402	<0.00403 0.00403
o-Xylene			<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00202 0.00202
Total Xylenes			<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00202 0.00202
Total BTEX			<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00202 0.00202
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15
	Analyzed:	Dec-20-19 13:44	Dec-20-19 13:56	Dec-20-19 14:12	Dec-20-19 14:17	Dec-20-19 14:33	Dec-20-19 14:38
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		32.8 5.01	902 5.00	382 5.04	2420 25.2	2970 25.2	4730 25.3
TPH By SW8015 Mod	Extracted:		Dec-20-19 10:00	Dec-20-19 10:00		Dec-20-19 10:00	Dec-20-19 10:00
	Analyzed:		Dec-20-19 17:30	Dec-20-19 17:52		Dec-20-19 18:13	Dec-20-19 18:34
	Units/RL:		mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)			<50.0 50.0	<49.9 49.9		<49.9 49.9	<50.0 50.0
Diesel Range Organics (DRO)			<50.0 50.0	<49.9 49.9		<49.9 49.9	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)			<50.0 50.0	<49.9 49.9		<49.9 49.9	<50.0 50.0
Total TPH			<50.0 50.0	<49.9 49.9		<49.9 49.9	<50.0 50.0

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 647093

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 27-DEC-19
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	647093-025	647093-026	647093-027	647093-028	647093-029	647093-030
	Field Id:	AH-8 (1'-1.5')	AH-8 (2'-2.5')	AH-9 (0'-1')	AH-10 (0'-1')	AH-11 (0'-1')	AH-11 (1'-1.5')
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00
BTEX by EPA 8021B	Extracted:	Dec-24-19 14:45		Dec-24-19 14:45	Dec-24-19 14:45	Dec-24-19 14:45	Dec-24-19 14:45
	Analyzed:	Dec-26-19 02:24		Dec-26-19 02:44	Dec-26-19 03:05	Dec-26-19 03:25	Dec-26-19 03:45
	Units/RL:	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Toluene		<0.00201 0.00201		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Ethylbenzene		<0.00201 0.00201		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
m,p-Xylenes		<0.00402 0.00402		<0.00398 0.00398	<0.00399 0.00399	<0.00401 0.00401	<0.00402 0.00402
o-Xylene		<0.00201 0.00201		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Total Xylenes		<0.00201 0.00201		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Total BTEX		<0.00201 0.00201		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 12:15	Dec-20-19 15:00	Dec-20-19 15:00
	Analyzed:	Dec-20-19 14:43	Dec-20-19 14:48	Dec-20-19 14:53	Dec-20-19 14:59	Dec-20-19 18:09	Dec-20-19 18:16
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		7820 49.6	5930 50.4	6340 50.0	8220 50.2	3420 24.9	3370 25.0
TPH By SW8015 Mod	Extracted:	Dec-20-19 10:00		Dec-20-19 10:00	Dec-20-19 10:00	Dec-20-19 10:00	Dec-20-19 10:00
	Analyzed:	Dec-20-19 18:55		Dec-20-19 19:17	Dec-20-19 19:38	Dec-20-19 19:59	Dec-20-19 20:20
	Units/RL:	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<49.8 49.8		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0
Diesel Range Organics (DRO)		<49.8 49.8		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0
Total TPH		<49.8 49.8		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 647093

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 27-DEC-19
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	647093-031	647093-032	647093-033	647093-034	647093-035	647093-036
	Field Id:	AH-12 (0"-6")	AH-12 (6"-1')	AH-13 (0'-1')	AH-13 (1'-1.5')	AH-14 (0'-1')	AH-15 (0'-1')
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00
BTEX by EPA 8021B	Extracted:	Dec-24-19 14:45	Dec-25-19 16:15	Dec-25-19 16:15	Dec-25-19 16:15	Dec-25-19 16:15	Dec-25-19 16:15
	Analyzed:	Dec-26-19 04:06	Dec-26-19 08:15	Dec-26-19 09:01	Dec-26-19 09:22	Dec-26-19 09:42	Dec-26-19 10:03
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00401 0.00401	<0.00400 0.00400	<0.00397 0.00397	<0.00398 0.00398	<0.00399 0.00399	<0.00400 0.00400
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00
	Analyzed:	Dec-20-19 18:23	Dec-20-19 18:29	Dec-20-19 18:49	Dec-20-19 18:55	Dec-20-19 19:02	Dec-20-19 19:08
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		3830 25.1	3580 25.0	3130 25.0	6600 50.0	3870 24.8	2780 25.0
TPH By SW8015 Mod	Extracted:	Dec-20-19 10:00	Dec-20-19 10:00	Dec-20-19 10:00	Dec-20-19 10:00	Dec-20-19 10:00	Dec-20-19 10:00
	Analyzed:	Dec-20-19 20:41	Dec-20-19 15:03	Dec-20-19 15:24	Dec-20-19 15:45	Dec-20-19 16:06	Dec-20-19 16:27
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9
Diesel Range Organics (DRO)		<49.9 49.9	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9
Total TPH		<49.9 49.9	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 647093

