Received by OCD: 9/15/2020 10:28:56 AM

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

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Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Wapiti Operating, LLC	OGRID: 328741
Contact Name: Randy L. Madison	Contact Telephone: 575-445-6706
Contact email: rmadison@wapitienergy.com	Incident # (assigned by OCD) NRM2005230899
Contact mailing address: P.O. Box 190, 309 Silver St., Raton, NM 87740	

Location of Release Source

Latitude: N 36.97470_

Longitude: W 104.81300_

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: VPR A-47	Site Type: Gas Well	
Date Release Discovered: 2/11/20	API# (if applicable): 30-007-20197	

Unit Letter	Section	Township	Range	County
Р	28	32N	20E	Colfax

Surface Owner: 🗌 State 🔲 Federal 🔲 Tribal 🖾 Private (Name: Vermejo Park Ranch______

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): 0
	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: 2" wat	ter line froze and split along the length of the pipe. The	length of the split was about 6 feet.

reeived by OCD: 9/15/20	20 10:28:56 AM		Page 2 of 12
	Oil Conservation Division	Incident ID District RP	
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		Application ID	
Was this a major release as defined by 19.15.29.7(A) NMAC	If YES, for what reason(s) does the responsible par We calculated the amount of produced water to be ?		
	e notice given to the OCD? By whom? To whom? Wh e to Cory Smith. A follow-up email was also sent to Co		

Initial Response

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

 \square The source of the release has been stopped.

R

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 not been undertaken, explain why:

The source was stopped by closing the valves on each end of the split pipe. The pipe was replaced. The water ran off the location and dissipated into the ground. The water presents no threat to humans or the environment. See the attached water analysis. See the attached map with GPS points showing the water did not get close to any water-ways or sources.

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: Randy L. Madison	Title: HSE Specialist
Signature: Kar M LIN WALDON	Date: 2/20/20
email: rmadison@wapitlenergy.com	Telephone:575-445-6706
OCD Only	
Received by:	Date:

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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?	<u>17.88 ft.</u>
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.

Received by OCD: 9/15/ Page 4	2020 10:28:56 AM State of New Mex Oil Conservation Di		Incident ID District RP Facility ID Application ID	Page 4 of 17
regulations all operator public health or the env failed to adequately inv	e information given above is true and complete information given above is true and complete s are required to report and/or file certain revironment. The acceptance of a C-141 report estigate and remediate contamination that price of a C-141 report does not relieve the optimal of a C-141 report does not re	elease notifications and perform c rt by the OCD does not relieve the pose a threat to groundwater, surfa	orrective actions for relea e operator of liability sho ace water, human health o	ases which may endanger ould their operations have or the environment. In
Printed Name: Randy	L. Madison	Title:HSE Special	ist	
Signature:	FEINWAW	Date:9/16/20		
email: rmadison@wa	pitienergy.com	Telephone: _575-445-670	06	
OCD Only				
Received by:		Date:		
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Remediation Plan

<u>Remediation Plan Checklist</u> : 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: Randy L. Madison Title: _HSE Specialist Date: _9/16/20
email:rmadison@wapitienergy.com Telephone:575-445-6706
OCD Only
Received by: Date:
Approved Approved with Attached Conditions of Approval Denied Deferral Approved
Signature: Date:

Received by OCD: 9/15/2020 10:28:56 AM Form C-141 State of New Mexico

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Oil Conservation Division

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Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: Each of the following items must be included in the closure report.

A scaled site and sampling diagram as described in 19.15.29.11 NMAC

Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

Description of remediation activities

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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Randy L. Madison	Title: HSE Specialist
Signature: Rand AMUSON	Date: 9/16/20
Signature. V EVI 9 CALL 99 CAU	Date:9/16/20
email:rmadison@wapitienergy.com Telepho	one:575-445-6706

OCD Only

Received by:

Date:

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by:	Nelson Velez	Date:	10/28/2022
Printed Name:	Nelson Velez	Title:	Environmental Specialist - Adv

VPR A-47, API# 30-007-20197, Incident # NRM2005230899 Table of Contents

- 1. Executive Summary
- 2. Ariel Map of Spill with GPS Points
- 3. Photos of the Spill
- 4. Water Analysis of Wells Contributing to the Release
- 5. Communications on Grab Sampling
- 6. Grab Sample Lab Results
- 7. Site Assessment/Characterization to Water Sources
 - A. Lateral Distance to Water Sources Ariel Map Over View
 - B. Lateral Distance to Water Source Measurements Ariel Map
 - C. Depth to Ground Water and Map
 - D. State Engineers Documents and Map of Locations
- 8. Sampling Plan, Map and Correspondence
 - A. Sampling notifications
- 9. Sampling GPS aliquots and Composite collection
 - A. East and West Aliquot Map
 - B. East and West Aliquot GPS Coordinates
 - C. Composite Sample Lab Results.

10.Back Ground Sample Map and Lab Results.

Executive Summary

On May 15, 2020 Wapiti Operating, LLC sampled major release VPR A-47, API#30-007-20197, Incident# NRM2005230899 per submitted sample plan. The samples did not pass with in the range of Table 1 of 19.15.29.12 NMAC. Due to the benign nature of the water that was released the results of the samples were questioned. Mr. Smith recommended 2 background sample be taken and analysis this was agreed upon.

The background samples were collected on 7/20/20 50 feet east of the release and 50 feet west of the release. These results were received on 8/3/20. The results were very high on the TPH and Mr. Smith questioned the results of the samples. Further consultation with Bryce Stearns, Corporate Technical Director of Eurofins Test America provide some technical information into the reason our results are what they are. Mr. Stearns explained that there are many Bio Genic Materials that can come back with in the range, on the scale that Total Petroleum Hydrocarbons read in that are not native to Petroleum.

The samples were taken in a wooded area with a lot of pine duff in-place. Some places I may have scrapped back 2 to 4 inches of duff back to get to soil. With me taking the samples 50 to 70 feet in each direction from the release I believe these are valid background samples. The soil is undisturbed with green vegetation in all areas.

When I subtract the average of the 2 background samples TPH it puts me well with in Table 1 range on the 4 original samples TPH. There is not vegetation kill with in the spill area. With all the documentation of soil sampling attached I am requesting closure of this spill.

See attached all documentation to support correspondence.

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Received by



- A-47 Spill of Produced Water GPS points
- 1. N. 36.9747
 - W. 104.81300
- 2. N. 36.97482 W. 104.81323
- 3. N. 36.97509 W. 104.81324
- 4. N. 36.9750 W. 104.81327
- 5. N 36.97552 W. 104.81343
- 6. N. 36.97563 W. 104.81329
- 7. N. 36.97547 W. 104.81327
- 8. N 36.97551 W. 104.8132
- 9. N. 36.97500 W. 104.81323



Received by OCD: 9/15/2020 10:28:56 AM Page 12 of 171 A-47 Spill Cont. HS N36.95552 W104.81343 1 #6 N26.97563 W104.51329 #7 N 36.97547 W 104.81327 #\$ N. 36.97551 WIU4.81327 H9 N 36.97506 W 104. 5132-3 A-47 Suble Grab 3/2/20 N. 36.97470 W. 104.81305



Page 1













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Upstream Chemicals

2/18/2020

REPORT DATE:



Central Area Laboratory 12701 N. Santa Fe Ave, Suite 151 Oklahoma City, Oklahoma 73114

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	WAPITI OPERATING	ACCOUNT REP:	TY L. CUNESMITH
DISTRICT:	OKLAHOMA	SAMPLE ID:	201910011049
AREA/LEASE:	VERMEJO PARK RANCH	SAMPLE DATE:	7/31/2019
SAMPLE POINT NAME	VPR A 47	ANALYSIS DATE:	11/21/2019
SITE TYPE:	WELL SITES	ANALYST:	BS
SAMPLE POINT DESCRIPTION:	WELL HEAD		

WAPITI OPERATING, VERMEJO PARK RANCH, VPR A 47

	FIE	LD DATA		-	ANALYSIS OF SAMPLE							
				AN	IONS:	mg/L	meq/L	c	TIONS:	mg/L	meq/L	
Initial Temper) Chloride (Cl)		702.2	1	9.8 Sodium (Na	ı*):	928.6	40.	
Final Tempera				8 Sulfate (SO₄²		0.0		0.0 Potassium	(K ⁺):	3.2	0.	
Initial Pressur			100	Borate (H ₃ BO ₃);		0.0		0.0 Magnesium	(Mg ²⁺):	2.9	0.	
Final Pressure	(psi):		15			ND		Calcium (Ca ²⁺):		9.9	0.	
				Bromide (Br`):		ND		Strontium (2.4	0.:	
pH:				Nitrite (NO2		ND		Barium (Ba ²⁺):		2.3	0.0	
pH at time of	sampling:		8.0	Nitrate (NO3):		ND		iron (Fe ²⁺):		0.9	0.0	
				Phosphate (F	°0₄³`):	0.9		0.0 Manganese		0.0	0.0	
				Silica (SiO _z):		ND		Lead (Pb ²⁺):		ND		
								Zinc (Zn ²⁺):		0.0	0.0	
ALKALINETY BY		mg/L	meq/L									
Bicarbonate (I		815.0	13.4	L .				Aluminum		ND		
Carbonate (CC		ND						Chromium		ND		
Hydroxide (Ol	H'):	ND						Cobalt (Co ²		ND		
					IC ACIDS:	mg/L	meq/L	Copper (Cu		ND		
aqueous CO ₂ (•••			Formic Acid:		ND		Molybdenu		ND		
aqueous H ₂ S (Acetic Acid:		ND		Nickel (Ni ²⁺):		ND		
aqueous O2 (p	эрь):		ND	Propionic Ac		ND		Tin (Sn ²⁺):	_	ND		
C-L-ul-A-J TD	- ((1.)			Butyric Acid:		ND		Titanium (T		ND		
Calculated TD:				Valeric Acid:		ND		Vanadium (ND		
Density/Specif Measured Spe			0.9989					Zirconium (ND		
Conductivity (cy .	ND ND					Lithium (Li)		ND		
Resistivity:	minnos);		ND							-		
MCF/D:			No Data					Total Hardn	ess;	41	N/A	
BOPD:			No Data									
BWPD:				Anion/Cation	Dation		•	.80	ND = Noti			
			NO Data	AmonyCauon	hauto:		0.	.00	ND = NOLL	Jetermined		
SCA	LE PREDICTI	ONS BASED ON F	IELD PROVIDED	DATA; FUTHER N		Y BE REQUIRED FO		OF SCALE PREDI	TION RESULTS			
	Condit		Barite (Ba			(CaCO ₃)		=\$04-2H20)		e (CaSO4)		
	Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)		
	68°F	15 psi		0.000	0.24	3.034		0.000		0.000		
	88°F	24 psi		0.000	0.32	3.861		0.000		0.000		
	108°F	34 psi		0.000	0.43	4.840		0.000		0.000		
	129°F	43 psi		0.000	0.55	5.737		0.000		0.000		
	149°F	53 psi		0.000	0.69	6.484		0.000		0.000		
	169°F	62 psi		0.000	0.83	7.075		0.000		0.000		
	189°F	72 psi		0.000	0.98	7.524		0.000		0.000		
	210°F	81 psi		0.000	1.14	7.871		0.000		0.000		
	230°F	91 psi		0.000	1.30	8117		0.000		0.000		
	230 F											

	PT PDI		0.000	1.50	0 11/		0.000		0.000
250°F	100 psi		0.000	1.46	8.288		0.000		0,000
Condi	tions	Celestite	(SrSO4)	Halite	(NaCl)	Iron Sulf	ide (FeS)	Iron Carbon	ate (FeCO3)
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb
68°F	15 psi		0.000	-4.82	0.000	-8.04	0.000	1,00	0.597
88°F	24 psi		0.000	-4.85	0.000	-8.15	0.000	1.16	0.618
108°F	34 psi		0.000	-4.87	0.000	-8.19	0.000	1.34	0.634
129°F	43 psi		0.000	-4.88	0.000	-8.20	0.000	1,52	0.645
149°F	53 psi		0.000	-4.88	0.000	-8.17	0.000	1.70	0.652
169°F	62 psi		0.000	-4.88	0.000	-8,13	0.000	1.87	0.656
189°F	72 psi		0.000	-4.87	0.000	-8,06	0.000	2.03	0,659
210°F	81 psi		0.000	-4.85	0.000	-7.97	0.000	2.19	0.661
230°F	91 psi		0.000	-4.84	0.000	-786	0.000	2.35	0,662
250°F	100 psi		0.000	-4.81	0.000	-7.75	0.000	2.49	0.663

Note 1: When assessing the seventy of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO2 is not included in the calculations

ScaleSoftPitzerTM SSP2010



Central Area Laboratory 12701 N. Santa Fe Ave, Suite 151 Oklahoma City, Oklahoma 73114

COMPLETE WATER ANALYSIS REPORT SSP v.2010

Upstream Chemicals

REPORT DATE:

2/18/2020

	33, 7.2010		
CUSTOMER:	WAPITI OPERATING	ACCOUNT REP:	TY L. CLINESMITH
DISTRICT:	OKLAHOMA	SAMPLE ID:	201910011048
AREA/LEASE:	VERMEJO PARK RANCH	SAMPLE DATE:	7/31/2019
SAMPLE POINT NAME	VPR A 48	ANALYSIS DATE:	11/21/2019
SITE TYPE:	WELL SITES	ANALYST:	BS
SAMPLE POINT DESCRIPTION:	WELL HEAD		

WAPITI OPERATING, VERMEJO PARK RANCH, VPR A 48

	FIELD DATA		10 10 10 10 10 10 10 10 10 10 10 10 10 1	بالبر الأور ال	1. A. 1. A. 1.	ANALYSIS	OF SAMPLE			
			ANI	DNS:	mg/L	meq/L	C	ATIONS:	mg/L	meq/l
Initial Temperature ('	'F):	250	Chloride (Cl7):	:	680.3	19	9.2 Sodium (N	a⁺):	903.0	3
Final Temperature (*F	·):	65	Sulfate (SO4 ²)):	0.0	1	0.0 Potassium	(K⁺):	2.8	
initial Pressure (psi):		100	Borate (H ₃ BO	ן: בי	1.7		0.0 Magnesiun	(Ma ²⁺);	2.9	
Final Pressure (psi):		15	Fluoride (F):		ND		Calcium (C		18.5	
			Bromide (Br):		ND		Strontium		2.5	
pH:			Nitrite (NO ₂):		ND		Barium (Ba		1.8	
pH at time of samplin	ia:	7.7	Nitrate (NO ₁)		ND		Iron (Fe ²⁺):	<i>,</i> -	2.1	
	-		Phosphate (PC		0.0		0.0 Manganese	(84-2+).	0.0	
			Silica (SiO ₇):		ND		Lead (Pb ²⁺)		ND	
			511102 (5102)		ne in e		Zinc (Zn ²⁺):		0.0	
AUXALINETY BY TITRATION	t mg/L	meg/L					23nc (2n):		0.0	
icarbonate (HCO3):	835.0	13.7					Aluminum	(A13+).	ND	
arbonate (CO ₃ ²):	ND						Chromium	• •	ND	
Hydroxide (OH'):	ND						Cobalt (Co ²		ND	
iyaraxide (orr).			ORGANI		mg/L	meg/L	Copper (Cu			
iqueous CO₂ (ppm):		22.0	Formic Acid:	C ACIDS.	mg/L ND	meq/L	Molybdenu		ND	
iqueous H ₂ S (ppm):			Acetic Acid:		ND				ND	
iqueous O2 (ppb):				J.			Nickel (Ni ²):	ND	
iqueous oz (ppu).		ND	Propionic Acid	1:	ND		Tin (Sn ²⁺):		ND	
	x .		Butyric Acid:		ND		Titanium (T		ND	
Calculated TDS (mg/L			Valeric Acid:		ND		Vanadium (ND	
Density/Specific Grav		0.9989					Zirconium		ND	
Measured Specific Gra		ND					Lithium (Li)	:	ND	
Conductivity (mmhos):	ND								
Resistivity:		ND					Total Hardr	less:	62	N
MCF/D:		No Data								
BOPD:		No Data								
SWPD:		No Data	ata Anion/Cation Ratio:			0.81		ND = Not D	ND = Not Determined	
SCALE PRED	ICTIONS BASED ON I		DATA: ELITHER MI							
	nditions	Barite (Ba		Calcite		Gypsum (Ca		Anhydrite		
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	
65°F	15 psi		0.000	0.23	5 292		0.000	MOCA	0.000	
86°F	24 psi		0.000	0.31	6.921		0.000		0.000	
106°F	34 psi		0.000	0.43	8.847		0.000		0.000	
12 7° F	43 psi		0.000	0.43	10.609		0.000			
147°F	53 psi		0.000	0.57	12.076				0.000	
147 F	55 psi 62 psi		0.000	0.71	13.230		0.000		0.000	
188°F	•						0.000		0.000	
	72 psi		0.000	1.03	14 103		0.000		0.000	
209°F	81 psi		0.000	1,20	14.774		0.000		0.000	
229°F	91 psi		0.000	1.37	15 242		0.000		0.000	
250°F	100 psi		0.000	1.55	15.562		0.000		0.000	
Cor	ditions	Celestite (S	50.)	Halite	(NaCh	Iron Sulf	de (EeS)	Iron Carbon		
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index		Index		
65°F	15 psi	INVEA	0.000	-4.84		-7.97	Amt (ptb)		Amt (ptb)	
00 1	to hai		0.000	-4 84	0.000	-7.97	0.000	1.08	1 417	

Temp	Press.	Index	Amt (ptb)						
65°F	15 psi		0.000	-4.84	0.000	-7.97	0.000	1.08	1 417
86°F	24 psi		0.000	-4.87	0.000	-8.07	0.000	1.25	1.460
106°F	34 psi		0.000	-4.89	0.000	-8.10	0.000	1.44	1.492
127°F	43 psi		0.000	-4.90	0.000	-8.09	0.000	1.63	1.513
14 7 °F	53 psi		0.000	-4.90	0.000	-8.05	0.000	1.82	1.526
168°F	62 psi		0.000	-4.90	0.000	-7.99	0.000	2.00	1,534
188°F	72 psi		0.000	-4.89	0.000	-7.91	0.000	2.18	1.540
209°F	81 psi		0.000	-4.88	0.000	-7.80	0.000	2.35	1.543
229°F	91 psi		0.000	-4.86	0.000	-7.68	0.000	2.52	1.545
250°F	100 psi		0.000	-4.84	0.000	-7.55	0.000	2.68	1.547

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO7 is not included in the calculations

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COMPLETE WATER ANALYSIS REPORT SSP v.2010

Upstream Chemicals

REPORT DATE: 2/18

2/18/2020

	A 640 A 640665		
CUSTOMER:	WAPITI OPERATING	ACCOUNT REP:	TY L, CLINESMITH
DISTRICT:	OKLAHOMA	SAMPLE ID:	201910011621
AREA/LEASE:	VERMEJO PARK RANCH	SAMPLE DATE:	8/1/2019
SAMPLE POINT NAME	VPR A 49	ANALYSIS DATE:	11/25/2019
SITE TYPE:	WELL SITES	ANALYST:	BS
SAMPLE POINT DESCRIPTION:	WELL HEAD		