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 27-DEC-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	647093-037	647093-038	647093-039	647093-040	647093-041	647093-042
	<i>Field Id:</i>	AH-16 (0'-1')	AH-16 (1'-1.5')	AH-17 (0"-6")	AH-18 (0'-1')	AH-18 (1'-1.5')	AH-18 (2'-2.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-25-19 16:15	Dec-25-19 16:15	Dec-25-19 16:15	Dec-25-19 16:15	Dec-25-19 16:15	
	<i>Analyzed:</i>	Dec-26-19 10:23	Dec-26-19 10:44	Dec-26-19 11:04	Dec-26-19 11:50	Dec-26-19 12:11	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	
Toluene		<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	
Ethylbenzene		<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	
m,p-Xylenes		<0.00403 0.00403	<0.00398 0.00398	<0.00401 0.00401	<0.00397 0.00397	<0.00396 0.00396	
o-Xylene		<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	
Total Xylenes		<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	
Total BTEX		<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00
	<i>Analyzed:</i>	Dec-20-19 19:15	Dec-20-19 19:41	Dec-20-19 19:48	Dec-20-19 20:07	Dec-20-19 20:14	Dec-20-19 20:20
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		2820 25.2	2700 25.2	3390 24.9	4080 25.1	5140 24.8	1880 25.0
TPH By SW8015 Mod	<i>Extracted:</i>	Dec-20-19 10:00	Dec-20-19 10:00	Dec-20-19 10:00	Dec-20-19 10:00	Dec-20-19 10:00	
	<i>Analyzed:</i>	Dec-20-19 16:48	Dec-20-19 17:30	Dec-20-19 17:52	Dec-20-19 18:13	Dec-20-19 18:34	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9	
Diesel Range Organics (DRO)		<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9	
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9	
Total TPH		<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9	

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 647093

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 27-DEC-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	647093-043	647093-044	647093-045	647093-046	647093-047	647093-048
	<i>Field Id:</i>	AH-19 (0'-1')	AH-19 (1'-1.5')	AH-19 (2'-2.5')	AH-20 (0'-1')	AH-20 (1'-1.5')	AH-20 (2'-2.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-25-19 16:15	Dec-25-19 16:15		Dec-25-19 16:15	Dec-25-19 16:15	
	<i>Analyzed:</i>	Dec-26-19 13:50	Dec-26-19 14:10		Dec-26-19 14:31	Dec-26-19 14:51	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	
Benzene		<0.00201 0.00201	<0.00201 0.00201		<0.00199 0.00199	<0.00202 0.00202	
Toluene		<0.00201 0.00201	<0.00201 0.00201		<0.00199 0.00199	<0.00202 0.00202	
Ethylbenzene		<0.00201 0.00201	<0.00201 0.00201		<0.00199 0.00199	<0.00202 0.00202	
m,p-Xylenes		<0.00402 0.00402	<0.00402 0.00402		<0.00398 0.00398	<0.00404 0.00404	
o-Xylene		<0.00201 0.00201	<0.00201 0.00201		<0.00199 0.00199	<0.00202 0.00202	
Total Xylenes		<0.00201 0.00201	<0.00201 0.00201		<0.00199 0.00199	<0.00202 0.00202	
Total BTEX		<0.00201 0.00201	<0.00201 0.00201		<0.00199 0.00199	<0.00202 0.00202	
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:00	Dec-20-19 15:10	Dec-20-19 15:10
	<i>Analyzed:</i>	Dec-20-19 20:27	Dec-20-19 20:33	Dec-20-19 20:40	Dec-20-19 20:47	Dec-20-19 16:06	Dec-20-19 16:13
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		3920 25.2	3790 24.9	5530 25.2	3440 25.2	3820 24.8	4730 25.2
TPH By SW8015 Mod	<i>Extracted:</i>	Dec-20-19 10:00	Dec-20-19 10:00		Dec-20-19 10:00	Dec-20-19 10:00	
	<i>Analyzed:</i>	Dec-20-19 18:55	Dec-20-19 19:17		Dec-20-19 19:38	Dec-20-19 19:59	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<49.8 49.8	<50.0 50.0		<49.9 49.9	<49.8 49.8	
Diesel Range Organics (DRO)		<49.8 49.8	<50.0 50.0		<49.9 49.9	<49.8 49.8	
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<50.0 50.0		<49.9 49.9	<49.8 49.8	
Total TPH		<49.8 49.8	<50.0 50.0		<49.9 49.9	<49.8 49.8	

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 647093

Tetra Tech- Midland, Midland, TX

Project Name: Solaris Oxy Reverse C



Project Id: 212C-MD-02030
Contact: Rob Kirk
Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Dec-19-19 02:54 pm
Report Date: 27-DEC-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	647093-049	647093-050	647093-051	647093-052		
	<i>Field Id:</i>	AH-21 (0'-1')	AH-21 (1'-1.5')	AH-21 (2'-2.5')	AH-21 (3'-3.5')		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00	Dec-17-19 00:00		
BTEX by EPA 8021B	<i>Extracted:</i>	Dec-25-19 16:15	Dec-25-19 16:15				
	<i>Analyzed:</i>	Dec-26-19 15:12	Dec-26-19 15:32				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Benzene		<0.00199 0.00199	<0.00200 0.00200				
Toluene		<0.00199 0.00199	<0.00200 0.00200				
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200				
m,p-Xylenes		<0.00398 0.00398	<0.00401 0.00401				
o-Xylene		<0.00199 0.00199	<0.00200 0.00200				
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200				
Total BTEX		<0.00199 0.00199	<0.00200 0.00200				
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Dec-20-19 15:10	Dec-20-19 15:10	Dec-20-19 15:10	Dec-20-19 15:10		
	<i>Analyzed:</i>	Dec-20-19 16:20	Dec-20-19 16:27	Dec-20-19 16:49	Dec-20-19 16:57		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		3450 24.8	5490 49.6	4390 25.0	8180 49.6		
TPH By SW8015 Mod	<i>Extracted:</i>	Dec-20-19 10:00	Dec-20-19 10:00				
	<i>Analyzed:</i>	Dec-20-19 20:20	Dec-20-19 20:41				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<49.9 49.9				
Diesel Range Organics (DRO)		<50.0 50.0	<49.9 49.9				
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9				
Total TPH		<50.0 50.0	<49.9 49.9				