WAPITI OPERATING, VERMEJO PARK RANCH, VPR A 49

	FIEL	D DATA		ANALYSIS OF SAMPLE							
				ANIC	NS:	mg/L	meq/L	CA	TIONS:	mg/L	meq/L
Initial Tem	perature (°F):		250	Chloride (Cl'):		1423.7	40	0.2 Sodium (Na	[*]):	1135.1	49.
Final Temp	perature (*F):		69	Sulfate (SO4 ²)	:	0.0	(0.0 Potassium		4.0	0.
Initial Pres	sure (psi):		100	Borate (H ₃ BO ₃):	0.0		0.0 Magnesium	(Mg ²⁺):	5.4	0.
Final Press	ure (psi):		15	Fluoride (F):		ND		Calcium (Ca	²⁺):	25.3	1.
				Bromide (Br):		ND		Strontium (Sr ²⁺):	4.1	0.
	pH:			Nitrite (NO2'):		ND		Barium (Ba ²	^{**}):	3.9	0.
pH at time of sampling:		8.0	Nitrate (NO ₃ '):		ND		Iron (Fe ²⁺):		1.7	0.	
				Phosphate (PC	¹ 3.):	0.0	C).0 Manganese	(Mn ²⁺):	0.0	0.
				Silica (SiO ₂):		ND		Lead (Pb ²⁺):		ND	
								Zinc (Zn ²⁺):		0.0	0.
ALKALINITY	W BY TITRATION	mg/L	meq/L								
Bicarbonat		1086.0	17.8					Aluminum (ND	
Carbonate	(CO ₃ ²):	ND						Chromium (Cr ³⁺):	ND	
Hydroxide	(OH):	ND						Cobalt (Co ²	'):	ND	
				ORGANIC	ACIDS:	mg/L	meq/L	Copper (Cu ²	^{**}):	ND	
aqueous C	О₂ (ррт):		0.0	Formic Acid:		ND		Molybdenu	n (Mo²⁺):	ND	
aqueous H	₂S (ppm):		0.5	Acetic Acid:		ND		Nickel (Ni ²⁺):	ND	
aqueous O	2 (ppb):		ND	Propionic Acid	:	ND		Tin (Sn ²⁺):		ND	
				Butyric Acid:		ND		Titanium (Ti	i²⁺):	ND	
Calculated	TDS (mg/L):		3689	Valeric Acid:		ND		Vanadium (V ² *):	ND	
Density/Sp	ecific Gravity (g/cm³):	0.9997					Zirconium (Zr ²⁺):	ND	
Measured S	Specific Gravity	/	ND					Lithium (Li):		ND	
Conductivi	ty (mmhos):		ND								
Resistivity:			ND					Total Hardn	ess:	93	N/A
MCF/D:			No Data								
BOPD:			No Data								
BWPD:			No Data	Anion/Cation	latio:		1.:	13	ND = Not E	Determined	
						Y BE REQUIRED FO					
	Conditi		Barite (Ba	47	Calcite		Gypsum (Ci		Anhydrite		
	Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	
	69°F	15 psi		0.000	0.73	15 910		0,000		0,000	
	89°F	24 psi		0.000	0.81	16 840		0.000		0.000	
	110°F	34 psi		0 000	0.92	17 941		0.000		0.000	
	130°F	43 psi		0.000	1.04	18.937		0.000		0.000	
	150°F	53 psi		0.000	1.17	19.759		0.000		0.000	
	170°F	62 psi		0.000	1.31	20.404		0.000		0.000	
	190°F	72 psi		0.000	1,45	20 892		0.000		0.000	
	210°F	81 psi		0 000	1,61	21 269		0,000		0.000	
	230°F	91 psi		0.000	1.77	21,537		0.000		0.000	
	250°F	100 psi		0.000	1.93	21 723		0.000		0.000	

Conditions		Celestite (SrSO4)		Halite	Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb	
69°F	15 psi		0.000	-4.45	0.000	1,90	0.492	1,38	1,171	
89°F	24 psi		0.000	-4.48	0.000	1,79	0.488	1.53	1,187	
110°F	34 psi		0.000	-4.50	0.000	174	0.486	1.71	1 199	
130°F	43 psi		0.000	-4.51	0.000	1.73	0.486	1.88	1.207	
150°F	53 psi		0.000	-4.51	0.000	1.75	0,487	2.05	1.212	
170°F	62 psi		0.000	-4.51	0.000	1.80	0.488	2.22	1.216	
190°F	72 psi		0.000	-4,50	0.000	1.87	0.491	2.38	1.218	
210°F	81 psi		0.000	-4.49	0.000	1.96	0.493	2.54	1.220	
230°F	91 psi		0.000	-4.47	0.000	2.06	0.496	2.69	1 221	
250°F	100 psi		0.000	-4.45	0.000	2.17	0.498	2.83	1.222	

Note 1: When assessing the seventy of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO2 is not included in the calculations

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Upstream Chemicals

2/18/2020

REPORT DATE:



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COMPLETE WATER ANALYSIS REPORT SSP v.2010

	P. 7. 6 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	A-0		-
CUSTOMER:	WAPITI OPERATING	ACCOUNT REP:	TY L. CLINESMITH	
DISTRICT:	OKLAHOMA	SAMPLE ID:	201910011623	
AREA/LEASE:	VERMEJO PARK RANCH	SAMPLE DATE:	8/1/2019	
SAMPLE POINT NAME	VPR A 57	ANALYSIS DATE:	11/25/2019	
SITE TYPE:	WELL SITES	ANALYST:	BS	
SAMPLE POINT DESCRIPTION:	WELL HEAD			

WAPITI OPERATING, VERMEJO PARK RANCH, VPR A 57

FIE	D DATA		ALL DESCRIPTION OF	l Composition de la c	A TWO REAL	ANALYSIS	OF SAMPLE			1.0
			AN	IONS:	mg/L	meq/L	CA	TIONS:	mg/L	meq/L
Initial Temperature (°F):		250) Chloride (Cl7):	611.2	1	7.2 Sodium (Na	*):	737.2	32.1
Final Temperature (*F):		69	Sulfate (SO4 ²	ר:	0.0	(0.0 Potassium (K⁺):	2.3	0.1
Initial Pressure (psi):		100	Borate (H ₃ BC) ₃):	0.0	(0.0 Magnesium	(Mg ²⁺):	2.3	0.2
Final Pressure (psi):		19	Fluoride (F):		ND		Calcium (Ca	²⁺):	13.7	0.7
			Bromide (Br):	ND		Strontium (Sr ²⁺):	1.8	0.0
pH:			Nitrite (NO2):	ND		Barium (Ba ²	·*):	1.7	0.0
pH at time of sampling:		8.2	Nitrate (NO)):	ND		Iron (Fe ²⁺):		1.1	0.0
			Phosphate (F	יס _ג "ך:	0.0		0.0 Manganese	(Mn ²⁺):	0.0	0.0
			Silica (SiO ₂):		ND		Lead (Pb ²⁺):		ND	
							Zinc (Zn ²⁺):		0.0	0.0
ALKALINETY BY TITRATION:	mg/L	meq/L								
Bicarbonate (HCO3):	1146.0	18.8	6				Aluminum (Al³⁺):	ND	
Carbonate (CO ₃ ²):	ND						Chromium ((Cr ³⁺):	ND	
Hydroxide (OH'):	ND						Cobalt (Co ²	י):	ND	
			ORGAN	IC ACIDS:	mg/L	meq/L	Copper (Cu ²	¹⁺):	ND	
aqueous CO ₂ (ppm):		0.0	Formic Acid:		ND		Molybdenu	m (Mo ²⁺):	ND	
aqueous H ₂ S (ppm):		0.5	Acetic Acid:		ND		Nickel (Ni ²⁺):	ND	
aqueous O2 (ppb):		ND	Propionic Aci	id:	ND		Tin (Sn ²⁺):		ND	
			Butyric Acid:		ND		Titanium (Ti	i ² *):	ND	
Calculated TDS (mg/L):		2517	Valeric Acid:		ND		Vanadium (,	ND	
Density/Specific Gravity		0.9989	i i i				Zirconium (Zr ²⁺):	ND	
Measured Specific Gravit	У	ND	l i				Lithium (Li):		ND	
Conductivity (mmhos):		ND	l							
Resistivity:		ND					Total Hardn	ess:	47	N/A
MCF/D:		No Data								
BOPD:		No Data								
BWPD:		No Data	Anion/Cation	Ratio:		1.	09	ND = Not [Determined	
SCALE PREDICTI	ONS BASED ON I		DATA: FUTHER N		Y BE REQUIRED FO					
Condit		Barite (Ba		Calcite	-	Gypsum (C			e (CaSO4)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	
69°F	15 psi	uruta.	0.000	0.70	8.815	ANUCA	0.000	INGCA	0.000	
89°F	24 psi		0.000	0,77	9.301		0.000		0.000	
109°F	34 psi		0.000	0.88	9.862		0.000		0.000	
1071	ied the		0.000	0.00	2,002		0,000		0.000	

129°F	43 psi		0.000	1.00	10.364		0.000		0.000
149°F	53 psi		0.000	1.13	10.775		0.000		0,000
170°F	62 psi		0.000	1.27	11,095		0.000		0.000
190°F	72 psi		0.000	1.41	11,336		0.000		0,000
210°F	81 psi		0.000	1.56	11,521		0.000		0,000
230°F	91 psi		0.000	1.72	11.653		0.000		0.000
250°F	100 psi		0.000	1.88	11.744		0.000		0.000
Cond	itions	Celestite	(SrSO4)	Halite	(NaCl)	Iron Sulf	lde (FeS)	Iron Carbon	ate (FeCO3)
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb
69°F	15 psi		0.000	-4.98	0.000	1.93	0.463	1,42	0 7 3 6
89°F	24 psi		0.000	-5.01	0.000	1.82	0.456	1.58	0.745
10 9° F	34 psi		0.000	-5.02	0.000	1.76	0.453	1.75	0.752
129"F	43 psi		0.000	-5.03	0.000	1.75	0.452	1.92	0.757
1 49° F	53 psi		0.000	-5.04	0.000	1.77	0.453	2.09	0.760
170°F	62 psi		0.000	-5.03	0.000	1.81	0.456	2.26	0.762
	72 psi		0.000	-5.02	0.000	1.87	0.460	2.42	0,763
190°F	/ 2 (p 3)								
	81 psi		0.000	-5.01	0.000	1.96	0.465	2.58	0.764
190°F 210°F 230°F			0.000	-5.01 -4.99	0.000	1.96 2.06	0.465 0.470	2.58 2.73	0.764 0.765

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO2 is not included in the calculations.

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Comments:



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COMPLETE WATER ANALYSIS REPORT SSP v.2010

Upstream Chemicals

REPORT DATE:

2/18/2020

And the second s	the second se			
CUSTOMER:	WAPITI OPERATING	ACCOUNT REP:	TY L CLINESMITH	
DISTRICT:	OKLAHOMA	SAMPLE ID:	201910011622	
AREA/LEASE:	VERMEJO PARK RANCH	SAMPLE DATE:	8/1/2019	
SAMPLE POINT NAME	VPR A 59	ANALYSIS DATE:	11/25/2019	
SITE TYPE:	WELL SITES	ANALYST:	BS	
SAMPLE POINT DESCRIPTION:	WELL HEAD			

WAPITI OPERATING, VERMEJO PARK RANCH, VPR A 59

	FI	ELD DATA			LL M	Sec. at	ANALYSIS	OF SAMPLE		The second second	
				ANIC	DNS:	mg/L	meq/L	c	ATIONS:	mg/L	meq/L
	nperature (°F)		250	Chloride (Cl'):		2767.4	7	8.1 Sodium (N	a⁺):	1630.8	71.
	perature (°F):			Sulfate (SO₄²)		0.0		0.0 Potassium	(K ⁺):	4.7	0.
	ssure (psi):		100	Borate (H ₃ BO ₃):	1.4		0.0 Magnesiun	n (Mg²*):	12.7	1.
inal Pres	sure (psi):		15	Fluoride (F):		ND		Calcium (C	a ²⁺):	50.6	2.
				Bromide (Br`):		ND		Strontium	(Sr ²⁺):	9.5	0.
	pH:			Nitrite (NO2):		ND		Barium (Ba	²⁺):	7.4	0.:
H at time	e of sampling	:	7.7	Nitrate (NO3)	:	ND		Iron (Fe ²⁺):		1.0	0.0
				Phosphate (PC)₄ ³⁻):	0.0		0.0 Manganese	e (Mn ²⁺);	0.0	0.0
				Silica (SiO ₂):		ND		Lead (Pb ²⁺)		ND	
								Zinc (Zn ²⁺)	:	0.0	0.0
ALKALINIT	Y BY TITRATION:	mg/L	meq/L								
	te (HCO3):	848.0	13.9					Aluminum	(Al ³⁺):	ND	
arbonate		ND						Chromium	(Cr ³⁺):	ND	
lydroxide	e (OH'):	ND						Cobalt (Co		ND	
				ORGANIC	ACIDS:	mg/L	meq/L	Copper (Cu	²⁺):	ND	
•	0 ₂ (ppm):			Formic Acid:		ND		Molybdenu	ım (Mo ²⁺):	ND	
-	l ₂ S (ppm):			Acetic Acid:		ND		Nickel (Ni ²	*):	ND	
queous O	2 (ppb):		ND	Propionic Acid	:	ND		Tin (Sn ²⁺):		ND	
				Butyric Acid:		ND		Titanium (1		ND	
	TDS (mg/L):			Valeric Acid:		ND		Vanadium		ND	
	pecific Gravity		1.0008					Zirconium	(Zr ²⁺):	ND	
	Specific Grav	ity	ND					Lithium (Li)	12	ND	
	ity (mmhos):		ND								
lesistivity:	:		ND					Total Hardı	ness:	195	N/A
ACF/D:			No Data								
OPD:			No Data								
WPD:			No Data	Anion/Cation I	Ratio:		1.	23	ND = Not D	etermined	
	SCALE PREDICT	IONS BASED ON F	FIELD PROVIDED	DATA; FUTHER MO		Y BE REQUIRED FO		OF SCALE PREDI	CTION RESULTS.		
	Cond	itions	Barite (Ba	SO4)	Calcite	(CaCO ₃)	Gypsum (C	aSO₄·2H₂O)	Anhydrite	e (CaSO4)	
	Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	
	69°F	15 psi		0.000	0.58	24 115		0,000		0,000	
	89°F	24 psi		0.000	0.66	26,625		0.000		0.000	
	109°F	34 psi		0.000	0.77	29.791		0.000		0.000	
	130°F	43 psi		0.000	0.90	32.852		0.000		0.000	
	150°F	53 psi		0.000	1.04	35.540		0.000		0.000	
	170°F	62 psi		0.000	1.18	37.766		0.000		0.000	
	190°F	72 psi		0.000	1.33	39,532		0.000		0.000	
	210°F	81 psi		0.000	1.49	40.952		0.000		0.000	
	230°F	91 psi		0.000	1.66	41.989		0.000		0.000	
	250°F	100 psi		0,000	1.82	42.723		0.000		0.000	
	Condi	tions	Celestite (S	r\$0,)	Halite	(NaCl)	Iron Sulf	de (FeS)	Iron Carbon	te (FeCO.)	
	Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (nth)	Index	Amt (nth)	

Cond	itions	Barite (Barite (BaSO4)		Calcite (CaCO ₃)		aSO₄·2H₂O)	Anhydrit	e (CaSO4)
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
69°F	15 psi		0.000	0.58	24,115		0,000		0.000
89°F	24 psi		0.000	0.66	26,625		0.000		0.000
109°F	34 psi		0.000	0.77	29,791		0.000		0.000
130°F	43 psi		0.000	0.90	32.852		0.000		0.000
150°F	53 psi		0.000	1.04	35,540		0.000		0 000
170°F	62 psi		0.000	1.18	37.766		0.000		0.000
190°F	72 psi		0.000	1.33	39,532		0.000		0.000
210°F	81 psi		0.000	1.49	40.952		0.000		0.000
230°F	91 psi		0.000	1.66	41.989		0.000		0.000
250°F	100 psi		0.000	1.82	42,723		0.000		0.000
Cond	itions	Celestite	(SrSO ₄)	Halite	(NaCl)	Iron Sulf	lde (FeS)	Iron Carbon	ate (FeCO ₃)
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
69°F	15 psi		0.000	-4.03	0.000	1.25	0.410	0.65	0.544
BO ₀ E	74		0.000	4.00	0.000				

89°F	24 psi	0.000	-4.06	0.000	1.16	0.395	0.81	0.592
109°F	34 psi	0.000	-4.08	0.000	1.12	0.390	0.99	0.629
130°F	43 psi	0.000	-4.09	0.000	1.12	0.390	1.16	0.654
150°F	53 psi	0.000	-4.09	0.000	1.16	0.396	1.34	0.670
170°F	62 psi	0.000	-4.09	0.000	1.21	0.404	1.51	0.681
190°F	72 psi	0.000	-4.08	0.000	1.28	0.415	1.67	0.688
210°F	81 psi	0.000	-4.07	0.000	1,38	0.428	1.83	0.692
230°F	91 psi	0.000	-4.06	0.000	1.49	0.441	1.99	0.695
250°F	100 psi	0.000	-4.04	0.000	1.60	0.454	2.13	0.698

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales,

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO2 is not included in the calculations

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Randy Madison

From:	Smith, Cory, EMNRD <cory.smith@state.nm.us></cory.smith@state.nm.us>
Sent:	Thursday, February 20, 2020 9:30 AM
То:	Randy Madison
Subject:	RE: Emailing: VPR A-59, VPR A-47, VPR A-48, VPR A-49, VPR A-57

Randy,

Right away please, just a grab of the area directly around the cracked pipe

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

-----Original Message-----From: Randy Madison <RMadison@WapitiEnergy.com> Sent: Thursday, February 20, 2020 9:29 AM To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Subject: [EXT] RE: Emailing: VPR A-59, VPR A-47, VPR A-48, VPR A-49, VPR A-57

Do you want that right away or in the spring. Also is a grab ok on each leg of the run off or do you want a number of samples along the 314 feet. Randy

-----Original Message-----From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Sent: Thursday, February 20, 2020 9:23 AM To: Randy Madison <RMadison@WapitiEnergy.com> Subject: RE: Emailing: VPR A-59, VPR A-47, VPR A-48, VPR A-49, VPR A-57

Randy,

I was just following up with Brandon Powell District III/IV Supervisor in addition the below requirements we also need a soil grab sample at the Release point analyzed for TPH, BTEX, and Chlorides.

Thank you,

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us -----Original Message-----From: Smith, Cory, EMNRD Sent: Thursday, February 20, 2020 9:05 AM To: 'Randy Madison' <RMadison@WapitiEnergy.com> Subject: RE: Emailing: VPR A-59, VPR A-47, VPR A-48, VPR A-49, VPR A-57

Randy,

Our GIS doesn't allow operators to do that, I would recommend using Google Earth.

Other than the 3 month hold time on the water analysis the water doesn't look drastically bad as we previously discussed. I wouldn't have any issues waiting until the spring.

Please include the water results, a map of the impacted area, and a timeline for remediation or sampling in the spring.

Thanks for the quick follow up.

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

-----Original Message-----From: Randy Madison <RMadison@WapitiEnergy.com> Sent: Thursday, February 20, 2020 8:53 AM To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Subject: [EXT] Emailing: VPR A-59, VPR A-47, VPR A-48, VPR A-49, VPR A-57

Cory,

Here is a representation of the water that spilled. The A-47 is where the leak was in the separator house. There was a bad check valve. I have Lats and Longs. I have went to the NMOCD GIS and tried to create a map. In Colorado I use there map to draw the area and submit it. If NM GIS has that capability would you be able to show me how to use it. I have been doing these for 6 years here as Atlas and now as Wapiti. All of the people in Santa Fe never saw a need for a map. They looked at the water samples and closed the incident with the C-141. I have no problem submitting anything you want, just need help as to what is acceptable and wanted with this incident. Randy

Randy L. Madison, HSE Specialist Wapiti Operating, LLC P.O. Box 190 309 Silver St. Raton, NM 87740 Office 575-445-6706 Cell 575-420-1120 rmadison@wapitienergy.com Your message is ready to be sent with the following file or link attachments:

VPR A-59 VPR A-47 VPR A-48 VPR A-49 VPR A-57

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Received by OCD: 9/15/2020 10:28:56 AM



Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Denver 4955 Yarrow Street Arvada, CO 80002 Tel: (303)736-0100

Laboratory Job ID: 280-134318-1 Client Project/Site: Produced Water Spill

For: Wapiti Operating, LLC PO BOX 190 309 Silver Street Raton, New Mexico 87740

Attn: Mr. Randy Madison

uby Twiner

Authorized for release by: 3/17/2020 10:55:47 AM

Shelby Turner, Project Manager I (303)736-0100 shelby.turner@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Released to Imaging: 10/28/2022 8:01 25 AM

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Client: Wapiti Operating, LLC

Project/Site: Produced Water Spill

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2

3

Definitions/Glossary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-134318-1

Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
à	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
_OD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ИL	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
20	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
rEF	Toxicity Equivalent Factor (Dioxin)
ΓEQ	Toxicity Equivalent Quotient (Dioxin)
Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-134318-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Case Narrative

Client: Wapiti Operating, LLC

Project: Produced Water Spill

Report Number: 280-134318-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

<u>RECEIPT</u>

The samples were received on 3/5/2020 12:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.1° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples Gachupin (D-137/D-138) (280-134318-1) and VPR A-47 (280-134318-2) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 03/10/2020.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples Gachupin (D-137/D-138) (280-134318-1) and VPR A-47 (280-134318-2) were analyzed for Gasoline Range Organics (GRO) in accordance with EPA SW-846 Method 8015B - GRO. The samples were prepared and analyzed on 03/13/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS

Samples Gachupin (D-137/D-138) (280-134318-1) and VPR A-47 (280-134318-2) were analyzed for diesel range organics in accordance with EPA SW-846 Method 8015B - DRO. The samples were prepared on 03/06/2020 and analyzed on 03/10/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (28 DAYS)

Samples Gachupin (D-137/D-138) (280-134318-1) and VPR A-47 (280-134318-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were leached on 03/06/2020 and analyzed on 03/06/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples Gachupin (D-137/D-138) (280-134318-1) and VPR A-47 (280-134318-2) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 03/11/2020.

Case Narrative

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-134318-1

Job ID: 280-134318-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-134318-1

Lab Sample ID: 280-134318-1

Lab Sample ID: 280-134318-2

Client Sample ID: Gachupin (D-137/D-138)

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D	Method	Prep Type
Diesel Range Organics [C10-C28]	23	8.0	mg/Kg		8015B	Total/NA
Motor Oil (C20-C38)	38	24	mg/Kg	1	8015B	Total/NA
Chloride	110	29	mg/Kg	1	9056A	Soluble

Client Sample ID: VPR A-47

Analyte	Result Q	ualifier RL	MDL	Unit	Dil Fac	D	Method	Ргер Туре
Gasoline Range Organics (GRO) -C6-C10	1.8	1.5		mg/Kg	1		8015B	Total/NA
Diesel Range Organics [C10-C28]	66	7.7		mg/Kg	1		8015B	Total/NA
Motor Oil (C20-C38)	130	23		mg/Kg	1		8015B	Total/NA
Chloride	340	28		mg/Kg	1		9056A	Soluble

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-134318-1

Method	Method Description	Protocol	Laboratory
3260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
3015B	Gasoline Range Organics - (GC)	SW846	TAL DEN
3015B	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
0056A	Anions, Ion Chromatography	SW846	TAL DEN
loisture	Percent Moisture	EPA	TAL DEN
546	Microwave Extraction	SW846	TAL DEN
030B	Purge and Trap	SW846	TAL DEN
035	Closed System Purge and Trap	SW846	TAL DEN
I Leach	Deionized Water Leaching Procedure	ASTM	TAL DEN

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-134318-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-134318-1	Gachupin (D-137/D-138)	Solid	03/02/20 11:22	03/05/20 12:45	
280-134318-2	VPR A-47	Solid	03/02/20 13:40	03/05/20 12:45	

Eurofins TestAmerica, Denver

Client Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-134318-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Date Received: 03/05/20 12						r	_		
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	ND		0.0044		mg/Kg		03/10/20 11:00	03/10/20 14:52	
Ethylbenzene	ND		0.0044		mg/Kg		03/10/20 11:00		
Toluene	ND		0.0044		mg/Kg		03/10/20 11:00		
m-Xylene & p-Xylene	ND		0.0022		mg/Kg		03/10/20 11:00		
o-Xylene	ND		0.0022		mg/Kg		03/10/20 11:00	03/10/20 14:52	
Xylenes, Total	ND		0.0044		mg/Kg		03/10/20 11:00	03/10/20 14:52	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
1,2-Dichloroethane-d4 (Surr)	101		58_140				03/10/20 11:00	03/10/20 14:52	
Toluene-d8 (Surr)	102		80_126				03/10/20 11:00	03/10/20 14:52	
4-Bromofluorobenzene (Surr)	112		76_127				03/10/20 11:00	03/10/20 14:52	
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13	:40		75_121					03/10/20 14:52 ple ID: 280-13 Matrix	4318-2
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12:	;40 :45	Qualifier	75-121 RL	MDL	Unit	D	Lab Samj	ple ID: 280-13 Matrix	4318-2 : Solic
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte	;40 :45	Qualifier		MDL	Unit mg/Kg	D	Lab Sam	ple ID: 280-13	4318-2 : Solic Dil Fa
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte Benzene Ethylbenzene	:40 :45 Result	Qualifier	RL	MDL		D	Lab Sam	ple ID: 280-13 Matrix Analyzed	4318-2 c: Solic Dil Fac
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte Benzene Ethylbenzene	:40 :45 Result	Qualifier	RL 0.0049	MDL	mg/Kg	D	Lab Samj Prepared 03/10/20 11:00 03/10/20 11:00	ple ID: 280-13 Matrix <u>Analyzed</u> 03/10/20 15:15	4318-2 : Solic Dil Fac
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte Benzene Ethylbenzene Toluene	:40 :45 Result ND ND	Qualifier	RL 0.0049 0.0049	MDL	mg/Kg mg/Kg	D	Lab Samp Prepared 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00	ple ID: 280-13 Matrix <u>Analyzed</u> 03/10/20 15:15 03/10/20 15:15	4318-2 c: Solic Dil Fac
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte Benzene Ethylbenzene Toluene m-Xylene & p-Xylene	:40 :45 Result ND ND ND	Qualifier	RL 0.0049 0.0049 0.0049	MDL	mg/Kg mg/Kg mg/Kg	D	Prepared 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00	ple ID: 280-13 Matrix 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15	4318-2 c: Solic Dil Fac
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte Benzene Ethylbenzene Toluene m-Xylene & p-Xylene o-Xylene	:40 :45 <u>Result</u> ND ND ND ND	Qualifier	RL 0.0049 0.0049 0.0049 0.0025	MDL	mg/Kg mg/Kg mg/Kg mg/Kg	D	Prepared 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00	Analyzed 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15	4318-2 c: Solic Dil Fa
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte Benzene	:40 :45 		RL 0.0049 0.0049 0.0049 0.0025 0.0025	MDL	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	D	Prepared 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00	Analyzed 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15	4318-2 : Solic Dil Fac
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte Benzene Ethylbenzene Toluene m-Xylene & p-Xylene o-Xylene Xylenes, Total Surrogate	:40 :45 Result ND ND ND ND ND ND ND ND		RL 0.0049 0.0049 0.0049 0.0025 0.0025 0.0025 0.0049	MDL	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	D	Lab Samp Prepared 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 Prepared	Analyzed 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15	44318-2 c: Solic Dil Fac
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte Benzene Ethylbenzene Toluene m-Xylene & p-Xylene o-Xylene Xylenes, Total	:40 :45 Result ND ND ND ND ND ND ND ND		RL 0.0049 0.0049 0.0025 0.0025 0.0025 0.0049 Limits	MDL	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	D	Lab Samp Prepared 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 Prepared 03/10/20 11:00	Analyzed 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 Analyzed	4318-2 c: Solic Dil Fac
Dibromofluoromethane (Surr) Client Sample ID: VPR A-47 Date Collected: 03/02/20 13 Date Received: 03/05/20 12: Analyte Benzene Ethylbenzene Toluene m-Xylene & p-Xylene o-Xylene Xylenes, Total Surrogate 1,2-Dichloroethane-d4 (Surr)	:40 :45 ND ND ND ND ND ND ND ND ND 99		RL 0.0049 0.0049 0.0025 0.0025 0.0049 58 - 140	MDL	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	D	Lab Samp Prepared 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 03/10/20 11:00 Prepared 03/10/20 11:00 03/10/20 11:00	Analyzed 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 03/10/20 15:15 Analyzed 03/10/20 15:15	4318- c: Solic Dil Fa

Client Sample ID: Gachupin (D Date Collected: 03/02/20 11:22)					Lab Sam	ple ID: 280-13 Matrix	84318-1 c: Solid
Date Received: 03/05/20 12:45 Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.8		mg/Kg		03/13/20 10:23	03/13/20 14:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	91	7	77_123				03/13/20 10:23	03/13/20 14:53	1
Client Sample ID: VPR A-47 Date Collected: 03/02/20 13:40 Date Received: 03/05/20 12:45							Lab Sam	ple ID: 280-13 Matrix	84318-2 k: Solid
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	1.8		1.5		mg/Kg		03/13/20 10:23	03/13/20 15:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	91		77 - 123				03/13/20 10:23	03/13/20 15:18	1

Eurofins TestAmerica, Denver

6 7 8

Client Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-134318-1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: Gachupin (D Date Collected: 03/02/20 11:22 Date Received: 03/05/20 12:45	-137/D-138)					Lab Sam	ple ID: 280-13 Matrix	4318-1 (: Solid
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Diesel Range Organics [C10-C28]	23		8.0		mg/Kg		03/06/20 14:11	03/10/20 17:13	
Motor Oil (C20-C38)	38		24		mg/Kg		03/06/20 14:11	03/10/20 17:13	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	71		49_115				03/06/20 14:11	03/10/20 17:13	1
Client Sample ID: VPR A-47							Lab Sam	ple ID: 280-13	4318-2
Date Collected: 03/02/20 13:40									: Solic
Date Received: 03/05/20 12:45									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	66		7.7		mg/Kg		03/06/20 14:11	03/10/20 17:36	1
Motor Oil (C20-C38)	130		23		mg/Kg		03/06/20 14:11	03/10/20 17:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	75		49-115				03/06/20 14:11	03/10/20 17:36	

General Chemistry

Client Sample ID: Gachupin (D-1 Date Collected: 03/02/20 11:22	37/D-138)					Lab Sam	ple ID: 280-13 Matrix	4318-1 :: Solid
Date Received: 03/05/20 12:45 Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	12.4		0.1		%			03/11/20 16:05	1
Percent Solids	87.6		0.1		%			03/11/20 16:05	1
Client Sample ID: VPR A-47 Date Collected: 03/02/20 13:40							Lab Sam	ple ID: 280-13 Matrix	4318-2 : Solid
Date Received: 03/05/20 12:45 Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.6		0.1		%	- 2		03/11/20 16:05	1
Percent Solids	90.4		0.1		%			03/11/20 16:05	1

General Chemistry - Soluble

Client Sample ID: Gachupin (D-1 Date Collected: 03/02/20 11:22 Date Received: 03/05/20 12:45	37/D-138)					Lab San	nple ID: 280-13 Matrix	4318-1 (: Solid
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110		29		mg/Kg		· · ·	03/06/20 19:09	1
Client Sample ID: VPR A-47							Lab Sarr	ple ID: 280-13	4318-2
Date Collected: 03/02/20 13:40								•	: Solid
Date Received: 03/05/20 12:45									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	340		28		mg/Kg			03/06/20 19:26	1

. Released to Imaging: 10/28/2022 8:01:25 AM

Surrogate Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

			Pe	ercent Surre	ogate Recovery (A	Acceptance Limits)
		DCA	TOL	BFB	DBFM	
Lab Sample ID	Client Sample ID	(58-140)	(80-126)	(76-127)	(75-121)	
280-134318-1	Gachupin (D-137/D-138)	101	102	112	100	
280-134318-2	VPR A-47	99	101	107	101	
LCS 280-488264/1-A	Lab Control Sample	96	99	101	100	
LCSD 280-488264/2-A	Lab Control Sample Dup	95	100	102	101	
MB 280-488264/3-A	Method Blank	95	101	102	101	
Surrogate Legend						
DCA = 1,2-Dichloroetha	ane-d4 (Surr)				7	

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Solid

			Percent Surrogate Recovery (Acceptance L
ah Samala ID	Client Comple ID	TFT1 (77-123)	
ab Sample ID 80-134318-1	Gachupin (D-137/D-138)	91	
80-134318-2	VPR A-47	91	
CS 280-488619/2-A	Lab Control Sample	92	
CSD 280-488619/3-A	Lab Control Sample Dup	90	
/B 280-488619/1-A	Method Blank	91	

TFT = a,a,a-Trifluorotoluene

Method: 8015B - Diesel Range Organics (DRO) (GC) Matrix: Solid

			Percent Surrogate Recovery (Acceptance Limits)
		OTPH1	
Lab Sample ID	Client Sample ID	(49-115)	
280-134318-1	Gachupin (D-137/D-138)	71	
280-134318-2	VPR A-47	75	
280-134318-2 MS	VPR A-47	81	
280-134318-2 MS	VPR A-47	79	
280-134318-2 MSD	VPR A-47	83	
280-134318-2 MSD	VPR A-47	79	
_CS 280-487907/2-A	Lab Control Sample	86	
_CS 280-487907/3-A	Lab Control Sample	95	
MB 280-487907/1-A	Method Blank	76	
Surrogate Legend			

OTPH = o-Terphenyl

Prep Type: Total/NA

Job ID: 280-134318-1

Prep Type: Total/NA

Prep Type: Total/NA

QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-134318-1

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-488 Matrix: Solid	3264/3-A							ole ID: Method Prep Type: To	
Analysis Batch: 488243								Prep Batch:	
	MB	MB						•	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0050		mg/Kg		03/10/20 11:00	03/10/20 12:10	1
Ethylbenzene	ND		0.0050		mg/Kg		03/10/20 11:00	03/10/20 12:10	1
Toluene	ND		0.0050		mg/Kg		03/10/20 11:00	03/10/20 12:10	1
m-Xylene & p-Xylene	ND		0.0025		mg/Kg		03/10/20 11:00	03/10/20 12:10	1
o-Xylene	ND		0.0025		mg/Kg		03/10/20 11:00	03/10/20 12:10	1
Xylenes, Total	ND		0.0050		mg/Kg		03/10/20 11:00	03/10/20 12:10	្ម
	MB	МВ							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		58-140				03/10/20 11:00	03/10/20 12:10	1
Toluene-d8 (Surr)	101		80_126				03/10/20 11:00	03/10/20 12:10	1
4-Bromofluorobenzene (Surr)	102		76_127				03/10/20 11:00	03/10/20 12:10	1
Dibromofluoromethane (Surr)	101		75-121				03/10/20 11:00	03/10/20 12:10	1

Lab Sample ID: LCS 280-488264/1-A Matrix: Solid Analysis Batch: 488243

Matrix: Solid Analysis Batch: 488243		Spike	LCS	LCS				Prep Type: Total/NA Prep Batch: 488264 %Rec.
Analyte		Added	Result	Qualifier	Unit	D	%Rec	Limits
Benzene		0.0500	0.0436		mg/Kg		87	75 - 135
Ethylbenzene		0.0500	0.0448		mg/Kg		90	73 - 125
Toluene		0.0500	0.0415		mg/Kg		83	77 - 122
m-Xylene & p-Xylene		0.0500	0.0431		mg/Kg		86	77 - 135
o-Xylene		0.0500	0.0438		mg/Kg		88	75 - 135
Xylenes, Total		0.100	0.0869		mg/Kg		87	76 - 135
	LCS LCS							

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		58-140
Toluene-d8 (Surr)	99		80_126
4-Bromofluorobenzene (Surr)	101		76_127
Dibromofluoromethane (Surr)	100		75-121

Lab Sample ID: LCSD 280-488264/2-A Matrix: Solid

Matrix: Solid Analysis Batch: 488243		Spike	LCSD LCSD			Prep Ty Prep Ba %Rec,		
Analyte		Added	Result Qualifier	Unit	D %Rec	Limits	RPD	Limit
Benzene		0.0500	0.0481	mg/Kg	96	75 - 135	10	20
Ethylbenzene		0.0500	0.0499	mg/Kg	100	73 - 125	11	20
Toluene		0.0500	0.0453	mg/Kg	91	77 _ 122	9	20
m-Xylene & p-Xylene		0.0500	0.0483	mg/Kg	97	77 - 135	11	20
o-Xylene		0.0500	0.0480	mg/Kg	96	75 - 135	9	20
Xylenes, Total		0.100	0.0963	mg/Kg	96	76 - 135	10	20
	LCSD LCSD							

	LUSD	LUSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	95		58-140
Toluene-d8 (Surr)	100		80-126
4-Bromofluorobenzene (Surr)	102		76 - 127

			QC	Samp	le	Res	ults	5					
Client: Wapiti Operating, LLC Project/Site: Produced Water												Job ID: 280-	134318-
/lethod: 8260B - Volati	le Organic	c Co	mpou	unds (G(C/N	IS) (C	Con	tinu	ed)				
Lab Sample ID: LCSD 280 Matrix: Solid Analysis Batch: 488243	-488264/2-A							C	Client Sa	mple	e ID: Lab	Control San Prep Type: Prep Batch	Total/N
·····, -·· ···	LCSD	1000										Thep Button	002
Surrogate	%Recovery			Limits									
Dibromofluoromethane (Surr)	101			75-121									
lethod: 8015B - Gasol	line Range	e Org	ganic	s - (GC)									
Lab Sample ID: MB 280-48 Matrix: Solid	38619/1-A									Cli	ent Sam	ple ID: Metho Prep Type: `	
Analysis Batch: 488643												Prep Batch	
Analyte		MB N						11. 24	_			.	 -
Analyte Gasoline Range Organics (GRO)		ND	ualifier		RL 2.0		MDL	Unit mg/K	g E		Prepared 13/20 09:31	Analyzed 03/13/20 11:10	Dil F
-C6-C10													
Surrogate	%Recov	MB M		Limits	-						renered	A set mod	04.5
a,a,a-Trifluorotoluene		91	uannei	77 - 12							Prepared 13/20 09:31	Analyzed 03/13/20 11:10	Dil F
Matrix: Solid Analysis Batch: 488643 Analyte Gasoline Range Organics (GRO) -C6-C10			_	Spike Added 4.48		LCS Result 4.90	LCS Qua		Unit mg/Kg	D	%Rec 109	Prep Type: 7 Prep Batch %Rec. Limits 75-135	
Surrogate	LCS %Recovery			l inside									
a,a,a-Trifluorotoluene	92	Quaim		Limits 77 - 123									
Lab Sample ID: LCSD 280- Matrix: Solid Analysis Batch: 488643	-488619/3 - A							c	lient Sa	mple	ID: Lab	Control Sam Prep Type: 1 Prep Batch:	Total/N
				Spike		LCSD	LCS	D				%Rec.	RI
Analyte				Added		Result	Qua	lifier	Unit	D	%Rec	Limits RF	
Gasoline Range Organics (GRO) C6-C10				4.48		4.89			mg/Kg		109	75 - 135	0
	LCSD I												
Surrogate	%Recovery	Qualifi	ier	Limits									
a,a,a-Trifluorotoluene	90			77 - 123									
lethod: 8015B - Diesel	Range Or	rgan	ics (E)RO) (G	C)								
Lab Sample ID: MB 280-48	7907/1-A									Clie	-	ole ID: Metho Prep Type: 1	otal/N
Matrix: Solid												Prep Batch:	40/91
-	r	мв м	в									-	
Matrix: Solid			B ualifier		RL	r	MDL	Unit	D	P	repared	Analyzed	Dil Fa
Matrix: Solid Analysis Batch: 488279	Res			_	RL 8.0	e	MDL	Unit mg/Kg			repared 6/20 14:11		-

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QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Lab Sample ID: MB 280-4 Matrix: Solid Analysis Batch: 488279	l87907/1-A			18			Cli	ent San	nple ID: Metho <mark>d</mark> Blank Prep Type: Total/NA Prep Batch: 487907
,		MB MB							
Surrogate	%Reco	overy Qualifier	Limits				F	Prepared	Analyzed Dil Fa
o-Terphenyl		76	49_115				-		11 03/10/20 16:07
Lab Sample ID: LCS 280- Matrix: Solid	487907/2-A					Clier	nt Sa	mple IC): Lab Control Sample Prep Type: Total/NA
Analysis Batch: 488279									Prep Batch: 48790
			Spike	LCS	LCS				%Rec.
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits
Diesel Range Organics [C10-C28]			132	110		mg/Kg		83	53 - 115
	LCS	LCS							
Surrogate	%Recovery	Qualifier	Limits						
p-Terphenyl	86		49-115						
_ab Sample ID: LCS 280-	487907/3-A					Clier	nt Sa	mple ID	: Lab Control Sample
Matrix: Solid								•	Prep Type: Total/N/
Analysis Batch: 488279									Prep Batch: 487907
			Spike	LCS	LCS				%Rec.
Analyte			Added		Qualifier	Unit	D	%Rec	Limits
Notor Oil (C20-C38)			334	311		mg/Kg		93	57 - 115
	LCS	LCS							
Surrogate	%Recovery	Qualifier	Limits						
o-Terphenyl	95	C-	49_115						
ab Sample ID: 280-1343	18-2 MS							Client	Sample ID: VPR A-47
Matrix: Solid									Prep Type: Total/NA
Analysis Batch: 488279	Semple	Sample	Spike	No	NC				Prep Batch: 487907
Analyte	•	Sample Qualifier	Spike Added	MS	MS Qualifier	11-14		N/ D	%Rec.
Diesel Range Organics	66	Quaimer	117	150	Quaimer	Unit mg/Kg	D	%Rec 72	Limits 56 - 115
C10-C28]			117	150		тулсу		12	30 - 115
	MS	MS							
Surrogate	%Recovery	Qualifier	Limits						
o-Terphenyl	81		49-115						
₋ab Sample ID: 280-13431 Matrix: Solid	18-2 MS							Client	Sample ID: VPR A-47
Analysis Batch: 488279	Sample	Sample	Snike	Ме	Ме				Prep Type: Total/NA Prep Batch: 487907
nalyte		Sample Qualifier	Spike Added	MS	MS Qualifier	Unit	ъ ²	0/ D	%Rec.
lotor Oil (C20-C38)	130		315	422	quaimer	Unit mg/Kg	D	%Rec 92	Limits
(010	722		myrry		JΖ	07-110
	MS								
urrogate	%Recovery	Qualifier	Limits						
-Terphenyl	79		49-115						

QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Lab Sample ID: 280-1343 Matrix: Solid Analysis Batch: 488279	Sample	Sample	Spike	MSD	MSD			Client	Sample I Prep Ty Prep Ba %Rec.	pe: Tota	al/NA
Analyte		Qualifier	Added		Qualifier	Unit	D		Limits	RPD	Limit
Diesel Range Organics [C10-C28]	66		128	155		mg/Kg		70	56 - 115	3	23
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
o-Terphenyl	83		49_115								
Analyte Motor Oil (C20-C38)	Sample Result 130	Sample Qualifier	Spike Added 299	MSD Result 399	MSD Qualifier	Unit mg/Kg	D	%Rec 90	%Rec. Limits 57 - 115	RPD 6	RPD Limit 30
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
o-Terphenyl	79		49_115								
lethod: 9056A - Anior	ns, Ion Chi	romatog	raphy								
Lab Sample ID: MRL 280- Matrix: Solid Analysis Batch: 487947	487947/3					Clien	t Sai	mple ID	: Lab Cor Prep Ty		-
·····,····,····			Spike	MRL	MRL				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		

Matrix: Solid Analysis Batch: 487947												Prep Type:	oorubi
-	MB	MB											
Analyte	Result	Qualifier		RL		MDL	Unit		D	P	repared	Analyzed	Dil Fa
Chloride	ND			30			mg/K]				03/06/20 17:41	
Lab Sample ID: LCS 280-487972	/1 -A							Cli	ent \$	Sar	nple ID	: Lab Control	Samol
Matrix: Solid												Prep Type:	•
Analysis Batch: 487947													
Analysis Batch: 487947			Spike		LCS	LCS	i i					%Rec.	
-			Spike Added	I	LCS Result			Unit		D	%Rec	%Rec. Limits	
Analysis Batch: 487947 Analyte Chloride			•					Unit mg/Kg		D	%Rec 99		-
Analyte Chloride	'2/2-A		Added		Result		lifier	mg/Kg	amr	-	99	Limits 90 - 110	ole Du
Analyte Chloride Lab Sample ID: LCSD 280-48797	'2/2-A		Added		Result		lifier	mg/Kg	amp	-	99	Limits 90 - 110 Control Samp	
Analyte Chloride	'2/2-A		Added		Result		lifier	mg/Kg	amp	-	99	Limits 90 - 110	

	Spike	LCSD I	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	1000	988		mg/Kg		99	90 - 110	0	10

Client: Weniti Operating, LLC
Client: Wapiti Operating, LLC
Project/Site: Produced Water Spill

GC/MS VOA

Analysis Batch: 488243

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-134318-1	Gachupin (D-137/D-138)	Total/NA	Solid	8260B	488264
280-134318-2	VPR A-47	Total/NA	Solid	8260B	488264
MB 280-488264/3-A	Method Blank	Total/NA	Solid	8260B	488264
LCS 280-488264/1-A	Lab Control Sample	Total/NA	Solid	8260B	488264
LCSD 280-488264/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	488264
Prep Batch: 488264					
Top Batom 400204					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
Lab Sample ID 280-134318-1	Gachupin (D-137/D-138)	Prep Type Total/NA	Matrix Solid	Method 5030B	Prep Batch
Lab Sample ID					Prep Batch
Lab Sample ID 280-134318-1	Gachupin (D-137/D-138)	Total/NA	Solid	5030B	Prep Batch
Lab Sample ID 280-134318-1 280-134318-2	Gachupin (D-137/D-138) VPR A-47	Total/NA Total/NA	Solid Solid	5030B 5030B	Prep Batch

QC Association Summary

GC VOA

Prep Batch: 488619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-488619/1-A	Method Blank	Total/NA	Solid	5030B	
LCS 280-488619/2-A	Lab Control Sample	Total/NA	Solid	5030B	
LCSD 280-488619/3-A	Lab Control Sample Dup	Total/NA	Solid	5030B	
Prep Batch: 488632					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-134318-1	Gachupin (D-137/D-138)	Total/NA	Solid	5035	

Total/NA

Solid

5035

	• •
280-134318-2	VPR A-47
- 1	

Analysi	is Bate	ch: 48	8643

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-134318-1	Gachupin (D-137/D-138)	Total/NA	Solid	8015B	488632
280-134318-2	VPR A-47	Total/NA	Solid	8015B	488632
MB 280-488619/1-A	Method Blank	Total/NA	Solid	8015B	488619
LCS 280-488619/2-A	Lab Control Sample	Total/NA	Solid	8015B	488619
LCSD 280-488619/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	488619

GC Semi VOA

Prep Batch: 487907

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-134318-1	Gachupin (D-137/D-138)	Total/NA	Solid	3546	<u></u>
280-134318-2	VPR A-47	Total/NA	Solid	3546	
MB 280-487907/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-487907/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCS 280-487907/3-A	Lab Control Sample	Total/NA	Solid	3546	
280-134318-2 MS	VPR A-47	Total/NA	Solid	3546	
280-134318-2 MS	VPR A-47	Total/NA	Solid	3546	
280-134318-2 MSD	VPR A-47	Total/NA	Solid	3546	
280-134318-2 MSD	VPR A-47	Total/NA	Solid	3546	
nalysis Batch: 488	279				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-134318-1	Gachupin (D-137/D-138)	Total/NA	Solid	8015B	487907

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GC Semi VOA (Continued)

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-134318-2	VPR A-47	Total/NA	Solid	8015B	487907
MB 280-487907/1-A	Method Blank	Total/NA	Solid	8015B	487907
LCS 280-487907/2-A	Lab Control Sample	Total/NA	Solid	8015B	487907
LCS 280-487907/3-A	Lab Control Sample	Total/NA	Solid	8015B	487907
280-134318-2 MS	VPR A-47	Total/NA	Solid	8015B	487907
280-134318-2 MS	VPR A-47	Total/NA	Solid	8015B	487907
280-134318-2 MSD	VPR A-47	Total/NA	Solid	8015B	487907
280-134318-2 MSD	VPR A-47	Total/NA	Solid	8015B	487907

General Chemistry

Analysis Batch: 487947

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-134318-1	Gachupin (D-137/D-138)	Soluble	Solid	9056A	487972
280-134318-2	VPR A-47	Soluble	Solid	9056A	487972
MB 280-487972/3-A	Method Blank	Soluble	Solid	9056A	487972
LCS 280-487972/1-A	Lab Control Sample	Soluble	Solid	9056A	487972
LCSD 280-487972/2-A	Lab Control Sample Dup	Soluble	Solid	9056A	487972
MRL 280-487947/3	Lab Control Sample	Total/NA	Solid	9056A	
each Batch: 487972.					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-134318-1	Gachupin (D-137/D-138)	Soluble	Solid	DI Leach	
280-134318-2	VPR A-47	Soluble	Solid	DI Leach	
MB 280-487972/3-A	Method Blank	Soluble	Solid	DI Leach	
LCS 280-487972/1-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 280-487972/2-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
nalysis Batch: 4884	35				
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-134318-1	Gachupin (D-137/D-138)	Total/NA	Solid	Moisture	
280-134318 - 2	VPR A-47	Total/NA	Solid	Moisture	

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Job ID: 280-134318-1

Matrix: Solid

Lab Sample ID: 280-134318-1

Lab Chronicle

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Client Sample ID: Gachupin (D-137/D-138) Date Collected: 03/02/20 11:22 Date Received: 03/05/20 12:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.673 g	5 mL	488264	03/10/20 11:00	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	488243	03/10/20 14:52	GPM	TAL DEN
Total/NA	Prep	5035			5.465 g	5 mL	488632	03/13/20 10:23	CAS	TAL DEN
Total/NA	Analysis	8015B		1	1 mL	50 mL	488643	03/13/20 14:53	CAS	TAL DEN
Total/NA	Prep	3546			15.0 g	1 mL	487907	03/06/20 14:11	MB	TAL DEN
Total/NA	Analysis	8015B		1			488279	03/10/20 17:13	MAM	TAL DEN
Soluble	Leach	DI Leach			10.19 g	100 mL	487972	03/06/20 13:02	JAP	TAL DEN
Soluble	Analysis	9056A		1	5 mL	5 mL	487947	03/06/20 19:09	BWH	TAL DEN
Total/NA	Analysis	Moisture		1			488435	03/11/20 16:05	BWH	TAL DEN

Client Sample ID: VPR A-47 Date Collected: 03/02/20 13:40 Date Received: 03/05/20 12:45

Lab Sample ID: 280-134318-2

Matrix: Solid

_										
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B		· · · · · ·	5.076 g	5 mL	488264	03/10/20 11:00	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	488243	03/10/20 15:15	GPM	TAL DEN
Total/NA	Ргер	5035			6.745 g	5 mL	488632	03/13/20 10:23	CAS	TAL DEN
Total/NA	Analysis	8015B		1	1 mL	50 mL	488643	03/13/20 15:18	CAS	TAL DEN
Total/NA	Ргер	3546			15.5 g	1 mL	487907	03/06/20 14:11	MB	TAL DEN
Total/NA	Analysis	8015B		1			488279	03/10/20 17:36	MAM	TAL DEN
Soluble	Leach	DI Leach			10.59 g	100 mL	487972	03/06/20 13:02	JAP	TAL DEN
Soluble	Analysis	9056A		1	5 mL	5 mL	487947	03/06/20 19:26	BWH	TAL DEN
Total/NA	Analysis	Moisture		1			488435	03/11/20 16:05	BWH	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

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Accreditation/Certification Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-134318-1

Laboratory: Eurofins TestAmerica, Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-21
A2LA	ISO/IEC 17025	2907.01	10-31-21
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	01-08-20 *
Arizona	State	AZ0713	12-20-20
Arkansas DEQ	State	19-047-0	06-01-20
California	State	2513	01-08-21
Connecticut	State	PH-0686	09-30-20
Florida	NELAP	E87667-57	06-30-20
Illinois	NELAP	2000172019-1	04-30-20
lowa	State	IA#370	12-01-20
Kansas	NELAP	E-10166	04-30-20
Louisiana	NELAP	30785	06-30-20
Maine	State	2019011 (231)	03-03-21
Minnesota	NELAP	1788752	12-31-20
Nevada	State	CO000262020-1	07-31-20
New Hampshire	NELAP	205319	04-28-20
New Jersey	NELAP	190002	06-30-20
New York	NELAP	59923	04-01-20
North Carolina (WW/SW)	State	358	12-31-20
North Dakota	State	R-034	01-08-21
Oklahoma	State	2018-006	08-31-20
Oregon	NELAP	4025-011	01-08-21
Pennsylvania	NELAP	013	08-01-20
South Carolina	State	72002001	01-08-20 *
Texas	NELAP	T104704183-19-17	09-30-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-18-00099	03-26-21
Utah	NELAP	CO000262019-11	07-31-20
Virginia	NELAP	10490	06-14-20
Washington	State	C583-19	08-05-20
West Virginia DEP	State	354	11-30-20
Wisconsin	State	999615430	08-31-20
Wyoming (UST)	A2LA	2907.01	10-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Denver 955 Yarrow Street rvada, CO 80002 hone (303) 736-0100 Fax (303) 431-7171	Chain of Custody F	Becord Denver #280	eurofins Environment Testin TestAmerica
lient Information	Randa L.MadisonTur		COC No:
lient Contact: Ir. Randy Madison	Phong A LID		Page:
ompany: Vapiti Operating, LLC	1 Jac / a line line		Job #:
ddress: .O. Box 190 309 Silver Street	Due Date Requested:	Analysis Requested	Preservation Codes:
ity: taton Iale, Zip: IM, 87740	TAT Requested (days):		A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S
75-445-6706(Tel)	PO #: Pay by Credit Card		E - NaHSO4 Q - Na2SO3 F - MEOH R - Na2S2O3 G - Amchlor S - H2SO4
^{mail:} madison@wapitienergy.com	WO #:	with the second se	H - Ascorbic Acid T - TSP Dodecahydra i - Ice U - Acetone J - DI Water V - MCAA
roject Name: Produced Water Spill	Project #: 28020400 SSOW#:	ed Sumple (Yes or No). SMSD (Yes or No) (MOD) Local Method - (MOD) Standard 8015 list - (MOD) Standard 8015 list - (MOD) Standard 8015 list D) BTEX by GC/MS	K - EDTA W - pH 4-5 L - EDA Z - othor (specify)
Sample Identification	Sample Date Sample Type (Matrix Created of the second seco	Field Filten Perform MS 9056A_28D - 8015B_DRO 8015B_GRO 82608 - (MOI % Moisture	To be an
Fachinpin (D-137/D-138)	3/2 DO 1/22 G Solid		
IPRA-4-)	8/2/20 1345 G- Solin	NNFNN	
Possible Hazard Identification Non-Hazard Flammable Skin Irritant Po Deliverable Requested: 1, II, III, IV, Other (specify)	ison B Unknown Radiological	Sample Disposal (A fee may be assessed if sample Return To Client Disposal By Lab Special Instructions/QC Requirements:	es are retained longer than 1 month) Archive For Months
Empty Kit Relinquished by:	Date:	Time: Mathod of Shipm	ient.
Relinquished by	Date/Time: Company Vogst		Time: 20 0910 Company
Relinquished by:	Date/Time: Company	(Time: 51.5 - 12 Company
Custody Seals Intact: Custody Seal No.: A Yes A No		Cooler Temperature(s) "C and Other Remarks.	

Released to Imaging: 10/28/2022 8:01:25 AM

Page 20 of 22

3/17/2020

TANK RANK RANK RANK

Ver: 01/16/2019

Page 53 of 171

Received by OCD: 9/15/2020 10:28:56 AM

14

Page 1 of 1

FROM (575) 420-1120 Randy Madison	ショックの市に (C-MAR-28) メイヤル31 人口区 (日 マンドの2月15日中に14,
309 Silver St RATON NM 87740 US	HLL-EXDER
ToShelby Turner TestAmerica Denver Lab.	Deve BLDR
4955 Yarrow St.	CV
ARVADA CO 80002 (303) 736-0100	Den DENV
	Dan
	G
III NE WARMAN AN A MANAGANA ANA ANA ANG ANG ANG ANG ANG ANG	

TRK# 7779 1069 3845

80002





280-134316 Waybill

Login Sample Receipt Checklist

Client: Wapiti Operating, LLC

Job Number: 280-134318-1

Login Number: 134318 List Source: Eurofins TestAmerica, Denver List Number: 1 Creator: Lubin, Julius C Question Answer Comment Radioactivity wasn't checked or is </= background as measured by a survey N/A meter. The cooler's custody seal, if present, is intact. True Sample custody seals, if present, are intact. True The cooler or samples do not appear to have been compromised or True tampered with. Samples were received on ice. True Cooler Temperature is acceptable. True Cooler Temperature is recorded. True COC is present. True COC is filled out in ink and legible. True COC is filled out with all pertinent information. True Is the Field Sampler's name present on COC? True There are no discrepancies between the containers received and the COC. True Samples are received within Holding Time (excluding tests with immediate True HTs) Sample containers have legible labels. True Containers are not broken or leaking. True Sample collection date/times are provided. True Appropriate sample containers are used. True Sample bottles are completely filled. True Sample Preservation Verified. N/A There is sufficient vol. for all requested analyses, incl. any requested True MS/MSDs Containers requiring zero headspace have no headspace or bubble is N/A <6mm (1/4"). Multiphasic samples are not present. True Samples do not require splitting or compositing. True Residual Chlorine Checked. N/A

Eurofins TestAmerica, Denver

. Released to Imaging: 10/28/2022 8:01:25 AM

2020 10:28:56

3







August 13, 2020

Randy L. Madison, HSE Specialist Wapiti Operating, LLC P.O. Box 190 Raton, NM 87740

Re: Groundwater Monitoring Well 125

Mr. Madison,

Vermejo Park Ranch's Natural Resource Division has depth-to-water measurements for the Groundwater Monitoring Well #125 dating back to May of 2001. The estimated total depth of the well is 30 feet with the most recent depth-to-water measurement (April 30th, 2020) reading 17.88 feet. A chart of the depth-to-water readings is included below.



Regards,

Sara Holm GIS Specialist Vermejo Park Ranch | Natural Resources Division sara.holm@vermejo.com





×8150

A-289

A-050

A-051

the house	10:28:56 A		327					
Mendon	an israp	minut		dialan f		\bigcirc	Re	vised June 1972
			S	TATE ENGINE				
				WELL RE				
(4) 0	1/1	10000	11	1 1. GENERAL			FCR 77 - 807	
(A) Owner Street (or Post Office /	Address	Rt I G	307 68			Erstwein No. 14	11 20
		45				7/4 STAT	E ENCINEER	OFFIDE
					and is located	i in the:	िकोर्ग में मुख्य	075a)
a	¼	1/4 1/4 _	¼ of	Section	Township _	Ra	nge	N.M.P.M.
b. Trac	t No	of Map N	0	of t	1e			
c. Lot	No	_ of Block No		of th	ne			········
				•	-	-	T	
d. X=	741 400	feet, Y=	+107 10	feet, h	M. Coordinate	System	RS1	Zone in Grant
(B) Drilling	Contractor	Selve	5			License No	WD 639	Junt.
						Cable tool		
		1211						
					No. Co.	🧕 ft. Total depth		
Completed we	ill is 🗹 :	shallow 🗀	artesian.		Depth to water	upon completion	of well 56	. 66ft.
Denth	in Feet			NCIPAL WATE	R-BEARING ST	RATA	(
From	To	Thicknes in Feet		Description of	Water-Bearing F	ormation	Estimated (gallons per	
5.6	53		s	hate			& set	
							1	
			Secti	on 3. RECORD	OF CASING			
1.	Dun 1	Threads		h in Feet	Length	Type of Sho	Perfo	orations
Diameter	Pounds		Top	Bottom	(feet)	1900 01 010		To
(inches)	per foot	per in.	100				From	10
		per in.	0 0	56	56		From 56	18
(inches)	per foot	0					From	
(inches)	per foot	0					From	
(inches) 5 ⁻ "	9	dladd Sect	<i>0</i> ion 4. RECC	56 DRD OF MUDD	56	ENTING	From	
(inches) 5 ⁻ "	per foot	will	0	DRD OF MUDD	56		From	
(inches) 5 ⁻ " Dep th	per foot 9 in Feet	Sect Hole	o ion 4. RECC	DRD OF MUDD	56 ING AND CEM		56	
(inches) 5 ⁻ " Dep th	per foot 9 in Feet	Sect Hole	o ion 4. RECC	DRD OF MUDD	56 ING AND CEM		56	
(inches) 5 ⁻ " Dep th	per foot 9 in Feet	Sect Hole	o ion 4. RECC	DRD OF MUDD	56 ING AND CEM		56	
(inches) 5 ⁻ " Dep th	per foot 9 in Feet	Sect Hole	o ion 4. RECC	DRD OF MUDD	56 ING AND CEM		56	
(inches) 5 ⁻ " Depth From	per foot 9 in Feet To	Sect Hole Diameter	D tion 4. RECC Sacof M Section	DRD OF MUDD cks Cr fud of on 5. PLUGGIN	5-6 ING AND CEM ubic Feet f Cement		56	
(inches) 5 ⁻ " Dep th	in Feet To	Sect Hole Diameter	D tion 4. RECC Sacof M Section	DRD OF MUDD cks Cr fud of on 5. PLUGGIN	56 ING AND CEM ubic Feet Cement	Metho	d of Placement	18
(inches) 5 ⁻ " Depth From Plugging Contra Address Plugging Metho	in Feet To actor	Sect Hole Diameter	D tion 4. RECC Sac of M Section	DRD OF MUDD cks Cr fud of on 5. PLUGGIN	ST6		d of Placement	
(inches) 5 ⁻ " Depth From Plugging Contra Address	in Feet To actor	Sect Hole Diameter	D tion 4. RECC Sac of M Section	DRD OF MUDD cks Cr fud of on 5. PLUGGIN	ST6	Metho Depth in F	d of Placement	18
(inches) 5 ⁻ " Depth From Plugging Contra Address Plugging Metho Date Well Plugg	in Feet To actor	Sect Hole Diameter	D tion 4. RECC Sac of M Section	DRD OF MUDD Cks CC Aud OI	ST6	Metho Depth in F	d of Placement	18

Use

____ Location No.___

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Page 61 of 171

n Feet To	Thickness in Feet	
		Color and Type of Material Encountered
10FT		DRIT SARD DRIK
20		SHOLD - QRIVEL
40		11 (1
50		11 11
56		5hach.
64		Sharp 11FT Sharp Bases
		9
	до 40 50 56	20 40 50 56

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Earrett Kile

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and somethic to the appropriate district office of the State Engineer. All sections, excellection 5, shall be answered as completely and source of the State Engineer. All sections, excellection 5, shall be answered as completely and source of the state engineer. All sections, excellent is an a plugging record, only Section 1(a) and Section 5 need be completed.