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Version: 1.0%

Jessica Kramer

Jessica Kramer
Project Assistant



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Project ID: 212C-MD-02030

Lab Batch #: 3111407

Sample: 647093-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 12:57

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	96.4	99.9	96	70-135	
o-Terphenyl	49.0	50.0	98	70-135	

Lab Batch #: 3111407

Sample: 647093-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 14:00

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	98.7	99.9	99	70-135	
o-Terphenyl	49.4	50.0	99	70-135	

Lab Batch #: 3111407

Sample: 647093-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 14:21

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	89.6	100	90	70-135	
o-Terphenyl	46.0	50.0	92	70-135	

Lab Batch #: 3111407

Sample: 647093-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 14:42

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	101	99.6	101	70-135	
o-Terphenyl	50.1	49.8	101	70-135	

Lab Batch #: 3111407

Sample: 647093-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 15:03

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	91.6	99.9	92	70-135	
o-Terphenyl	46.8	50.0	94	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Project ID: 212C-MD-02030

Lab Batch #: 3111410

Sample: 647093-032 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 15:03

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.9	99.7	91	70-135	
o-Terphenyl	45.6	49.9	91	70-135	

Lab Batch #: 3111407

Sample: 647093-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 15:24

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.6	99.7	99	70-135	
o-Terphenyl	49.5	49.9	99	70-135	

Lab Batch #: 3111410

Sample: 647093-033 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 15:24

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.2	99.8	86	70-135	
o-Terphenyl	43.2	49.9	87	70-135	

Lab Batch #: 3111407

Sample: 647093-012 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 15:45

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.3	99.6	94	70-135	
o-Terphenyl	46.8	49.8	94	70-135	

Lab Batch #: 3111410

Sample: 647093-034 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 15:45

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.5	99.9	86	70-135	
o-Terphenyl	42.6	50.0	85	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Project ID: 212C-MD-02030

Lab Batch #: 3111407

Sample: 647093-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 16:06

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	96.4	99.9	96	70-135	
o-Terphenyl	48.3	50.0	97	70-135	

Lab Batch #: 3111410

Sample: 647093-035 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 16:06

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	89.0	100	89	70-135	
o-Terphenyl	44.3	50.0	89	70-135	

Lab Batch #: 3111407

Sample: 647093-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 16:27

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	84.8	99.7	85	70-135	
o-Terphenyl	43.5	49.9	87	70-135	

Lab Batch #: 3111410

Sample: 647093-036 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 16:27

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	84.9	99.7	85	70-135	
o-Terphenyl	42.9	49.9	86	70-135	

Lab Batch #: 3111407

Sample: 647093-016 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 16:48

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	97.5	99.8	98	70-135	
o-Terphenyl	49.1	49.9	98	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Project ID: 212C-MD-02030

Lab Batch #: 3111410

Sample: 647093-037 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 16:48

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.4	99.9	88	70-135	
o-Terphenyl	43.5	50.0	87	70-135	

Lab Batch #: 3111407

Sample: 647093-020 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 17:30

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.3	99.9	92	70-135	
o-Terphenyl	47.1	50.0	94	70-135	

Lab Batch #: 3111410

Sample: 647093-038 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 17:30

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.6	100	86	70-135	
o-Terphenyl	43.3	50.0	87	70-135	

Lab Batch #: 3111407

Sample: 647093-021 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 17:52

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.0	99.8	97	70-135	
o-Terphenyl	48.4	49.9	97	70-135	

Lab Batch #: 3111410

Sample: 647093-039 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 17:52

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.9	99.9	86	70-135	
o-Terphenyl	43.1	50.0	86	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111407

Sample: 647093-023 / SMP

Project ID: 212C-MD-02030

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 18:13

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.7	99.7	93	70-135	
o-Terphenyl	46.6	49.9	93	70-135	

Lab Batch #: 3111407

Sample: 647093-040 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 18:13

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.9	99.8	86	70-135	
o-Terphenyl	43.1	49.9	86	70-135	

Lab Batch #: 3111407

Sample: 647093-024 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 18:34

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.4	99.9	88	70-135	
o-Terphenyl	44.9	50.0	90	70-135	

Lab Batch #: 3111410

Sample: 647093-041 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 18:34

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	83.0	99.7	83	70-135	
o-Terphenyl	41.5	49.9	83	70-135	

Lab Batch #: 3111407

Sample: 647093-025 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 18:55

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.8	99.6	96	70-135	
o-Terphenyl	48.6	49.8	98	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111410

Sample: 647093-043 / SMP

Project ID: 212C-MD-02030

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 18:55

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.9	99.6	83	70-135	
o-Terphenyl	41.4	49.8	83	70-135	

Lab Batch #: 3111407

Sample: 647093-027 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 19:17

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.9	102	70-135	
o-Terphenyl	52.6	50.0	105	70-135	

Lab Batch #: 3111410

Sample: 647093-044 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 19:17

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	83.8	99.9	84	70-135	
o-Terphenyl	41.4	50.0	83	70-135	

Lab Batch #: 3111407

Sample: 647093-028 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 19:38

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.9	99.7	91	70-135	
o-Terphenyl	46.4	49.9	93	70-135	

Lab Batch #: 3111410

Sample: 647093-046 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 19:38

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.2	99.7	90	70-135	
o-Terphenyl	45.3	49.9	91	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111407

Sample: 647093-029 / SMP

Project ID: 212C-MD-02030

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 19:59

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.8	99.8	91	70-135	
o-Terphenyl	46.0	49.9	92	70-135	

Lab Batch #: 3111407

Sample: 647093-047 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 19:59

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.3	99.6	87	70-135	
o-Terphenyl	42.8	49.8	86	70-135	

Lab Batch #: 3111407

Sample: 647093-030 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 20:20

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.2	99.9	92	70-135	
o-Terphenyl	47.4	50.0	95	70-135	

Lab Batch #: 3111410

Sample: 647093-049 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 20:20

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	83.5	99.9	84	70-135	
o-Terphenyl	41.8	50.0	84	70-135	

Lab Batch #: 3111407

Sample: 647093-031 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 20:41

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.1	99.7	96	70-135	
o-Terphenyl	47.8	49.9	96	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Project ID: 212C-MD-02030

Lab Batch #: 3111410

Sample: 647093-050 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 20:41

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.4	99.7	85	70-135	
o-Terphenyl	42.2	49.9	85	70-135	

Lab Batch #: 3111753

Sample: 647093-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 20:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0336	0.0300	112	70-130	
4-Bromofluorobenzene	0.0322	0.0300	107	70-130	

Lab Batch #: 3111753

Sample: 647093-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 20:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0330	0.0300	110	70-130	
4-Bromofluorobenzene	0.0308	0.0300	103	70-130	

Lab Batch #: 3111753

Sample: 647093-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 21:00

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0330	0.0300	110	70-130	
4-Bromofluorobenzene	0.0297	0.0300	99	70-130	

Lab Batch #: 3111753

Sample: 647093-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 21:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0332	0.0300	111	70-130	
4-Bromofluorobenzene	0.0314	0.0300	105	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111753

Sample: 647093-009 / SMP

Project ID: 212C-MD-02030

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 21:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0333	0.0300	111	70-130	
4-Bromofluorobenzene	0.0305	0.0300	102	70-130	

Lab Batch #: 3111753

Sample: 647093-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 22:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0327	0.0300	109	70-130	
4-Bromofluorobenzene	0.0281	0.0300	94	70-130	

Lab Batch #: 3111753

Sample: 647093-012 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 22:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0335	0.0300	112	70-130	
4-Bromofluorobenzene	0.0306	0.0300	102	70-130	

Lab Batch #: 3111753

Sample: 647093-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 22:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0317	0.0300	106	70-130	
4-Bromofluorobenzene	0.0289	0.0300	96	70-130	

Lab Batch #: 3111753

Sample: 647093-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 23:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0329	0.0300	110	70-130	
4-Bromofluorobenzene	0.0297	0.0300	99	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111753

Sample: 647093-016 / SMP

Project ID: 212C-MD-02030

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 23:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0332	0.0300	111	70-130	
4-Bromofluorobenzene	0.0312	0.0300	104	70-130	

Lab Batch #: 3111753

Sample: 647093-020 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 01:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0325	0.0300	108	70-130	
4-Bromofluorobenzene	0.0278	0.0300	93	70-130	

Lab Batch #: 3111753

Sample: 647093-021 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 01:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0323	0.0300	108	70-130	
4-Bromofluorobenzene	0.0297	0.0300	99	70-130	

Lab Batch #: 3111753

Sample: 647093-023 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 01:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0338	0.0300	113	70-130	
4-Bromofluorobenzene	0.0313	0.0300	104	70-130	

Lab Batch #: 3111753

Sample: 647093-024 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 02:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0329	0.0300	110	70-130	
4-Bromofluorobenzene	0.0304	0.0300	101	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Project ID: 212C-MD-02030

Lab Batch #: 3111753

Sample: 647093-025 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 02:24

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0313	0.0300	104	70-130	

Lab Batch #: 3111753

Sample: 647093-027 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 02:44

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0329	0.0300	110	70-130	
4-Bromofluorobenzene	0.0316	0.0300	105	70-130	

Lab Batch #: 3111753

Sample: 647093-028 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 03:05

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0327	0.0300	109	70-130	
4-Bromofluorobenzene	0.0296	0.0300	99	70-130	

Lab Batch #: 3111753

Sample: 647093-029 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 03:25

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0336	0.0300	112	70-130	
4-Bromofluorobenzene	0.0328	0.0300	109	70-130	