÷1) S1	TATE ENG	INEER OF	FICE	<i>R</i> ,	7. E. 16 FT		Revised June
	of well or Post Office . d State	Verme J	2	1. GENER				Świnier is v		OFFICE
		it NoF.L			P and	is locate	d in the			a de la companya de l
		1/4 1/4						Rupge		
		of Map N								
c, Lot i	No	_ of Block No.			of the					
Subd	livision, record	led in			County	ec.				
d. X= thc	226.000 Mata	feet, Y= 2	128,50 ant	Case	Man Stan	ordinate	System	Eas	<i>T</i>	
(B) Drilling	Contractor	Selu	is				License N	w	063	9
	San									
Drilling Began	21 July	75 Con	upleted 19	Suite	75 TYPE	tools	Cable		Cian a Charl	1 7/2
	and surface or									
Completed we		shallow 🗌		a			ft. Total d			
sompleted we							upon comple	tion of w	vell_ <u>_</u>	- M
	in Feet	Thicknes	ction 2. PRII				and the second sec		Estimate	d Yield
From	То	in Feet	0	Description					(gallons pe	r minute)
103	104	-1-		ET				/	(ONE)	GPN
195	202		G	REY	SHAND	1 5	Add And Free		7G,	DM
			_						10 May 1	
Diameter	Pounds	Threads		in 3. RECO					1 5	
(inches)	per foot	per in.	Тор	Botton		ngth eet)	Type of	Shoe	From	forations To
5 % or	6	WLD			20	28			205	150
									6	
									1	
			on 4, RECO	RD OF MU	DDING AN	D CEMI	ENTING			
Depth From	To	Hole Diameter	Saci of M		Cubic Fee of Cemer		Me	thod of	Placement	
65	68	67"	1/2 =	5016			BENTON	ITE &	Soil	3:/
72	74	6 1/8 "	1/3 =		_		MUDE	Soil	2:	1
		1	I Sectio	n 5. PLUG	GING REC	ORD				
	ctor									
igging Metho	d b					No.	Depth Top	in Feet Bott		Cubic Feet of Cement
ite Well Plugg igging approv						1				
		State Eng	neer Repress	ntative		3				
					L		-			-
			FOR LISE	OF STATE	ENGINEE	P ONT V				

___ Use _____ Location No.__

. Released to Imaging: 10/28/2022 8:01:25 AM

File No.____

	in Feet	Thickness in Feet	Color and Type of Material Encountered
From	To		m l l l e e l
0	3	3	PACKED CLAY, GRAVEL
3	12	9	HARD SUSAR SAND STONE, INTER. GREY SHAL
12	34	22	BROWN ELAY W/LAYERED SAND STONE
34	38	4	HARD SURFABLE SEDIMENT, SOME SHALE
38	56	18	MARD SHALF, COME LAYER
56	58	2	HEAVEY GRAUEL, SLOW LOSS OF CHECK LATION
58	65	5	DARK GREY SHALE, HARD STONE
65	63	3	LOBS Of CIRA, SOFT DRILLING, NO SAMPLES (SEC.
68	72	4	HARD SHALE 1-2, LANGLED COAL Selo"
72	74	2	LOSS CIRCULATION, NO SAMPLE (3607)
74	88	14	HARD SAND SEDIMENT, W/ GREY SHALE & CORL
88	92	4	GREY SHALE, LAMGE LEYERED CONL 16-18"
92	118	26	GREY SHALE, SAND
1/8	146	28	HAPP WHITE LIME NO SHAPPING
46	151	5	Cont
151	203	56	SHALE, BROWN CLAY, MIXED COM
	N		
	1 K	**	
18	1		

Section 7. REMARKS AND ADDITIONAL INFORMATION

No BENTONITE USED, HOLE PROMED W/ DROGGINGS

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Everett Kile

INSTRUCTIONS: This form should be ted in triplicate, preferably typewritten, and nitted to the appropriate district office courately as possible when any well is **Released to Imaging:** 10/28/2022 8:01-25 and this form is used as a plusning record, only Section 1(a) and Section 5, near by completed

52 N.

Revised June 1972

STATE ENGINEER OFFICE WELL RECORD

Section 1. GENERAL INFORMATION

(A)	Owner of	well		ejo Park R	anch	Owner's Well	MIne	Shop
			Address P.O.	Drawer E			NO	
		State	Date	n, NM 877	40			
Wei) v	was drilled	under Pen	mit NoCR-4	363	and is located in the	::		
	1	. ¼	_ ¼ ¼	_ 14 of Section	Township	Range		_N.м.р.ы
	b. Tract N	lo,	of Map No	(of the			
	c. Lot No	idon reco	of Block No	olfax	of the County.			
	540477	mon, recor			County.			
	d. X=3	28023	feet, Y=12	9 <u>326</u> fe	et, N.M. Coordinate System	East		Zone ir
	the		Ma	xwell	2	<u> </u>		Grant
(B)	Drilling Co	ntractor_	Mack's Dr	illing, Ind	Lice	mse No. WD-91	6	
					n, NM 87740		_	
Addre	si ii			Toory Aucor	I NA 07740		-	
Drillin	g Began 🖸	5-24-(05 Complete	d <u>05-25-05</u>	Type tools Air I	Rotary Size	of hole 7	7/8 in
Elevat	ion of land	surface o	r <u>Casing</u>		t well is ft. 7	rotal depth of well.	80	ft
Compi	leted well i	is (X)	shallow 🛛 artes	ian.	Depth to water upon	completion of well	16	ft
	23					•		
r`	Depth in	Faat	The second se	2. PRINCIPAL W	ATER-BEARING STRATA			
F	rom	To	Thickness in Feet	Description	n of Water-Bearing Formati		stimated Yi lons per mi	
2								0.000
2	<u> </u>	33	8	Gravel			20	
							<u></u>	
298								

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot		Threads	Depth	in Feet	Longth	Burn of the sec	Perfor	ations
		per in.	Top	Bottom	(feet)	Type of Shoe	From	To	
6"	.188	Weld	2	80	80		40	60	

Depth in Feet Hole Sacks **Cubic Feet** Method of Placement From Diameter of Mud of Cement To 200 2.9

Section 4. RECORD OF MUDDING AND CEMENTING

. Released to Imaging: 10/28/2022 8:01:25 AM

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			Section 6. LOG OF HOLE					
Depth From	in Feet To	Thickness in Feet	Color and Type of Material Encountered					
0	13	13	Black Fill					
13	15	2	Coal					
15	25	10	Black Shale					
25	33	8	Gravel (Water)					
33	39	6	Gray Shale					
39	52	13	Tan Sandstone					
52	54	2	Coal					
54	83	29	Tan Sandstone					
83	85	2	Coal					
			•					
	· <u> </u>							
			••					
		Section '	7. REMARKS AND ADDITIONAL INFORMATION					



Set 25' 8 5/8" Steel at surface



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

Received

SEP 11 2015

Office of the State Engineer District VII Cimarron Office

-													160
Z	OSE POD NT Pod 4			MBER) 5742					OSE FILE NO	• • •	9004		
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N S	WELL OWN			npany LLC					L	1-8129	work (41	12) 489-0311 ce	
GENERAL AND WELL LOCATION	1000 Co	ommei	rce Dri	ve, 4th Flo					Pittsburg],		PA 152	21P 275
ANA	WELL			DEGREI 36	s мл 55	NUTES	SECON 37.6	1744 1780	. ACCURAC			TH OF A SECOND	
RAL	(FROM GPS) LATITUDE 104 52						31.6	N W	• DATUM RE	-		IN OF A SECOND	
	DESCRIPTION			and the second se	ET ADDRESS AND	COMMONID	ANDMARKS - P	LSS (SECTION, Y	OWNSHJIP, RANG	GE) WHERE A	ALLABLE		
-	Near A-2	262		VH3R			ON	To	WAJSHI LANCE	7 31	Nor		. =•
	LICENSE NU WD-916	MBER	NAN	E OF LICENSET	DRILLER			2, .		I NAME OF		LLING COMPANY	
	DRILLING ST		DRII 09-0	LING ENDED	DEPTH OF COM	APLETED W	/ELL (FT)	BORE HO	LE DEPTH (FT)			ST ENCOUNTERED (FT)
				0-10	5			100					
Z	COMPLETED) WELL IS	s: O	ARTESIAN		e O si	HALLOW (UN	CONFINED)		None	VALEKLEV	EL IN COMPLETED W	ELL (FT)
ŬĽ.	DRILLING FL	LUID:	0	AIR	O MUD	A	DDITIVES – SI	PECIFY:					
ORM	DRILLING M			ROTARY	O HAMMER		ABLE TOOL	O OTHE	R - SPECIFY:				
IN I	DEPTH ((feet bgl) TO		BORE HOLE	CASING N	AATERIAI GRADE	L AND/OR		SING	CAS		CASING WALL	SLOT
2. DRILLING & CASING INFORMATION	(inches)			(include ea note se	ach casing s actions of s			IECTION YPE	INSIDE (incl		THICKNESS (inches)	SIZE (inches)	
5 & C	0	105	6	1/8	Steel			Weld		4		.200	
TIN													
DRI									÷			· · · · · · · · · · · · · · · · · · ·	
4						10 - 2 - 1							
							A.F.						
	DEPTH (1	fect bgl)		ORE HOLE				ATERIAL A	-	AM	IOUNT	METHO	
IN	FROM	то 108		AM. (inches)	- ACE 1856			E BY INTE			oic f ee t)	PLACEM	
ANNULAR MATERIAL	0	100	0	1/8	12 sacks	cement	/ 8 gallon	s of water		9		Pour	
RM													
A			-			- 5							
N													
m										H-341			
EOS													
_	OSE INTERN		· · · · · ·	MONI	TOR	PO	- D NUMBER	D_ A.		WELL R		LOG (Version 06/08	8/2012)
LOC	ATION	31 N		142 19E.	15. 13	23		POD	r		244	1 435	I OF 2
		-			1 1 1 2	and a							1975 T

•



					484467 100				
	FROM	(feet bgl) TO	THICKNESS (feet)	INCLUDE WATE	D TYPE OF MATE R-BEARING CAVI plemental sheets to	TIES OR FRAG	CTURE ZONES	WATER BEARING? (YES/NO)	ESTIMATED YIELD FOR WATER- BEARING ZONES (gpm)
	0	29	29	Tan Siltstone					
	29	108	79	Gray Sandstone					
		p		and the second					
					101110-0-0		1 - 2 2 - 3	OY ON	
								OY ON	
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DIC.									
ğ								O ^Y O ^N	
GEO								OY ON	
4. HYDROGEOLOGIC LOG OF WELL								OY ON	
0XH						NWBANG CIAL		O ^Y O ^N	
4								OY ON	
								OY ON	
								OY ON	
				The spin 0.5		do Annie ne		O ^Y O ^N	
	METHOD L	I ISED TO ES	TIMATE YIELD	OF WATER-BEARING	G STRATA:) PUMP		TOTAL ESTIMATED	L
	O AIR LIF		BAILER O	OTHER - SPECIFY:	•			WELL YIELD (gpm):	
	U AIK LII								
NOIS	WELL TES			ACH A COPY OF DAT ME, AND A TABLE SH					
ISIV	MISCELLA	NEOUS INF	ORMATION:						
5. TEST; RIG SUPERVI	Atlas Re	sources	Seismic Moni	toring Well					
INS :									
RIG									
EST	PRINT NAM	AE(S) OF D	RILL RIG SUPER	VISOR(S) THAT PRO	VIDED ONSITE SU	PERVISION	F WELL CONS	TRUCTION OTHER T	HAN LICENSEE
E S	Robert E	Stores and the set							
				IES THAT, TO THE BI					
6. SIGNATURE				ESCRIBED HOLE AN			THIS WELL RE	CORD WITH THE ST.	ALE ENGINEER
E V		1. 1	· .						
SIG	11	Lift	Mar	- Dalas	+ 2. m	ret		9.4.15	
6	10	SIGNAT	URE OF DRULE	R / PRINT SIGNEE		ws_	<u></u>	DATE	
								BAIL	
_	R OSE INTER	NAL USE	MON	TOR WE	5 h h m			L RECORD & LOG (V	
<u> </u>	ENUMBER		- 5742		POD NUMBER	P004	TRN NUMB	ER 5744	
LO	CATION	31 N.	. 19E.	15. 1323					PAGE 2 OF 2

Locator Tool Report

General Information:

Application ID:72

Date: 09-14-2015

Time: 11:29:33

WR File Number: CR Purpose: POINT OF DIVERSION

Applicant First Name: ARP PRODUCTION CO. Applicant Last Name: CR-5742 POD4

> GW Basin: CANADIAN RIVER County: COLFAX

Critical Management Area Name(s): NONE Special Condition Area Name(s): NONE Land Grant Name: BEAUBIEN AND MIRANDA

PLSS Description (New Mexico Principal Meridian):

PLSS description is not available for this location.

Coordinate System Details:

Geographic Coordinates:

Latitude:	36 Degrees	55 Minutes	37.6 Seconds	Ν
Longitude:	104 Degrees	52 Minutes	31.6 Seconds	W

Universal Transverse Mercator Zone: 13N

NAD 1983(92) (Meters)	N: 4,086,794	E: 511,093
NAD 1983(92) (Survey Feet)	N: 13,408,090	E: 1,676,811
NAD 1927 (Meters)	N: 4,086,588	E: 511,142
NAD 1927 (Survey Feet)	N: 13,407,414	E: 1,676,973

State Plane Coordinate System Zone: New Mexico East

NAD 1983(92) (Meters)	N: 657,525	E: 116,704
NAD 1983(92) (Survey Feet)	N: 2,157,230	E: 382,886
NAD 1927 (Meters)	N: 657,503	E: 104,152
NAD 1927 (Survey Feet)	N: 2,157,157	E: 341,706

NEW MEXICO OFFICE OF STATE ENGINEER

Locator Tool Report





Scale: 1:32,342	
ter): N: 4,086,794	E: 511,093
eet): N: 2,157,230	E: 382,886
	Scale: 1:32,342 ter): N: 4,086,794 eet): N: 2,157,230

Page 2 of 2

Print Date: 09/14/2015



Randy Madison

From:	OCDOnline@state.nm.us
Sent:	Wednesday, June 17, 2020 2:09 PM
То:	Randy Madison
Subject:	New Mexico OCD Application Submission was Rejected by the OCD

The Oil Conservation Division (OCD) has rejected the application PO: AG5HP-200403-C-1410. The original application was submitted by Randy Madison for Wapiti Operating, LLC.

The user added the additional comment:

" To whom it may concern The OCD has denied the submitted Closure Plan C-141 for incident # NRM2005230899 for the following reasons: Does not follow Approved plan (submitted after this report). The Denied C-141 can be found in the online image file. Please review and make the required correction prior to resubmitting though the fee portal. If you have any questions or believe this denial is in error, please contact me prior to submitting an additional C-141. Thank you, Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us ".

If you are concerned about receiving this email or have any other questions, please feel free to contact our Santa Fe OCD office.

New Mexico Energy, Minerals and Natural Resources Department 1220 South St. Francis Drive Santa Fe, NM 87505



April 23, 2020

- TO: Cory Smith, Environmental Specialist NMOCD District 3 & 4 1000 Rio Brazos Rd. Aztec, NM 87410
- FR: Randy Madison, HSE Specialist
- REF: Major Spill VPR A-47 API # 30-00720197, Incident # NRM2005230899 Major Spill 2" Vent on Mainline, Incident #NRM2006661276

Mr. Smith,

Per our recent conversations and the associated timeline, I am requesting a time extension until 8/1/20 to close out the referenced spill incidents per 19.15.29.8, E(1). With the additional discussed soil sampling on both of the referenced incidents, as well as the limitations in resource caused by the pandemic, it is unlikely Wapiti will meet 90 day deadlines; (A-47 due 5/10/20 and Mainline due 6/1/20).

We are continuing to make every effort to gather the additional information and provide closure. Thank you for your consideration in this matter.

Kinds Regards,

Randy L. Madison, HSE Specialist


May 4, 2020

TO: Cory Smith, Environmental Specialist NMOCD District 3 & 4 1000 Rio Brazos Rd. Aztec, NM 87410

FR: Randy Madison, HSE Specialist

REF: Major Spill VPR A-47 API # 30-00720197, Incident # NRM2005230899

Wapiti Operating Sampling Plan in reference to above stated incidents

The area reference in the incident reports contains two drainage paths that released down a canyon from the location. Wapiti Operating is not the landowner, and only has ROW access in the referenced location area. The following is planned to be conducted:

- One composite sample on each drainage path (Total of 2) consisting of five points with lengths varying from linear 60 to 70 ft. between points.
- The sampling will be conducted by hand (There is no access for heavy machinery, and the sample will be off of Wapiti's designated ROW)

A grab sample was collected at the source of the release on 3/2/20 and was submitted at the time of the release highlighting that remediation not believed to be required. The TPH came back out of the limits of Table 1. This additional testing should show that no remediation is needed.

Kinds Regards,

Randy L. Madison, HSE Specialist



May 13, 2020

TO: Cory Smith, Environmental Specialist NMOCD District 3 & 4 1000 Rio Brazos Rd. Aztec, NM 87410

FR: Randy Madison, HSE Specialist

REF: Major Spill VPR A-47 API # 30-00720197, Incident # NRM2005230899

Wapiti Operating Sampling Plan in reference to above stated incidents

The area reference in the incident reports contains two drainage paths that released down a canyon from the location. Wapiti Operating is not the landowner, and only has ROW access in the referenced location area. The following is planned to be conducted:

- One composite sample on each drainage path (Total of 2) consisting of five points with lengths varying from linear 60 to 70 ft. between points.
- The sampling will be conducted by hand (There is no access for heavy machinery, and the sample will be off of Wapiti's designated ROW)

A grab sample was collected at the source of the release on 3/2/20 and was submitted at the time of the release highlighting that remediation not believed to be required. The TPH came back out of the limits of Table 1. This additional testing should show that no remediation is needed.

Kinds Regards,

Randy L. Madison, HSE Specialist



From:	Randy Madison
Sent:	Monday, May 4, 2020 2:48 PM
То:	'Smith, Cory, EMNRD'
Cc:	lan Johnston
Subject:	RE: Emailing: RE Emailing Request for Extension Signed

Cory,

The PDF was attached with the incident number and my plan for the additional sampling or did you not get it.. Can you go ahead and look that final closure report that I submitted on 3/30/20 for the A-47 NRM2005230899. This has maps and sample results submitted with it. When you reject this you will probably tell me how many more samples you are requiring. We spoke about the fact that there has to be one for about every 200 square feet. We talked about the fact that where this had two drainage paths ranges in width from inches to about 2', and one being 303 ft. long and the other 364 feet that we could use linear feet which I did. The ground was froze at the time so there was very little penetration into what little top soil there is. I worked off the 2 examples that you sent to me. When I have this one submitted how you want it I will then work on the Mainline NRM2006661276. I want to have this all put together so you only have to make one trip over here to witness the sampling.

-----Original Message-----From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Sent: Monday, May 4, 2020 1:43 PM To: Randy Madison <RMadison@WapitiEnergy.com> Cc: Ian Johnston <IJohnston@WapitiEnergy.com> Subject: RE: Emailing: RE Emailing Request for Extension Signed

Randy,

I need more information to approved an alternative sampling plan. Specifically I need the size of the impacts, the area of the impacts, specifically on a map where Wapiti plans to collect samples from etc.

Also please use the incident# in all request so that I can quickly find all related information to this release.

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

-----Original Message-----From: Randy Madison <RMadison@WapitiEnergy.com> Sent: Monday, May 4, 2020 12:46 PM To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Cc: Ian Johnston <IJohnston@WapitiEnergy.com> Subject: [EXT] Emailing: RE Emailing Request for Extension Signed

Cory, Please find attached my sample plan on the 2" vent on the mainline. Thanks Randy

Randy L. Madison, HSE Specialist Wapiti Operating, LLC P.O. Box 190 309 Silver St. Raton, NM 87740 Office 575-445-6706 Cell 575-420-1120 rmadison@wapitienergy.com

Your message is ready to be sent with the following file or link attachments:

RE Emailing Request for Extension Signed

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

From:	Smith, Cory, EMNRD <cory.smith@state.nm.us></cory.smith@state.nm.us>
Sent:	Thursday, April 16, 2020 8:22 AM
То:	Randy Madison
Subject:	RE: Emailing: A-47 Final Report

Randy,

- 1. You are correct the table it based on depth to ground water, and distances to certain factors. However in part 19.15.29.13 NMAC reclamation and revegation, the top 4' of a release most contain less than 600 mg/kg chlorides or back ground levels and non waste containing soils. None waste containing soils is considered to be soils that are less than 100 mg/kg TPH, 50 mg/kg BTEX, 10 mg/kg Benzene. <u>This</u> document discuss the revegation/reclaim requirements
- 2. I would go ahead and start getting the work scheduled.. and prepared.