Lab Batch #: 3111753

Sample: 647093-030 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 03:45

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0333	0.0300	111	70-130	
4-Bromofluorobenzene	0.0322	0.0300	107	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111753

Sample: 647093-031 / SMP

Project ID: 212C-MD-02030

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 04:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	70-130	
4-Bromofluorobenzene	0.0310	0.0300	103	70-130	

Lab Batch #: 3111790

Sample: 647093-032 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 08:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0327	0.0300	109	70-130	
4-Bromofluorobenzene	0.0271	0.0300	90	70-130	

Lab Batch #: 3111790

Sample: 647093-033 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 09:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	70-130	
4-Bromofluorobenzene	0.0294	0.0300	98	70-130	

Lab Batch #: 3111790

Sample: 647093-034 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 09:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	70-130	
4-Bromofluorobenzene	0.0300	0.0300	100	70-130	

Lab Batch #: 3111790

Sample: 647093-035 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 09:42

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0339	0.0300	113	70-130	
4-Bromofluorobenzene	0.0301	0.0300	100	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111790

Sample: 647093-036 / SMP

Project ID: 212C-MD-02030

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 10:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0339	0.0300	113	70-130	
4-Bromofluorobenzene	0.0292	0.0300	97	70-130	

Lab Batch #: 3111790

Sample: 647093-037 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 10:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	70-130	
4-Bromofluorobenzene	0.0298	0.0300	99	70-130	

Lab Batch #: 3111790

Sample: 647093-038 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 10:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0340	0.0300	113	70-130	
4-Bromofluorobenzene	0.0294	0.0300	98	70-130	

Lab Batch #: 3111790

Sample: 647093-039 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 11:04

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0289	0.0300	96	70-130	

Lab Batch #: 3111790

Sample: 647093-040 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 11:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0302	0.0300	101	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111790

Sample: 647093-041 / SMP

Project ID: 212C-MD-02030

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 12:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0326	0.0300	109	70-130	
4-Bromofluorobenzene	0.0286	0.0300	95	70-130	

Lab Batch #: 3111790

Sample: 647093-043 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 13:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0319	0.0300	106	70-130	
4-Bromofluorobenzene	0.0276	0.0300	92	70-130	

Lab Batch #: 3111790

Sample: 647093-044 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 14:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0329	0.0300	110	70-130	
4-Bromofluorobenzene	0.0286	0.0300	95	70-130	

Lab Batch #: 3111790

Sample: 647093-046 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 14:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0338	0.0300	113	70-130	
4-Bromofluorobenzene	0.0305	0.0300	102	70-130	

Lab Batch #: 3111790

Sample: 647093-047 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 14:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0307	0.0300	102	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111790

Sample: 647093-049 / SMP

Project ID: 212C-MD-02030

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 15:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0333	0.0300	111	70-130	
4-Bromofluorobenzene	0.0319	0.0300	106	70-130	

Lab Batch #: 3111790

Sample: 647093-050 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 15:32

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0337	0.0300	112	70-130	
4-Bromofluorobenzene	0.0295	0.0300	98	70-130	

Lab Batch #: 3111407

Sample: 7692950-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/20/19 11:54

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	50.8	50.0	102	70-135	

Lab Batch #: 3111410

Sample: 7692952-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/20/19 11:54

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.9	100	85	70-135	
o-Terphenyl	42.3	50.0	85	70-135	

Lab Batch #: 3111753

Sample: 7693246-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/25/19 19:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0328	0.0300	109	70-130	
4-Bromofluorobenzene	0.0275	0.0300	92	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Lab Batch #: 3111790

Sample: 7693262-1-BLK / BLK

Project ID: 212C-MD-02030

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/26/19 07:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0327	0.0300	109	70-130	
4-Bromofluorobenzene	0.0278	0.0300	93	70-130	

Lab Batch #: 3111407

Sample: 7692950-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/20/19 12:14

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	51.3	50.0	103	70-135	

Lab Batch #: 3111410

Sample: 7692952-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/20/19 12:14

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.0	100	91	70-135	
o-Terphenyl	43.9	50.0	88	70-135	

Lab Batch #: 3111753

Sample: 7693246-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/25/19 17:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	70-130	
4-Bromofluorobenzene	0.0297	0.0300	99	70-130	

Lab Batch #: 3111790

Sample: 7693262-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/26/19 05:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0330	0.0300	110	70-130	
4-Bromofluorobenzene	0.0276	0.0300	92	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Project ID: 212C-MD-02030

Lab Batch #: 3111407

Sample: 7692950-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/20/19 12:35

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	102	100	102	70-135	
o-Terphenyl	49.1	50.0	98	70-135	

Lab Batch #: 3111410

Sample: 7692952-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/20/19 12:35

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	90.4	100	90	70-135	
o-Terphenyl	42.2	50.0	84	70-135	

Lab Batch #: 3111753

Sample: 7693246-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/25/19 18:10

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0289	0.0300	96	70-130	

Lab Batch #: 3111790

Sample: 7693262-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/26/19 06:06

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0341	0.0300	114	70-130	
4-Bromofluorobenzene	0.0293	0.0300	98	70-130	

Lab Batch #: 3111410

Sample: 647062-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 13:18

SURROGATE RECOVERY STUDY					
TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	89.8	99.7	90	70-135	
o-Terphenyl	42.2	49.9	85	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Project ID: 212C-MD-02030

Lab Batch #: 3111407

Sample: 647093-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 13:18

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	99.6	115	70-135	
o-Terphenyl	56.1	49.8	113	70-135	

Lab Batch #: 3111753

Sample: 647093-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 18:30

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0346	0.0300	115	70-130	
4-Bromofluorobenzene	0.0320	0.0300	107	70-130	

Lab Batch #: 3111790

Sample: 647093-032 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 06:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0348	0.0300	116	70-130	
4-Bromofluorobenzene	0.0311	0.0300	104	70-130	

Lab Batch #: 3111410

Sample: 647062-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 13:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.5	99.9	92	70-135	
o-Terphenyl	43.3	50.0	87	70-135	

Lab Batch #: 3111407

Sample: 647093-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/20/19 13:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	99.7	113	70-135	
o-Terphenyl	51.9	49.9	104	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Solaris Oxy Reverse C

Work Orders : 647093,

Project ID: 212C-MD-02030

Lab Batch #: 3111753

Sample: 647093-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/25/19 18:51

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0346	0.0300	115	70-130	
4-Bromofluorobenzene	0.0327	0.0300	109	70-130	

Lab Batch #: 3111790

Sample: 647093-032 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/26/19 06:46

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0345	0.0300	115	70-130	
4-Bromofluorobenzene	0.0315	0.0300	105	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647093

Project ID: 212C-MD-02030

Analyst: KTL

Date Prepared: 12/24/2019

Date Analyzed: 12/25/2019

Lab Batch ID: 3111753

Sample: 7693246-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.00200	0.100	0.118	118	0.100	0.102	102	15	70-130	35	
Toluene	<0.00200	0.100	0.106	106	0.100	0.0924	92	14	70-130	35	
Ethylbenzene	<0.00200	0.100	0.104	104	0.100	0.0923	92	12	70-130	35	
m,p-Xylenes	<0.00400	0.200	0.209	105	0.200	0.185	93	12	70-130	35	
o-Xylene	<0.00200	0.100	0.106	106	0.100	0.0937	94	12	70-130	35	

Analyst: KTL

Date Prepared: 12/25/2019

Date Analyzed: 12/26/2019

Lab Batch ID: 3111790

Sample: 7693262-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.00200	0.100	0.109	109	0.100	0.0986	99	10	70-130	35	
Toluene	<0.00200	0.100	0.0970	97	0.100	0.0888	89	9	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0952	95	0.100	0.0878	88	8	70-130	35	
m,p-Xylenes	<0.00400	0.200	0.191	96	0.200	0.179	90	6	70-130	35	
o-Xylene	<0.00200	0.100	0.0961	96	0.100	0.0909	91	6	70-130	35	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$ Blank Spike Recovery [D] = $100 * (C)/[B]$ Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647093

Project ID: 212C-MD-02030

Analyst: CHE

Date Prepared: 12/20/2019

Date Analyzed: 12/20/2019

Lab Batch ID: 3111361

Sample: 7692988-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.858	250	261	104	250	262	105	0	90-110	20	

Analyst: CHE

Date Prepared: 12/20/2019

Date Analyzed: 12/20/2019

Lab Batch ID: 3111368

Sample: 7692992-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<5.00	250	257	103	250	267	107	4	90-110	20	

Analyst: CHE

Date Prepared: 12/20/2019

Date Analyzed: 12/20/2019

Lab Batch ID: 3111362

Sample: 7692998-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.858	250	252	101	250	253	101	0	90-110	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$ Blank Spike Recovery [D] = $100 * (C)/[B]$ Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647093

Project ID: 212C-MD-02030

Analyst: CHE

Date Prepared: 12/20/2019

Date Analyzed: 12/20/2019

Lab Batch ID: 3111363

Sample: 7693002-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<5.00	250	264	106	250	264	106	0	90-110	20	

Analyst: ARM

Date Prepared: 12/20/2019

Date Analyzed: 12/20/2019

Lab Batch ID: 3111407

Sample: 7692950-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	935	94	1000	943	94	1	70-135	20	
Diesel Range Organics (DRO)	<15.0	1000	973	97	1000	963	96	1	70-135	20	

Analyst: ARM

Date Prepared: 12/20/2019

Date Analyzed: 12/20/2019

Lab Batch ID: 3111410

Sample: 7692952-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	881	88	1000	868	87	1	70-135	20	
Diesel Range Organics (DRO)	<50.0	1000	876	88	1000	832	83	5	70-135	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$ Blank Spike Recovery [D] = $100 * (C)/[B]$ Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647093

Project ID: 212C-MD-02030

Lab Batch ID: 3111753

QC- Sample ID: 647093-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/25/2019

Date Prepared: 12/24/2019

Analyst: KTL

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00198	0.0992	0.0779	79	0.101	0.0757	75	3	70-130	35	
Toluene	<0.00198	0.0992	0.0742	75	0.101	0.0732	72	1	70-130	35	
Ethylbenzene	<0.00198	0.0992	0.0745	75	0.101	0.0756	75	1	70-130	35	
m,p-Xylenes	<0.00397	0.198	0.145	73	0.202	0.139	69	4	70-130	35	X
o-Xylene	<0.00198	0.0992	0.0848	85	0.101	0.0856	85	1	70-130	35	