Cory Smith

Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

From: Randy Madison <RMadison@WapitiEnergy.com> Sent: Wednesday, April 15, 2020 11:43 AM To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Subject: [EXT] RE: Emailing: A-47 Final Report

Cory,

After our phone conversation yesterday I have a couple of more questions:

1. I have went back and looked at the Soil analysis the TPH is 130. I have submitted a map showing the distance to the nearest "Significant Watercourse" is between 500 and 600 feet. With that being said that would allow me to use the Criteria of table 1 at greater than 100 feet. The other side of this is that I cannot determine the vertical depth to ground water with great accuracy. If I take the elevation of the origin of the release and look at the drop in elevation to my nearest well showing ground water that would still put me greater than 50' and less than 100' which give me a higher TPH. I am just trying to see what criteria you are using on Table 1. If you are saying 50" or less because of lack of good information for vertical depth then I understand.

2. I am able to get sampling supplies and do additional sampling. Should I begin working on my sample plan and get it to you or should I wait till you deny my closure and work from those time limits per the rule. By me submitting my request for closure on 4/3/20 I have meet the criteria for the 90 days.

I will wait to hear back from you. Once I do I will continue. Thanks Randy

-----Original Message-----From: Smith, Cory, EMNRD <<u>Cory.Smith@state.nm.us</u>> Sent: Tuesday, April 14, 2020 2:00 PM Randy,

Sorry for the Delay getting back to you with all the Craziness.

No this would not be sufficient for closure as Wapiti only collected 1 grab sample from the source area which does not meeting the Sampling requirements of 19.15.29 NMAC. Viewing the results it looks like there is some elevated TPH levels, northing that cant wait until Spring like we previously discussed.

All of the requirements of what would be required in a closure report is Detailed in <u>19.15.29.12</u> NMAC. In Addition all of the OCD spills information is public so you may search through other incidents to see reports generated from other operators.

Here are two examples

https://wwwapps.emnrd.state.nm.us/OCD/OCDPermitting/SupportingDocuments/APP/APP2735.pdf https://wwwapps.emnrd.state.nm.us/OCD/OCDPermitting/SupportingDocuments/APP/APP2598.pdf

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

-----Original Message-----From: Randy Madison <<u>RMadison@WapitiEnergy.com</u>> Sent: Tuesday, March 31, 2020 7:36 AM To: Smith, Cory, EMNRD <<u>Cory.Smith@state.nm.us</u>> Subject: [EXT] Emailing: A-47 Final Report

Cory,

Here is what I plan to submit for a final report. I was wandering if where this is the first one that I am submitting if you could look at it and make recommendations. I have searched NMOGC site and cannot find an example of everything the state wants. When you read the form it says I need to check every box on required information. Because I have nothing that needs remediated I do not have a remediation plan. I am requesting closure due to the lab results. Should I attach a sheet saying why I am requesting closure.

Thanks

Randy

Your message is ready to be sent with the following file or link attachments:

A-47 Final Report

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

From:	Smith, Cory, EMNRD <cory.smith@state.nm.us></cory.smith@state.nm.us>
Sent:	Wednesday, May 13, 2020 9:36 AM
То:	Randy Madison
Cc:	lan Johnston
Subject:	RE: Incident #NRM2005230899 Sampling Plan and Drawing

Mr. Madison.

OCD approves the following sampling plan.

For areas on the Wellpad Wapiti will collect a 5pt composite sample every 200 sqft.

For areas that are designated as "East/West drainages" Wapiti will collect a 5pt composite sample for every 200 linear Ft with aliquots every 40' ie 2 samples for West Draining and 2 samples for East drainage.

All samples will be analyzed for TPH, BTEX, and Chlorides

Please include this approval in your Final C-141 as no paper copy will be sent to you.

IF you have any additional questions please give me a call.

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

-----Original Message-----From: Randy Madison <RMadison@WapitiEnergy.com> Sent: Wednesday, May 13, 2020 7:48 AM To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Cc: Ian Johnston <IJohnston@WapitiEnergy.com> Subject: [EXT] Incident #NRM2005230899 Sampling Plan and Drawing

Mr. Smith, Please find attached an explanation Soil Sampling plan and a Map/Drawing Thanks Randy

Your message is ready to be sent with the following file or link attachments:

Sampling Plan 5-11-20 Sample Plan 5-13-20

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.



May 26, 2020

TO: Cory Smith, Environmental Specialist NMOCD District 3 & 4 1000 Rio Brazos Rd. Aztec, NM 87410

FR: Randy Madison, HSE Specialist

REF: Major Spill VPR A-47 API # 30-00720197, Incident # NRM2005230899 Major Spill 2" Vent on Mainline, Incident #NRM 2006661276

Mr. Smith,

This is written notification of the final sampling at the above 2 locations. I will sample the NRM 2005230899 at 1000 hrs. on 6/1/20. Upon completion of this sampling I will travel to the NRM 2006661276, this will be about 1200 hrs. I will then sample this spill. This is a follow up to our phone conversation this morning.

Kinds Regards, Randy L. Madison, HSE Specialist

From: Sent: To: Subject: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Tuesday, May 26, 2020 11:13 AM Randy Madison RE: Sampling Notification

Randy,

In the future you can just send it via email doesn't have to be on letter head etc...

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

From: Randy Madison <RMadison@WapitiEnergy.com> Sent: Tuesday, May 26, 2020 10:55 AM To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Subject: [EXT] Sampling Notification

Cory, Here you go. Randy



From:	Randy Madison
Sent:	Friday, June 5, 2020 9:43 AM
То:	'Smith, Cory, EMNRD'
Subject:	Sampling on Incident #NRM2005230899 & NRM2006661276

Cory,

This is to notify you that I will not be sampling NRM 2006661276 on June 8, 2020. I will be sampling NRM 2005230899 and NRM 2006661276 on 6/15/20 starting at 0900. There were temperature issues with the last sample so they were no good. Randy



From:	Smith, Cory, EMNRD <cory.smith@state.nm.us></cory.smith@state.nm.us>
Sent:	Monday, June 8, 2020 7:22 AM
То:	Randy Madison
Subject:	RE: Sampling on Incident #NRM2005230899 & NRM2006661276

Randy,

No problem unfortunately I cannot make the sampling event as they still don't want us traveling if possible. Please make sure to keep the samples on ice.. and retake photos etc.

If you want to sample before the 15th please let me know.

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

From: Randy Madison <RMadison@WapitiEnergy.com> Sent: Friday, June 5, 2020 9:43 AM To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Subject: [EXT] Sampling on Incident #NRM2005230899 & NRM2006661276

Cory,

This is to notify you that I will not be sampling NRM 2006661276 on June 8, 2020. I will be sampling NRM 2005230899 and NRM 2006661276 on 6/15/20 starting at 0900. There were temperature issues with the last sample so they were no good. Randy







Released

A-47 Composite Sample Aliquot GPS Coordinates and Picture Locations

A-47 East Sample Aliquots

- 1. N 36.97468 Picture #E1 W 104.81305
- 2. N 36.97477 Picture #E2 W 104.813100
- 3. N 36.97485 Picture #E3 W 104.81321
- 4. N 36.97496 Picture #E4 W 104.81321
- 5. N 36.97506 Picture #E5 W 104.81322

All Aliquots mixed together to make Composite Sample A-47 West Leg C-1 (ELC1)

- 6. N 36.97515 Picture #E6 W 104.81318
- 7. N 36.97528 No Picture W 104.81313
- 8. N 36.97538 Picture #E7 W 104.81313
- 9. N 36.97549 No Picture W 104.81315
- 10. N 36.97557 Picture #8

All Aliquots mixed together to make Composite Sample A-47 West Leg C-2 (ELC-2)

A-47 West Sample Aliquots

- 1. N 36.97469 Picture #W1 W 104.81308
- 2. N 36.97477 Picture #W2 W 104.81314
- 3. N 36.97486 Picture #W3 W 104.81321
- 4. N 36.97498 Picture #W4 W 104.81323
- 5. N 36.97508 Picture #W5 W 104.81323

All Aliquots mixed together to make Composite Sample A-47 West Leg C-1 (WLC1)

- 6. N 36.97518 Picture #W6 W 104.91329
- 7. N 36.97524 Picture #W7 W 104.81340
- N 36.97534 Picture #W8 W 104.81345

- 9. N 36.97543 Picture #W9 W 104.81345
- 10. N 36.97552 Picture #W10 W 104.81343

All Aliquots mixed together to make Composite Sample A-47 West Leg C-2 (WLC2)

Note: There is an error between the COC and the Detection Summary due to the fact the jars were labeled different.





















Received by OCD: 9/15/2020 10:28:56 AM


























Received by OCD: 9/15/2020 10:28:56 AM



Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Denver 4955 Yarrow Street Arvada, CO 80002 Tel: (303)736-0100

Laboratory Job ID: 280-137696-1

Client Project/Site: Produced Water Spill

For:

Wapiti Operating, LLC PO BOX 190 309 Silver Street Raton, New Mexico 87740

Attn: Mr. Randy Madison

Shelby Turner

Authorized for release by: 7/9/2020 1:58:48 PM

Shelby Turner, Project Manager I (303)736-0100 Shelby.Turner@Eurofinset.com

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Visit us at:

www.eurofinsus.com/Env

LINKS

Review your project results through

Total Access

Have a Question?

Released to Imaging: 10/28/2022 8:01 25 AM

Client: Wapiti Operating, LLC

Project/Site: Produced Water Spill

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Definitions/Glossary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-137696-1

Qualifiers	
GC/MS VOA	
Qualifier F1	Qualifier Description MS and/or MSD recovery exceeds control limits.
GC Semi VO	
Qualifier	Qualifier Description
	LCS or LCSD is outside acceptance limits.
Х	Surrogate recovery exceeds control limits
Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
u	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
_OD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
NDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ИL	Minimum Level (Dioxin)
MPN .	Most Probable Number
<i>I</i> QL	Method Quantitation Limit
1C	Not Calculated
1D	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
JC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
≀L	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
EF	Toxicity Equivalent Factor (Dioxin)
EQ	Toxicity Equivalent Quotient (Dioxin)
NTC	Too Numerous To Count

Job ID: 280-137696-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Case Narrative

Client: Wapiti Operating, LLC

Project: Produced Water Spill

Report Number: 280-137696-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 6/16/2020 9:58 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.9° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples A-47 WEST LEG C-1 (WLC1) (280-137696-1), A-47 WEST LEG C-2 (WLC2) (280-137696-2), A-47 WEST LEG C-1 (ELC1) (280-137696-3) and A-47 WEST LEG C-2 (ELC-2) (280-137696-4) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 06/21/2020.

Several analytes failed the recovery criteria low for the MS of sample A-47 WEST LEG C-1 (WLC1)MS (280-137696-1) in batch 280-499551. Several analytes failed the recovery criteria low for the MSD of sample A-47 WEST LEG C-1 (WLC1)MSD (280-137696-1) in batch 280-499551. The LCS and LCSD were within control limits; therefore, data has been reported. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples A-47 WEST LEG C-1 (WLC1) (280-137696-1), A-47 WEST LEG C-2 (WLC2) (280-137696-2), A-47 WEST LEG C-1 (ELC1) (280-137696-3) and A-47 WEST LEG C-2 (ELC-2) (280-137696-4) were analyzed for Gasoline Range Organics (GRO) in accordance with EPA SW-846 Method 8015B - GRO. The samples were prepared on 06/15/2020 and analyzed on 06/26/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS

Samples A-47 WEST LEG C-1 (WLC1) (280-137696-1), A-47 WEST LEG C-2 (WLC2) (280-137696-2), A-47 WEST LEG C-1 (ELC1) (280-137696-3) and A-47 WEST LEG C-2 (ELC-2) (280-137696-4) were analyzed for diesel range organics in accordance with EPA SW-846 Method 8015B - DRO. The samples were prepared on 06/23/2020 and analyzed on 07/07/2020.

o-Terphenyl failed the surrogate recovery criteria low for LCS 280-499774/2-A. Diesel Range Organics [C10-C28] failed the recovery criteria low for LCS 280-499774/2-A. The associated samples are out of hold; therefore, re-extraction was not performed and the data has been reported. Refer to the QC report for details.

Associated samples: A-47 WEST LEG C-1 (WLC1) (280-137696-1), A-47 WEST LEG C-2 (WLC2) (280-137696-2), A-47 WEST LEG C-1 (ELC1) (280-137696-3), and A-47 WEST LEG C-2 (ELC-2) (280-137696-4).

Page 115 of 171

Case Narrative

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-137696-1

Job ID: 280-137696-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

The peak profile present in the following samples is atypical of a hydrocarbon pattern and consists of several discrete peaks: A-47 WEST LEG C-1 (WLC1) (280-137696-1), A-47 WEST LEG C-2 (WLC2) (280-137696-2) and A-47 WEST LEG C-2 (ELC-2) (280-137696-4).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (28 DAYS)

Samples A-47 WEST LEG C-1 (WLC1) (280-137696-1), A-47 WEST LEG C-2 (WLC2) (280-137696-2), A-47 WEST LEG C-1 (ELC1) (280-137696-3) and A-47 WEST LEG C-2 (ELC-2) (280-137696-4) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were leached on 06/25/2020 and analyzed on 06/26/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples A-47 WEST LEG C-1 (WLC1) (280-137696-1), A-47 WEST LEG C-2 (WLC2) (280-137696-2), A-47 WEST LEG C-1 (ELC1) (280-137696-3) and A-47 WEST LEG C-2 (ELC-2) (280-137696-4) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 06/17/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-137696-1

Lab Sample ID: 280-137696-2

Lab Sample ID: 280-137696-3

Lab Sample ID: 280-137696-4

Detection Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Client Sample ID: A-47 WEST LEG C-1 (WLC1) Lab Sample ID: 280-137696-1 Analyte RL Dil Fac D Method **Result Qualifier** MDL Unit Prep Type Diesel Range Organics [C10-C28] 140 7.5 8015B mg/Kg 1 Total/NA Motor Oil (C20-C38) 230 23 mg/Kg 8015B Total/NA ी Chloride 540 30 mg/Kg 9056A Soluble 1

Client Sample ID: A-47 WEST LEG C-2 (WLC2)

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac	Method	Ргер Туре
Diesel Range Organics [C10-C28]	140 *	7.8	mg/Kg	1	8015B	Total/NA
Motor Oil (C20-C38)	240	24	mg/Kg	4	8015B	Total/NA
Chloride	690	29	mg/Kg	1	9056A	Soluble

Client Sample ID: A-47 WEST LEG C-1 (ELC1)

Analyte	Result (Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Ргер Туре
Diesel Range Organics [C10-C28]	150 *	*	7.7		mg/Kg	1		8015B	Total/NA
Motor Oil (C20-C38)	220		23		mg/Kg	1		8015B	Total/NA
Chloride	670		29		mg/Kg	1		9056A	Soluble

Client Sample ID: A-47 WEST LEG C-2 (ELC-2)

Analyte	Pecult	Qualifier	RL	MDL	Unit	Dil Fac I) Method	D
	0.087	Quaimer	0.051	MIDL				Prep Type
Gasoline Range Organics (GRO) -C6-C10	0.007		0.051		mg/Kg		8015B	Total/NA
Diesel Range Organics [C10-C28]	71	*	7.5		mg/Kg	1	8015B	Total/NA
Motor Oil (C20-C38)	110		23		mg/Kg	1	8015B	Total/NA
Chloride	1200		27		mg/Kg	1	9056A	Soluble

Page 6 of 27

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-137696-1

Viethod	Method Description	Protocol	Laboratory
3260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
3015B	Gasoline Range Organics - (GC)	SW846	TAL DEN
3015B	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
0056A	Anions, Ion Chromatography	SW846	TAL DEN
loisture	Percent Moisture	EPA	TAL DEN
546	Microwave Extraction	SW846	TAL DEN
6030B	Purge and Trap	SW846	TAL DEN
6035	Closed System Purge and Trap	SW846	TAL DEN
01 Leach	Deionized Water Leaching Procedure	ASTM	TAL DEN

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-137696-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
280-137696-1	A-47 WEST LEG C-1 (WLC1)	Solid	06/15/20 09:50	06/16/20 09:58	
280-137696-2	A-47 WEST LEG C-2 (WLC2)	Solid	06/15/20 10:10	06/16/20 09:58	
280-137696-3	A-47 WEST LEG C-1 (ELC1)	Solid	06/15/20 10:30	06/16/20 09:58	
280-137696-4	A-47 WEST LEG C-2 (ELC-2)	Solid	06/15/20 10:50	06/16/20 09:58	

1

1

Matrix: Solid

Matrix: Solid

Job ID: 280-137696-1

06/21/20 09:37 06/21/20 13:18

06/21/20 09:37 06/21/20 13:18

Lab Sample ID: 280-137696-3

Lab Sample ID: 280-137696-2

Client Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: A-47 WE Date Collected: 06/15/20 09 Date Received: 06/16/20 09	:50	/LC1)					Lab Sam	ple ID: 280-13 Matrix	7696-1 c: Solid
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	F1	0.0048		mg/Kg	-	06/21/20 09:37	06/21/20 12:09	1
Ethylbenzene	ND	F1	0.0048		mg/Kg		06/21/20 09:37	06/21/20 12:09	1
Toluene	ND	F1	0.0048		mg/Kg		06/21/20 09:37	06/21/20 12:09	1
m-Xylene & p-Xylene	ND	F1	0.0024		mg/Kg		06/21/20 09:37	06/21/20 12:09	1
o-Xylene	ND	F1	0.0024		mg/Kg		06/21/20 09:37	06/21/20 12:09	1
Xylenes, Total	ND	F1	0.0048		mg/Kg		06/21/20 09:37	06/21/20 12:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		58_140				06/21/20 09:37	06/21/20 12:09	1
Toluene-d8 (Surr)	103		80_126				06/21/20 09:37	06/21/20 12:09	1
4-Bromofluorobenzene (Surr)	105		76_127				06/21/20 09:37	06/21/20 12:09	1
Dibromofluoromethane (Surr)	100		75-121				06/21/20 09:37	06/21/20 12:09	1

Client Sample ID: A-47 WEST LEG C-2 (WLC2) Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58

Bato nootrea. our loizo o	0.00								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0047		mg/Kg		06/21/20 09:37	06/21/20 13:18	1
Ethylbenzene	ND		0.0047		mg/Kg		06/21/20 09:37	06/21/20 13:18	1
Toluene	ND		0.0047		mg/Kg		06/21/20 09:37	06/21/20 13:18	1
m-Xylene & p-Xylene	ND		0.0024		mg/Kg		06/21/20 09:37	06/21/20 13:18	1
o-Xylene	ND		0.0024		mg/Kg		06/21/20 09:37	06/21/20 13:18	1
Xylenes, Total	ND		0.0047		mg/Kg		06/21/20 09:37	06/21/20 13:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		58_140				06/21/20 09:37	06/21/20 13:18	1
Toluene-d8 (Surr)	104		80 - 126				06/21/20 09:37	06/21/20 13:18	1

76-127

75-121

Client Sample ID: A-47 WEST LEG C-1 (ELC1)

104

103

Date Collected: 06/15/20 10:30 Date Received: 06/16/20 09:58

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Analyte	Result C	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0046		mg/Kg		06/21/20 09:37	06/21/20 13:40	1
Ethylbenzene	ND		0.0046		mg/Kg		06/21/20 09:37	06/21/20 13:40	1
Toluene	ND		0.0046		mg/Kg		06/21/20 09:37	06/21/20 13:40	1
m-Xylene & p-Xylene	ND		0.0023		mg/Kg		06/21/20 09:37	06/21/20 13:40	1
o-Xylene	ND		0.0023		mg/Kg		06/21/20 09:37	06/21/20 13:40	1
Xylenes, Total	ND		0.0046		mg/Kg		06/21/20 09:37	06/21/20 13:40	1
Surrogate	%Recovery G	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		58-140				06/21/20 09:37	06/21/20 13:40	1
Toluene-d8 (Surr)	99		80_126				06/21/20 09:37	06/21/20 13:40	1
4-Bromofluorobenzene (Surr)	102		76 - 127				06/21/20 09:37	06/21/20 13:40	1
Dibromofluoromethane (Surr)	101		75 ₋ 121				06/21/20 09:37	06/21/20 13:40	1