Lab Batch ID: 3111790

QC- Sample ID: 647093-032 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/26/2019

Date Prepared: 12/25/2019

Analyst: KTL

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.0998	0.0997	100	0.100	0.0997	100	0	70-130	35	
Toluene	<0.00200	0.0998	0.0894	90	0.100	0.0910	91	2	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.0891	89	0.100	0.0908	91	2	70-130	35	
m,p-Xylenes	<0.00399	0.200	0.180	90	0.200	0.183	92	2	70-130	35	
o-Xylene	<0.00200	0.0998	0.0906	91	0.100	0.0927	93	2	70-130	35	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647093

Project ID: 212C-MD-02030

Lab Batch ID: 3111361

QC- Sample ID: 647004-011 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<4.96	248	301	121	248	286	115	5	90-110	20	X

Lab Batch ID: 3111361

QC- Sample ID: 647062-004 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	243	252	509	106	252	503	103	1	90-110	20	

Lab Batch ID: 3111362

QC- Sample ID: 647094-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	14.4	301	282	89	301	315	100	11	90-110	20	X

Matrix Spike Percent Recovery [D] = $100 \times (C-A)/B$
 Relative Percent Difference RPD = $200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery [G] = $100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647093

Project ID: 212C-MD-02030

Lab Batch ID: 3111362

QC- Sample ID: 647094-002 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	3.05	302	312	102	302	316	104	1	90-110	20	

Lab Batch ID: 3111363

QC- Sample ID: 646744-005 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	423	251	661	95	251	659	94	0	90-110	20	

Lab Batch ID: 3111363

QC- Sample ID: 647094-003 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	8.47	252	260	100	252	254	97	2	90-110	20	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order #: 647093

Project ID: 212C-MD-02030

Lab Batch ID: 3111368

QC- Sample ID: 647093-012 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	243	248	495	102	248	482	96	3	90-110	20	

Lab Batch ID: 3111368

QC- Sample ID: 647093-020 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: CHE

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	902	250	1120	87	250	1130	91	1	90-110	20	X

Lab Batch ID: 3111407

QC- Sample ID: 647093-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<14.9	996	1060	106	997	957	96	10	70-135	20	
Diesel Range Organics (DRO)	31.5	996	1040	101	997	945	92	10	70-135	20	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries



Project Name: Solaris Oxy Reverse C

Work Order # : 647093

Project ID: 212C-MD-02030

Lab Batch ID: 3111410

QC- Sample ID: 647062-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 12/20/2019

Date Prepared: 12/20/2019

Analyst: ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	865	87	999	875	88	1	70-135	20	
Diesel Range Organics (DRO)	20.0	997	793	78	999	816	80	3	70-135	20	

Matrix Spike Percent Recovery [D] = $100 \times (C-A)/B$
 Relative Percent Difference RPD = $200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery [G] = $100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

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4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Rob Kirk

212C-MD-02030

Brittany Long

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

ORIGINAL COPY

1047093

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB USE
ONLY

Sample Temperature

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

REMARKS:

Hold

Final 1.000

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

1047603

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Final 1.000

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
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441093

Client Name: Solaris		Site Manager: Rob Kirk	
Project Name: Oxy Reverse C		Project #: 212C-MD-02030	
Project Location: Eddy County, New Mexico (county, state)		Project #: 212C-MD-02030	
Invoice to: Tetra Tech, Inc.		Sampler Signature: Brittany Long	
Receiving Laboratory: Xenco		Sampler Signature: Brittany Long	
Comments:			

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)	LAB USE ONLY	REMARKS:	
		DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE						
									YEAR					TIME
AH-6 (1'-1.5')		12.17.2019		X				X			1	N	X	
AH-6 (2'-2.5')		12.17.2020		X				X			1	N	X	
AH-7 (0'-1')		12.17.2021		X				X			1	N	X	
AH-8 (0'-1')		12.17.2022		X				X			1	N	X	
AH-8 (1'-1.5')		12.17.2023		X				X			1	N	X	
AH-8 (2'-2.5')		12.17.2024		X				X			1	N	X	
AH-9 (0'-1')		12.17.2025		X				X			1	N	X	
AH-10 (0'-1')		12.17.2026		X				X			1	N	X	
AH-11 (0'-1')		12.17.2027		X				X			1	N	X	
AH-11 (1'-1.5')		12.17.2028		X				X			1	N	X	

Relinquished by: <i>3588097</i>	Date: 12.19.2019	Time: 14:51	Received by: <i>Rob</i>	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY	REMARKS:
☐ RUSH: Same Day 24 hr 48 hr 72 hr ☐ Rush Charges Authorized ☐ Special Report Limits or TRRP Report	(Circle or Specify Method No.) BTEX 8021B BTEX 8260B TPH TX1005 (Ext to C35) TPH 8015M (GRO - DRO - ORO - MRO) PAH 8270C Total Metals Ag As Ba Cd Cr Pb Se Hg TCLP Metals Ag As Ba Cd Cr Pb Se Hg TCLP Volatiles TCLP Semi Volatiles RCI GC/MS Vol. 8260B / 624 GC/MS Semi. Vol. 8270C/625 PCB's 8082 / 608 NORM PLM (Asbestos) Chloride Chloride Sulfate TDS General Water Chemistry (see attached list) Anion/Cation Balance Hold