Client Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-137696-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: A-47 WE Date Collected: 06/15/20 10				Lab Sam	ple ID: 280-13	7696-4 : Solid			
Date Received: 06/16/20 09								Watro	.: 5010
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0,0046		mg/Kg	0.00	06/21/20 09:37	06/21/20 14:03	1
Ethylbenzene	ND		0.0046		mg/Kg		06/21/20 09:37	06/21/20 14:03	1
Toluene	ND		0.0046		mg/Kg		06/21/20 09:37	06/21/20 14:03	1
m-Xylene & p-Xylene	ND		0.0023		mg/Kg		06/21/20 09:37	06/21/20 14:03	1
o-Xylene	ND		0.0023		mg/Kg		06/21/20 09:37	06/21/20 14:03	1
Xylenes, Total	ND		0.0046		mg/Kg		06/21/20 09:37	06/21/20 14:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		58-140				06/21/20 09:37	06/21/20 14:03	1
Toluene-d8 (Surr)	100		80-126				06/21/20 09:37	06/21/20 14:03	1
4-Bromofluorobenzene (Surr)	99		76_127				06/21/20 09:37	06/21/20 14:03	1
Dibromofluoromethane (Surr)	97		75-121				06/21/20 09:37	06/21/20 14:03	1

Method: 8015B - Gasoline Range Organics - (GC)

Client Sample ID: A-47 WEST Date Collected: 06/15/20 09:50	· · · · · · · · · · · · · · · · · · ·						Lab Sam	ple ID: 280-13 Matrix	37696-1 x: Solid
Date Received: 06/16/20 09:58								WICH 12	x. 5010
Analyte	Result	Qualifier	RL	MDL	Unit	Ð	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		2.3		mg/Kg		06/15/20 09:50	06/26/20 22:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	96		77_123				06/15/20 09:50	06/26/20 22:35	1
Client Sample ID: A-47 WEST I		ILC2)					Lab Sam	ple ID: 280-13	
Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58								Matrix	x: Solid
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.055		mg/Kg	-	06/15/20 10:10	06/26/20 02:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	100		77-123				06/15/20 10:10	06/26/20 02:01	1
Client Sample ID: A-47 WEST I	EG C-1 (E	LC1)					Lab Sam	ole ID: 280-13	37696-3
Date Collected: 06/15/20 10:30 Date Received: 06/16/20 09:58		·							k: Solid
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.047		mg/Kg		06/15/20 10:30	06/26/20 02:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	100		77 - 123				06/15/20 10:30	06/26/20 02:21	1
Client Sample ID: A-47 WEST L	.EG C-2 (El	LC-2)					Lab Sam	ole ID: 280-13	87696-4
Date Collected: 06/15/20 10:50 Date Received: 06/16/20 09:58								Matrix	c: Solid
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)	0.087		0.051		mg/Kg	-	06/15/20 10:50	06/26/20 02:41	1

7 8 9

13

		Client	Sample	Resul	ts				
Client: Wapiti Operating, LLC Project/Site: Produced Water Spi	11							Job ID: 280-1	37696-
Method: 8015B - Gasoline		rganics	- (GC) (Cor	ntinuec	1)				
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
a,a,a-Trifluorotoluene	98		77 - 123					06/26/20 02:41	
/lethod: 8015B - Diesel Ra	inge Orga	anics (DF	RO) (GC)						
Client Sample ID: A-47 WEST		VLC1)					Lab Sam	ple ID: 280-13	7696
Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58								Matrix	c: Sol
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Diesel Range Organics [C10-C28]	140	*	7.5		mg/Kg		06/23/20 15:02	07/07/20 04:13	
Motor Oil (C20-C38)	230		23		mg/Kg		06/23/20 15:02	07/07/20 04:13	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
o-Terphenyl	68		49_115				•	07/07/20 04:13	
Client Sample ID: A-47 WEST Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58		/LC2)					Lab Sam	ple ID: 280-13 Matrix	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Diesel Range Organics [C10-C28]	140	*	7.8		mg/Kg			07/07/20 04:35	
Motor Oil (C20-C38)	240		24		mg/Kg			07/07/20 04:35	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
p-Terphenyl	69		49 - 115				06/23/20 15:02	07/07/20 04:35	
Client Sample ID: A-47 WEST I Date Collected: 06/15/20 10:30 Date Received: 06/16/20 09:58	_EG C-1 (E	LC1)					Lab Samı	ole ID: 280-13 Matrix	
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Diesel Range Organics [C10-C28]	150		7.7		mg/Kg		06/23/20 15:02	07/07/20 04:58	
Motor Oil (C20-C38)	220		23		mg/Kg		06/23/20 15:02	07/07/20 04:58	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
p-Terphenyl	71		49-115				06/23/20 15:02	07/07/20 04:58	
Client Sample ID: A-47 WEST L Date Collected: 06/15/20 10:50	EG C-2 (E	LC-2)					Lab Samp	ole ID: 280-13 Matrix	
Date Received: 06/16/20 09:58									
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil F
Diesel Range Organics [C10-C28]	71	*	7.5		mg/Kg		06/23/20 15:02		
Notor Oil (C20-C38)	110		23		mg/Kg		06/23/20 15:02	07/07/20 05:19	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
p-Terphenyl	70		49_115				06/23/20 15:02	07/07/20 05:19	
eneral Chemistry									
Client Sample ID: A-47 WEST L Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58	.EG C-1 (W	LC1)					Lab Samp	ole ID: 280-13 Matrix	
Vale Received: 06/16/20 09:58	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Percent Moisture	5.1		0.1		%	-	rispareu	06/17/20 15:20	
Porcont Solido	04.0		0.4						

Eurofins TestAmerica, Denver

06/17/20 15:20

0,1

%

94.9

Percent Solids

1

Job ID: 280-137696-1

Client Sample Results

Client: Wapiti Operating, LLC Proje

General Chemistry									
Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58	EG C-2 (W	/LC2)					Lab Sam	ple ID: 280-1 Matri	37696- x: Soli
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Percent Moisture	4.5		0.1		%			06/17/20 15:20	
Percent Solids	95.5		0.1		%			06/17/20 15:20	
Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:30 Date Received: 06/16/20 09:58	EG C-1 (E	LC1)					Lab Sam	ple ID: 280-13 Matri	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Percent Moisture	16.5		0.1		%			06/17/20 15:20	
Percent Solids	83.5		0.1		%			06/17/20 15:20	
Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:50 Date Received: 06/16/20 09:58	G C-2 (E	LC-2)					Lab Sam	ple ID: 280-1: Matrix	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Percent Moisture	24.3		0.1		%	_		06/17/20 15:20	
Percent Solids	75.7							06/17/20 15:20	
General Chemistry - Soluble		(LC1)	0.1		%		l ab Sam		37696.
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58	9 G C-1 (W				%		Lab Sam	ple ID: 280-13 Matrix	
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58 Analyte	G C-1 (W Result	'LC1) Qualifier	RL	MDL	Unit	D	Lab Sam	ple ID: 280-13 Matrix Analyzed	
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58 Analyte	9 G C-1 (W			MDL		D		ple ID: 280-13 Matrix	c: Soli
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:10	G C-1 (W Result 540	Qualifier	RL	MDL	Unit	D	Prepared	ple ID: 280-13 Matrix Analyzed	c: Soli Dil Fa 37696-
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58	G C-1 (W Result 540 G C-2 (W	Qualifier	RL	MDL	Unit mg/Kg	D	Prepared	ple ID: 280-13 Matrix Analyzed 06/26/20 16:02 ple ID: 280-13	c: Soli Dil Fa 37696-
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58 Analyte	G C-1 (W Result 540 G C-2 (W	Qualifier	RL 30		Unit mg/Kg	_	Prepared Lab Sam	ple ID: 280-13 Matrix Analyzed 06/26/20 16:02 ple ID: 280-13 Matrix	c: Soli Dil Fi 37696 c: Soli
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:30 Date Received: 06/16/20 09:58	G C-1 (W Result 540 G C-2 (W <u>Result</u> 690 G C-1 (EL	Qualifier LC2) Qualifier _C1)	RL 30 RL 29	MDL	Unit mg/Kg Unit mg/Kg	D	Prepared Lab Sam Prepared Lab Sam	ple ID: 280-13 Matrix Analyzed 06/26/20 16:02 ple ID: 280-13 Matrix Analyzed 06/26/20 16:19 ple ID: 280-13 Matrix	c: Sol Dil F 37696 c: Sol Dil F 37696 c: Sol
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:30 Date Received: 06/16/20 09:58 Analyte	G C-1 (W Result 540 G C-2 (W Result 690 G C-1 (EL Result	Qualifier	RL 30 RL 29		Unit mg/Kg Unit mg/Kg	_	Prepared Lab Sam Prepared	ple ID: 280-13 Matrix Analyzed 06/26/20 16:02 ple ID: 280-13 Matrix Analyzed 06/26/20 16:19 ple ID: 280-13 Matrix Analyzed	c: Soli Dil Fa 37696- c: Soli Dil Fa 37696-
eneral Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:30 Date Received: 06/15/20 10:30 Date Received: 06/16/20 09:58 Analyte	G C-1 (W Result 540 G C-2 (W <u>Result</u> 690 G C-1 (EL	Qualifier LC2) Qualifier _C1)	RL 30 RL 29	MDL	Unit mg/Kg Unit mg/Kg	D	Prepared Lab Sam Prepared Lab Sam	ple ID: 280-13 Matrix Analyzed 06/26/20 16:02 ple ID: 280-13 Matrix Analyzed 06/26/20 16:19 ple ID: 280-13 Matrix	c: Sol Dil F 37696 c: Sol Dil F 37696 c: Sol
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:30 Date Received: 06/16/20 09:58 Analyte Chloride Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 10:50	G C-1 (W Result 540 G C-2 (W Result 690 G C-1 (EL Result 670	Qualifier LC2) Qualifier _C1) Qualifier	RL 30 RL 29	MDL	Unit mg/Kg Unit mg/Kg	D	Prepared Lab Sam Prepared Lab Sam Prepared	ple ID: 280-13 Matrix Analyzed 06/26/20 16:02 ple ID: 280-13 Matrix Analyzed 06/26/20 16:19 ple ID: 280-13 Matrix Analyzed	c: Soli Dil Fi 37696- c: Soli Dil Fi 37696- c: Soli Dil Fi 37696-
General Chemistry - Soluble Client Sample ID: A-47 WEST LE Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58	G C-1 (W <u>Result</u> 540 G C-2 (W <u>Result</u> 690 G C-1 (El <u>Result</u> 670 G C-2 (El	Qualifier LC2) Qualifier _C1) Qualifier	RL 30 RL 29	MDL	Unit mg/Kg Unit mg/Kg	D	Prepared Lab Sam Prepared Lab Sam Prepared	ple ID: 280-13 Matrix Analyzed 06/26/20 16:02 ple ID: 280-13 Matrix Analyzed 06/26/20 16:19 ple ID: 280-13 Matrix Analyzed 06/26/20 16:35 ple ID: 280-13	c: Soli Dil Fi 37696- c: Soli Dil Fi 37696- c: Soli Dil Fi 37696-

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Eurofins TestAmerica, Denver

Job ID: 280-137696-1

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Surrogate Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Method: 8260B - Volatile Organic Compounds (GC/MS) Matrix: Solid

			Pe	rcent Surro	ogate Recovery (A	Acceptance Lin
		DCA	TOL	BFB	DBFM	
ab Sample ID	Client Sample ID	(58-140)	(80-126)	(76-127)	(75-121)	
80-137696-1	A-47 WEST LEG C-1 (WLC1)	103	103	105	100	
80-137696-1 MS	A-47 WEST LEG C-1 (WLC1)	103	102	101	103	
80-137696-1 MSD	A-47 WEST LEG C-1 (WLC1)	101	102	102	102	
80-137696-2	A-47 WEST LEG C-2 (WLC2)	107	104	104	103	
80-137696-3	A-47 WEST LEG C-1 (ELC1)	102	99	102	101	
30-137696-4	A-47 WEST LEG C-2 (ELC-2)	98	100	99	97	
CS 280-499552/1-A	Lab Control Sample	99	99	96	100	
CSD 280-499552/2-A	Lab Control Sample Dup	101	100	95	102	
B 280-499552/3-A	Method Blank	100	100	95	100	

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

Method: 8015B - Gasoline Range Organics - (GC) Matrix: Solid

			Percent Surrogate Recovery (Acceptance Limits)
		TFT1	
Lab Sample ID	Client Sample ID	(77-123)	
280-137696-1	A-47 WEST LEG C-1 (WLC1)	96	
280-137696-2	A-47 WEST LEG C-2 (WLC2)	100	
280-137696-3	A-47 WEST LEG C-1 (ELC1)	100	
280-137696-4	A-47 WEST LEG C-2 (ELC-2)	98	
LCS 280-500144/1-A	Lab Control Sample	106	
LCS 280-500144/1-A	Lab Control Sample	101	
LCSD 280-500144/2-A	Lab Control Sample Dup	106	
LCSD 280-500144/2-A	Lab Control Sample Dup	101	
MB 280-500003/3-A	Method Blank	99	
MB 280-500144/3-A	Method Blank	104	
MB 280-500144/3-A	Method Blank	99	
Surrogate Legend			

TFT = a,a,a-Trifluorotoluene

Method: 8015B - Diesel Range Organics (DRO) (GC) Matrix: Solid

Percent Surrogate Recovery (Acceptance Limits) OTPH1 Lab Sample ID **Client Sample ID** (49-115) 280-137696-1 A-47 WEST LEG C-1 (WLC1) 68 280-137696-2 A-47 WEST LEG C-2 (WLC2) 69 280-137696-3 A-47 WEST LEG C-1 (ELC1) 71 280-137696-4 A-47 WEST LEG C-2 (ELC-2) 70 LCS 280-499774/2-A Lab Control Sample 32 X LCS 280-499774/3-A Lab Control Sample 78 MB 280-499774/1-A Method Blank 73 Surrogate Legend

Eurofins TestAmerica, Denver

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Surrogate Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill OTPH = o-Terphenyl Job ID: 280-137696-1

Eurofins TestAmerica, Denver

QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-137696-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-499 Matrix: Solid Analysis Batch: 499551	9552/3-А МВ	MB						le ID: Method Prep Type: To Prep Batch:	otal/NA
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0_0050		mg/Kg		06/21/20 09:37	06/21/20 11:24	1
Ethylbenzene	ND		0.0050		mg/Kg		06/21/20 09:37	06/21/20 11:24	1
Toluene	ND		0.0050		mg/Kg		06/21/20 09:37	06/21/20 11:24	1
m-Xylene & p-Xylene	ND		0.0025		mg/Kg		06/21/20 09:37	06/21/20 11:24	1
o-Xylene	ND		0.0025		mg/Kg		06/21/20 09:37	06/21/20 11:24	đ
Xylenes, Total	ND		0.0050		mg/Kg		06/21/20 09:37	06/21/20 11:24	1
	MB	МВ							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		58-140				06/21/20 09:37	06/21/20 11:24	1
Toluene-d8 (Surr)	100		80 - 126				06/21/20 09:37	06/21/20 11:24	1
4-Bromofluorobenzene (Surr)	95		76_127				06/21/20 09:37	06/21/20 11:24	1
Dibromofluoromethane (Surr)	100		75 ₋ 121				06/21/20 09:37	06/21/20 11:24	1

Lab Sample ID: LCS 280-499552/1-A Matrix: Solid Analysis Batch: 499551

Analysis Batch: 499551			Spike	LCS	LCS				Prep Batch: 499552 %Rec.
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits
Benzene			0.0500	0.0445		mg/Kg		89	75 - 135
Ethylbenzene			0.0500	0.0470		mg/Kg		94	73 - 125
Toluene			0.0500	0.0442		mg/Kg		88	77 ₋ 122
m-Xylene & p-Xylene			0.0500	0.0461		mg/Kg		92	77 - 135
o-Xylene			0.0500	0.0466		mg/Kg		93	75 - 135
Xylenes, Total			0.100	0.0927		mg/Kg		93	76 - 135
	LCS	LCS							
Surrogato	9/ Bassyan	Our life on	1 instan						

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	99		58-140
Toluene-d8 (Surr)	99		80_126
4-Bromofluorobenzene (Surr)	96		76-127
Dibromofluoromethane (Surr)	100		75-121

Lab Sample ID: LCSD 280-499552/2-A Matrix: Solid

Analysis Batch: 499551					Prep Ba	tch: 4	99552
	Spike	LCSD LCSD			%Rec.		RPD
Analyte	Added	Result Qualifier	Unit	D %Rec	Limits	RPD	Limit
Benzene	0.0500	0.0468	mg/Kg	94	75 - 135	5	20
Ethylbenzene	0.0500	0.0488	mg/Kg	98	73 - 125	4	20
Toluene	0.0500	0.0465	mg/Kg	93	77 - 122	5	20
m-Xylene & p-Xylene	0.0500	0.0491	mg/Kg	98	77 - 135	6	20
o-Xylene	0.0500	0.0489	mg/Kg	98	75 - 135	5	20
Xylenes, Total	0.100	0.0980	mg/Kg	98	76 - 135	6	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		58-140
Toluene-d8 (Surr)	100		80-126
4-Bromofluorobenzene (Surr)	95		76-127

Prep Type: Total/NA

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup
onent oumpie ib. Eus oontroi oumpie bup
Prep Type: Total/NA
Drop Databy 400552

Eurofins TestAmerica, Denver

Job ID: 280-137696-1

QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

ICOD ICOD

Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA Prep Batch: 499552

D %Rec

74

57

64

54

56

55

%Rec.

Limits

75 - 135

73 - 125

77 - 122

77 - 135

75 - 135

76 - 135

Analysis Batch: 499551

Matrix: Solid

Lab Sample ID: LCSD 280-499552/2-A

	LCSD	2030	
Surrogate	%Recovery	Qualifier	Limits
Dibromofluoromethane (Surr)	102		75-121

Lab Sample ID: 280-137696-1 MS Matrix: Solid Applyoic Potoby 400554

	Sample	Sample	Spike	MS	MS	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit
Benzene	ND	F1	0.0488	0.0362	F1	mg/Kg
Ethylbenzene	ND	F1	0.0488	0.0281	F1	mg/Kg
Toluene	ND	F1	0.0488	0.0316	F1	mg/Kg
m-Xylene & p-Xylene	ND	F1	0.0488	0.0265	F1	mg/Kg
o-Xylene	ND	F1	0.0488	0.0272	F1	mg/Kg
Xylenes, Total	ND	F1	0.0976	0.0537	F1	mg/Kg
	MS	MS				
Surrogate	%Recovery	Qualifier	Limits			
1,2-Dichloroethane-d4 (Surr)	103		58-140			
Toluene-d8 (Surr)	102		80-126			
4-Bromofluorobenzene (Surr)	101		76_127			
Dibromofluoromethane (Surr)	103		75-121			

Lab Sample ID: 280-137696-1 MSD Matrix: Solid Analysis Ratch: 400551

									Fieb 1	pe. Tot	al/INA
Analysis Batch: 499551									Prep Ba	atch: 49	} 9552
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	ND	F1	0.0488	0.0336	F1	mg/Kg		69	75 - 135	7	20
Ethylbenzene	ND	F1	0.0488	0.0252	F1	mg/Kg		52	73 - 125	11	20
Toluene	ND	F1	0.0488	0.0288	F1	mg/Kg		58	77 - 122	9	20
m-Xylene & p-Xylene	ND	F1	0.0488	0.0241	F1	mg/Kg		49	77 - 135	9	20
o-Xylene	ND	F1	0.0488	0.0241	F1	mg/Kg		49	75 - 135	12	20
Xylenes, Total	ND	F1	0.0977	0.0482	F1	mg/Kg		49	76 - 135	11	20
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	101		58-140								
Toluene-d8 (Surr)	102		80_126								
4-Bromofluorobenzene (Surr)	102		76_127								
Dibromofluoromethane (Surr)	102		75-121								

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 280-50000 Matrix: Solid	3/3-A							le ID: Method Prep Type: To	
Analysis Batch: 500261								Prep Batch:	
	MB	MB						-	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		2.0		mg/Kg		06/24/20 16:05	06/26/20 19:37	1

Client Sample ID: A-47 WEST LEG C-1 (WLC1) Prep Type: Total/NA

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QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-137696-1