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

Analysis Request of Custody Record



Tetra Tech. Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

047093

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Client Name: Solaris		Site Manager: Rob Kirk	
Project Name: Oxy Reverse C			
Project Location: Eddy County, New Mexico (county, state)		Project #: 212C-MD-02030	
Invoice to: Tetra Tech, Inc.			
Receiving Laboratory: Xenco		Sampler Signature: Brittany Long	
Comments:			

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)
		YEAR:	DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE		
	AH-12 (0"-6")		12.17.2019		X		X			1	N
	AH-12 (6"-1')		12.17.2020		X		X			1	N
	AH-13 (0"-1')		12.17.2021		X		X			1	N
	AH-13 (1'-1.5')		12.17.2022		X		X			1	N
	AH-14 (0"-1')		12.17.2023		X		X			1	N
	AH-15 (0"-1')		12.17.2024		X		X			1	N
	AH-16 (0"-1')		12.17.2025		X		X			1	N
	AH-16 (1'-1.5')		12.17.2026		X		X			1	N
	AH-17 (0"-6")		12.17.2027		X		X			1	N
	AH-18 (0"-1')		12.17.2028		X		X			1	N

Relinquished by: <i>[Signature]</i>	Date: 12.19.2019	Time: 14:54	Received by: <i>[Signature]</i>	Date: 12.19.2019	Time: 14:54
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
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LAB USE ONLY	REMARKS:
☐ RUSH: Same Day 24 hr 48 hr 72 hr ☐ Rush Charges Authorized ☐ Special Report Limits or TRRP Report	ANALYSIS REQUEST (Circle or Specify Method No.) BTEX 8021B BTEX 8260B TPH TX1005 (Ext to C35) TPH 8015M (GRO - DRO - ORO - MRO) PAH 8270C Total Metals Ag As Ba Cd Cr Pb Se Hg TCLP Metals Ag As Ba Cd Cr Pb Se Hg TCLP Volatiles TCLP Semi Volatiles RCI GC/MS Vol. 8260B / 624 GC/MS Semi. Vol. 8270C/625 PCB's 8082 / 608 NORM PLM (Asbestos) Chloride Chloride Sulfate TDS General Water Chemistry (see attached list) Anion/Cation Balance Hold

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1047093

Page 5 of 6

Client Name: Solaris		Site Manager: Rob Kirk																											
Project Name: Oxy Reverse C																													
Project Location: Eddy County, New Mexico		Project #: 212C-MD-02030																											
Invoice to: Tetra Tech, Inc.																													
Receiving Laboratory: Xenco		Sampler Signature: Brittany Long																											
Comments:																													
LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)																						
		YEAR:	DATE																					TIME					
		AH-18 (1'-1.5')	12.17.2019			X				1	N	BTX 8021B BTX 8026B																	
		AH-18 (2'-2.5')	12.17.2020			X				1	N	TPH TX1005 (Ext to C35)																	
		AH-19 (0'-1')	12.17.2021			X				1	N	TPH 8015M (GRO - DRO - ORO - MRO)																	
		AH-19 (1'-1.5')	12.17.2022			X				1	N	PAH 8270C																	
		AH-19 (2'-2.5')	12.17.2023			X				1	N	Total Metals Ag As Ba Cd Cr Pb Se Hg																	
		AH-20 (0'-1')	12.17.2024			X				1	N	TCLP Metals Ag As Ba Cd Cr Pb Se Hg																	
		AH-20 (1'-1.5')	12.17.2025			X				1	N	TCLP Volatiles																	
		AH-20 (2'-2.5')	12.17.2026			X				1	N	TCLP Semi Volatiles																	
		AH-21 (0'-1')	12.17.2027			X				1	N	RCI																	
		AH-21 (1'-1.5')	12.17.2028			X				1	N	GC/MS Vol. 8260B / 624																	
												GC/MS Semi. Vol. 8270C/625																	
		Relinquished by: <i>[Signature]</i>		Date: 12/19/2019		Time: 14:54		Received by: <i>[Signature]</i>		Date: 12/19/2019		Time: 14:54		LAB USE ONLY															
		Relinquished by:		Date:		Time:		Received by:		Date:		Time:																	
Relinquished by:		Date:		Time:		Received by:		Date:		Time:		REMARKS:																	
Relinquished by:		Date:		Time:		Received by:		Date:		Time:		Sample Temperature																	
Relinquished by:		Date:		Time:		Received by:		Date:		Time:		C4																	
Relinquished by:		Date:		Time:		Received by:		Date:		Time:		☐ RUSH: Same Day 24 hr 48 hr 72 hr																	
Relinquished by:		Date:		Time:		Received by:		Date:		Time:		☐ Rush Charges Authorized																	
Relinquished by:		Date:		Time:		Received by:		Date:		Time:		☐ Special Report Limits or TRRP Report																	

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10/10/20

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Final 1.000

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 12.19.2019 02:54.00 PM

Work Order #: 647093

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.6
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:



Brianna Teel

Date: 12.19.2019

Checklist reviewed by:



Jessica Kramer

Date: 12.19.2019