Lab Sample ID: MB 280-5	00003/3-A							CI	ient Sam _l	ple ID: Metho	d Blan
Matrix: Solid										Ргер Туре: Т	otal/N/
Analysis Batch: 500261										Prep Batch:	50000
	M	B MB									
Surrogate	%Recover	y Qualifier	Limits						Prepared	Analyzed	Dil Fa
a,a,a-Trifluorotoluene	9	9	77 - 123					06/	/24/20 16:05	06/26/20 19:37	
Lab Sample ID: MB 280-5	00144/3-A							Cli	ient Sam	ole ID: Metho	d Blan
Matrix: Solid										Prep Type: T	
Analysis Batch: 500158										Prep Batch:	50014
Analyte		3 MB It Qualifier	RL			Unit	-		Deemana	A	D11 C-
Gasoline Range Organics (GRO)	NI		2.0		WDL	mg/K		-	Prepared 25/20 15:21	Analyzed 06/25/20 21:03	Dil Fa
C6-C10	INL	,	2.0			ing/r	9	00/	25/20 15.21	00/25/20 21:03	
Surrogate		3 MB y Qualifier	Limits						Prepared	Analyzed	Dil Fa
a,a,a-Trifluorotoluene	10-		77 - 123						•	06/25/20 21:03	DIIFa
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10		17 - 720					00/	20/20 10.21	00/20/20 21:00	
Lab Sample ID: MB 280-50 Matrix: Solid	0 0144/3-A							Cli		ole ID: Metho Prep Type: T	
Analysis Batch: 500261	ME	3 MB								Prep Batch:	
Analyte		t Qualifier	RL		MDL	Unit	D		Prepared	Analyzed	Dil Fa
Gasoline Range Organics (GRO) C6-C10	NE		2.0			mg/K			25/20 15:21	-	
	ME	3 MB									
Surrogate		/ Qualifier	Limits						Prepared	Analyzed	Dil Fa
a,a,a-Trifluorotoluene			77 - 123							06/26/20 21:36	
_ab Sample ID: LCS 280-5 Matrix: Solid	500144/1-A						Clier	nt Sa		Lab Control S	
Analysis Batch: 500158										Prep Type: T Prep Batch:	
			Spike	LCS	LCS	5				%Rec.	00014
Analyte			Added	Result	Qua	lifier	Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO) C6-C10			8.54	8.90			mg/Kg	_	104	75 - 135	
	LCS LC	s									
Surrogate	%Recovery Qu	alifier	Limits								
a,a,a-Trifluorotoluene	106		77 - 123								
.ab Sample ID: LCS 280-5 Matrix: Solid	00144/1-A						Clien	nt Sa	•	Lab Control	
Analysis Batch: 500261										Prep Type: Te	
marysis Datoll. 300201			Spike	LCS	LCS					Prep Batch: %Rec.	500144
nalyte			Added	Result			Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO) C6-C10			8.54	9.50			mg/Kg	2 2	111	75 - 135	-
	LCS LC	s									
Surrogate	%Recovery Qu		Limits								
a a-Trifluorotoluene	101		77 123								

QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-137696-1

Lab Sample ID: LCSD 280	-500144/2-A					Client S	amnle	D. Lah	Control S	amnlo I	מער
Matrix: Solid	000111127	•					ampie	ID. Lab	Prep Typ		
Analysis Batch: 500158									Prep Bat		
			Spike	LCSE	LCSD				%Rec.		RPD
Analyte			Added	Resul	t Qualifier	Unit	D	%Rec	Limits	RPD L	.imit
Gasoline Range Organics (GRO) C6-C10			8.54	8.63	3	mg/Kg		101	75 - 135	3	30
	LCSD	LCSD									
Surrogate	%Recovery	Qualifie	r Limits								
a,a,a-Trifluorotoluene	106	-	77 - 123								
Lab Sample ID: LCSD 280	-500144/2-A				C	Client Sa	ample	ID: Lab	Control S	ample D	guC
Matrix: Solid									Prep Typ	-	
Analysis Batch: 500261									Prep Bat	tch: 500 [.]	144
			Spike	LCSD	LCSD				%Rec.	I	RPD
Analyte	-		Added		Qualifier		D	%Rec	Limits		imit
Sasoline Range Organics (GRO) C6-C10			8.54	8.80		mg/Kg		103	75 - 135	8	30
	LCSD	LCSD									
Surrogate	%Recovery	Qualifier									
,a,a-Trifluorotoluene	101		77_123								
latrix: Solid		iganic	cs (DRO) ((30)			Clie		ple ID: Me Prep Typ Prep Bat	e: Total/	NA
Matrix: Solid Analysis Batch: 500853	9774/1-A	мв мв					Clie			e: Total/	NA
Matrix: Solid Analysis Batch: 500853 Malyte	9774/1-A	MB MB		RL	MDL Unit		D P	repared	Prep Typ Prep Bat Analyze	e: Total/ ch: 4997	'NA 774 Fac
Matrix: Solid Analysis Batch: 500853 Inalyte Diesel Range Organics [C10-C28]	9774/1-A	MB MB sult Qua		RL 8.0	mg/K	g	D P 06/2	repared 3/20 15:02	Prep Typ Prep Bat Analyze	e: Total/ cch: 4997 ed Dil 4:48	NA 774 Fac
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28]	9774/1-A	MB MB sult Qua ND ND	alifier	RL		g	D P 06/2	repared 3/20 15:02	Prep Typ Prep Bat Analyze	e: Total/ cch: 4997 ed Dil 4:48	'NA 774 Fac
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Notor Oil (C20-C38)	9774/1-A	MB MB sult Qua ND ND MB MB	alifier	RL 8.0 24	mg/K	g	D P 06/2 06/2	repared 3/20 15:02 3/20 15:02	Prep Typ Prep Bat 07/02/20 0 07/02/20 0	e: Total/ cch: 4997 ed Dil 4:48 4:48	Fac 1
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Notor Oil (C20-C38)	9774/1-A	MB MB sult Qua ND ND MB MB very Qua	alifier	RL 8.0 24 <i>its</i>	mg/K	g	D P 06/2 06/2 P	repared 3/20 15:02 3/20 15:02 repared	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 Analyze	e: Total/ cch: 4997 ed Dil 4:48 4:48	Fac 1 Fac
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Notor Oil (C20-C38)	9774/1-A	MB MB sult Qua ND ND MB MB	alifier	RL 8.0 24	mg/K	g	D P 06/2 06/2 P	repared 3/20 15:02 3/20 15:02 repared	Prep Typ Prep Bat 07/02/20 0 07/02/20 0	e: Total/ cch: 4997 ed Dil 4:48 4:48	Fac 1
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Motor Oil (C20-C38) Furrogate -Terphenyl Lab Sample ID: LCS 280-4	9774/1-A Re %Recon	MB MB sult Qua ND ND MB MB very Qua	alifier	RL 8.0 24 <i>its</i>	mg/K	íg íg	D P 06/2 06/2 P 06/2	repared 13/20 15:02 13/20 15:02 repared 13/20 15:02 mple ID:	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont	e: Total/ cch: 4997 ed Dil 4:48 4:48 ed Dil 4:48 rol Sam	Fac 1 Fac 1 Fac 1
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Notor Oil (C20-C38) Aurrogate -Terphenyl Aab Sample ID: LCS 280-4 Matrix: Solid	9774/1-A Re %Recon	MB MB sult Qua ND ND MB MB very Qua	alifier	RL 8.0 24 <i>its</i>	mg/K	íg íg	D P 06/2 06/2 P 06/2	repared 13/20 15:02 13/20 15:02 repared 13/20 15:02 mple ID:	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ	e: Total/ cch: 4997 ed Dil 4:48 4:48 ed Dil 4:48 rol Sam e: Total/	Fac 1 1 1 1 1 1 1 1 1 1 1 1 1
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Notor Oil (C20-C38) Aurrogate -Terphenyl Aab Sample ID: LCS 280-4 Matrix: Solid	9774/1-A Re %Recon	MB MB sult Qua ND ND MB MB very Qua	alifier Lim 49 -	RL 8.0 24 <i>its</i> 115	mg/K mg/K	íg íg	D P 06/2 06/2 P 06/2	repared 13/20 15:02 13/20 15:02 repared 13/20 15:02 mple ID:	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat	e: Total/ cch: 4997 ed Dil 4:48 4:48 ed Dil 4:48 rol Sam e: Total/	Fac 1 1 1 1 1 1 1 1 1 1 1 1 1
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Motor Oil (C20-C38) Surrogate -Terphenyl Lab Sample ID: LCS 280-4 Matrix: Solid Analysis Batch: 500853	9774/1-A Re %Recon	MB MB sult Qua ND ND MB MB very Qua	alifier Lim 49 - Spike	RL 8.0 24 <i>its</i> 115	mg/K mg/K	ig Clie	D P 06/2 06/2 P 06/2 nt Sai	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID:	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec.	e: Total/ cch: 4997 ed Dil 4:48 4:48 ed Dil 4:48 rol Sam e: Total/	Fac 1 1 1 1 1 1 1 1 1 1 1 1 1
Matrix: Solid Analysis Batch: 500853 Analyte liesel Range Organics [C10-C28] Iotor Oil (C20-C38) Aurrogate -Terphenyl ab Sample ID: LCS 280-4 Matrix: Solid Analysis Batch: 500853 nalyte	9774/1-A Re %Recon	MB MB sult Qua ND ND MB MB very Qua	alifier Lim 49 - Spike Added	RL 8.0 24 <i>its</i> 115 LCS Result	mg/K mg/K LCS Qualifier	ig Clie Unit	D P 06/2 06/2 P 06/2 nt Sai	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID: %Rec	Analyze 07/02/20 0 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec. Limits	e: Total/ cch: 4997 ed Dil 4:48 4:48 ed Dil 4:48 rol Sam e: Total/	Fac 1 1 1 1 1 1 1 1 1 1 1 1 1
Matrix: Solid Analysis Batch: 500853 nalyte iesel Range Organics [C10-C28] lotor Oil (C20-C38) urrogate -Terphenyl ab Sample ID: LCS 280-4 Natrix: Solid analysis Batch: 500853 nalyte iesel Range Organics	9774/1-A Re %Recon	MB MB sult Qua ND ND MB MB very Qua	alifier Lim 49 - Spike	RL 8.0 24 <i>its</i> 115	mg/K mg/K LCS Qualifier	ig Clie	D P 06/2 06/2 P 06/2 nt Sai	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID:	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec.	e: Total/ cch: 4997 ed Dil 4:48 4:48 ed Dil 4:48 rol Sam e: Total/	Fac 1 1 1 1 1 1 1 1 1 1 1 1 1
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Notor Oil (C20-C38) Aurrogate -Terphenyl Ab Sample ID: LCS 280-4 Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics C10-C28]	9774/1-A Re %Recon 99774/2-A	MB MB sult Qua ND ND MB MB very Qua 73	alifier Lim 49 - Spike Added 132	RL 8.0 24 <i>its</i> 115 LCS Result	mg/K mg/K LCS Qualifier	ig Clie Unit	D P 06/2 06/2 P 06/2 nt Sai	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID: %Rec	Analyze 07/02/20 0 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec. Limits	e: Total/ cch: 4997 ed Dil 4:48 4:48 ed Dil 4:48 rol Sam e: Total/	Fac 1 1 1 1 1 1 1 1 1 1 1 1 1
Matrix: Solid Analysis Batch: 500853 Analyte Dissel Range Organics [C10-C28] Notor Oil (C20-C38) Aurrogate -Terphenyl Ab Sample ID: LCS 280-4 Matrix: Solid Analysis Batch: 500853 Inalyte Dissel Range Organics C10-C28]	9774/1-A Re %Recor 99774/2-A LCS %Recovery	MB MB sult Qua ND ND MB MB very Qua 73	alifier Lim alifier Lim 49 - Spike Added 132	RL 8.0 24 <i>its</i> 115 LCS Result	mg/K mg/K LCS Qualifier	ig Clie Unit	D P 06/2 06/2 P 06/2 nt Sai	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID: %Rec	Analyze 07/02/20 0 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec. Limits	e: Total/ cch: 4997 ed Dil 4:48 4:48 ed Dil 4:48 rol Sam e: Total/	Fac 1 1 1 1 1 1 1 1 1 1 1 1 1
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Notor Oil (C20-C38) Aurrogate -Terphenyl Bab Sample ID: LCS 280-4 Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics 210-C28]	9774/1-A Re %Recon 99774/2-A	MB MB sult Qua ND ND MB MB very Qua 73	alifier Lim 49 - Spike Added 132	RL 8.0 24 <i>its</i> 115 LCS Result	mg/K mg/K LCS Qualifier	ig Clie Unit	D P 06/2 06/2 P 06/2 nt Sai	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID: %Rec	Analyze 07/02/20 0 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec. Limits	e: Total/ cch: 4997 ed Dil 4:48 4:48 ed Dil 4:48 rol Sam e: Total/	Fac 1 1 1 1 1 1 1 1 1 1 1 1 1
Matrix: Solid Analysis Batch: 500853 Analyte liesel Range Organics [C10-C28] Totor Oil (C20-C38) Analyte -Terphenyl ab Sample ID: LCS 280-49 Matrix: Solid Analysis Batch: 500853 Analyte Liesel Range Organics C10-C28] Analyte Terphenyl ab Sample ID: LCS 280-49	9774/1-A Re %Recov 99774/2-A LCS %Recovery 32	MB MB sult Qua ND ND MB MB very Qua 73	alifier Lim alifier Lim 49 - Spike Added 132	RL 8.0 24 <i>its</i> 115 LCS Result	mg/K mg/K LCS Qualifier	ig Clie Unit mg/Kg	D P 06/2 06/2 P 06/2 nt Sau	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID: %Rec 31 mple ID:	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec. Limits 53 - 115	e: Total/ .ch: 4997 .ed Dil 4:48 4:48 4:48 7 ol Sam e: Total/ .ch: 4997	PAA 774 Fac 1 1 Fac 7 ple NA 774
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Notor Oil (C20-C38) Aurrogate -Terphenyl Ab Sample ID: LCS 280-4 Matrix: Solid Analysis Batch: 500853 Inalyte Diesel Range Organics C10-C28] Urrogate -Terphenyl ab Sample ID: LCS 280-4 Matrix: Solid	9774/1-A Re %Recov 99774/2-A LCS %Recovery 32	MB MB sult Qua ND ND MB MB very Qua 73	alifier Lim alifier Lim 49 - Spike Added 132	RL 8.0 24 <i>its</i> 115 LCS Result	mg/K mg/K LCS Qualifier	ig Clie Unit mg/Kg	D P 06/2 06/2 P 06/2 nt Sau	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID: %Rec 31 mple ID:	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec. Limits 53 - 115	e: Total/ cch: 4997 ed Dil 4:48 4:48 4:48 rol Sam e: Total/ cch: 4997	PA 774 Fac 1 1 Fac 7 Ple NA 774
Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Motor Oil (C20-C38) Surrogate -Terphenyl Lab Sample ID: LCS 280-4 Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics C10-C28] Urrogate -Terphenyl Lab Sample ID: LCS 280-4 Matrix: Solid	9774/1-A Re %Recov 99774/2-A LCS %Recovery 32	MB MB sult Qua ND ND MB MB very Qua 73	alifier Lim alifier Lim 49 - Spike Added 132	RL 8.0 24 <i>its</i> 115 LCS Result 41.6	mg/K mg/K LCS Qualifier	ig Clie Unit mg/Kg	D P 06/2 06/2 P 06/2 nt Sau	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID: %Rec 31 mple ID:	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec. Limits 53 - 115	e: Total/ cch: 4997 ed Dil 4:48 4:48 4:48 rol Sam e: Total/ cch: 4997	PA 774 Fac 1 1 Fac 7 Ple NA 774
Lab Sample ID: MB 280-49 Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics [C10-C28] Motor Oil (C20-C38) Surrogate b-Terphenyl Lab Sample ID: LCS 280-49 Matrix: Solid Analysis Batch: 500853 Analyte Diesel Range Organics C10-C28] Surrogate -Terphenyl Lab Sample ID: LCS 280-49 Matrix: Solid Analysis Batch: 500853 Matrix: Solid Analysis Batch: 500853 Matrix: Solid Analysis Batch: 500853 Malyte Notor Oil (C20-C38)	9774/1-A Re %Recov 99774/2-A LCS %Recovery 32	MB MB sult Qua ND ND MB MB very Qua 73	alifier Lim 49 - Spike Added 132 Limits 49 - 115	RL 8.0 24 <i>its</i> 115 LCS Result 41.6	mg/K mg/K Qualifier	ig Clie Unit mg/Kg	D P 06/2 06/2 P 06/2 nt Sar	repared 3/20 15:02 3/20 15:02 repared 3/20 15:02 mple ID: %Rec 31 mple ID:	Prep Typ Prep Bat 07/02/20 0 07/02/20 0 Analyze 07/02/20 0 Lab Cont Prep Typ Prep Bat %Rec. Limits 53 - 115	e: Total/ cch: 4997 ed Dil 4:48 4:48 4:48 rol Sam e: Total/ cch: 4997	PA 774 Fac 1 1 Fac 7 Ple NA 774

Eurofins TestAmerica, Denver

Job ID: 280-137696-1

QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 280- Matrix: Solid Analysis Batch: 500853	499774/3-A							Clie	ent S	ample IC): Lab Control Sample Prep Type: Total/NA Prep Batch: 499774
	LCS	LCS									
Surrogate	%Recovery	Qualifier	Limits								
o-Terphenyl	78		49_115	-							
Method: 9056A - Anio	ns, Ion Chi	romatogi	raphy								
Lab Sample ID: MRL 280-	500256/3							Clie	ent Sa	ample IC	: Lab Control Sample
Matrix: Solid											Prep Type: Total/NA
Analysis Batch: 500256											
			Spike		MRL	MR	Ľ				%Rec.
Analyte			Added		Result	Qua	lifier	Unit) %Rec	Limits
Chloride			5.00		4.18			mg/L		84	50 - 150
Lab Sample ID: MB 280-5	00118/2-A								CI	ient San	ple ID: Method Blank
Matrix: Solid											Prep Type: Soluble
Analysis Batch: 500256											
		MB MB									
Analyte	Re	sult Qualifie	r	RL		MDL	Unit		D	Prepared	Analyzed Dil Fac
Chloride		ND		30			mg/Kg)			06/26/20 13:02 1
Lab Sample ID: LCS 280-	500118/1-A							Clie	ent Sa	ample ID	: Lab Control Sample
Matrix: Solid											Prep Type: Soluble
Analysis Batch: 500256											The second second
-			Spike		LCS	LCS	;				%Rec.

	Эріке	LUG	LUG				70 KeG.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	1000	985		mg/Kg		98	90 - 110	

QC Association Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-137696-1

GC/MS VOA

Analysis Batch: 499551

ab Sample ID.	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
80-137696-1	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	8260B	499552
80-137696-2	A-47 WEST LEG C-2 (WLC2)	Total/NA	Solid	8260B	499552
80-137696-3	A-47 WEST LEG C-1 (ELC1)	Total/NA	Solid	8260B	499552
80-137696-4	A-47 WEST LEG C-2 (ELC-2)	Total/NA	Solid	8260B	499552
B 280-499552/3-A	Method Blank	Total/NA	Solid	8260B	499552
CS 280-499552/1-A	Lab Control Sample	Total/NA	Solid	8260B	499552
CSD 280-499552/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	499552
80-137696-1 MS	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	8260B	49955
80-137696-1 MSD	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	8260B	49955
ab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batc
	•				Prep Batc
80-137696-1	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	5030B	
80-137696-2	A-47 WEST LEG C-2 (WLC2)	Total/NA	Solid	5030B	
80-137696-3	A-47 WEST LEG C-1 (ELC1)	Total/NA	Solid	5030B	
80-137696-4	A-47 WEST LEG C-2 (ELC-2)	Total/NA	Solid	5030B	
B 280-499552/3-A	Method Blank	Total/NA	Solid	5030B	
CS 280-499552/1-A	Lab Control Sample	Total/NA	Solid	5030B	
	Lab Control Sample Dup	Total/NA	Solid	5030B	
CSD 280-499552/2-A					
30-137696-1 MS	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	5030B	

GC VOA

Prep Batch: 500003

Lab Sample	ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-5000	003/3-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 500144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137696-1	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	5035	-
280-137696-2	A-47 WEST LEG C-2 (WLC2)	Total/NA	Solid	5035	
280-137696-3	A-47 WEST LEG C-1 (ELC1)	Total/NA	Solid	5035	
280-137696-4	A-47 WEST LEG C-2 (ELC-2)	Total/NA	Solid	5035	
MB 280-500144/3-A	Method Blank	Total/NA	Solid	5035	
LCS 280-500144/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 280-500144/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 500158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137696-2	A-47 WEST LEG C-2 (WLC2)	Total/NA	Solid	8015B	500144
280-137696-3	A-47 WEST LEG C-1 (ELC1)	Total/NA	Solid	8015B	500144
280-137696-4	A-47 WEST LEG C-2 (ELC-2)	Total/NA	Solid	8015B	500144
MB 280-500144/3-A	Method Blank	Total/NA	Solid	8015B	500144
LCS 280-500144/1-A	Lab Control Sample	Total/NA	Solid	8015B	500144
LCSD 280-500144/2-A	Lab Control Sample Dup	Total/NA	Solid	8015B	500144

Analysis Batch: 500261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137696-1	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	8015B	500144
MB 280-500003/3-A	Method Blank	Total/NA	Solid	8015B	500003

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	QC Association Summary
Client: Wapiti Operating, LLC	-
Project/Site: Produced Water Spill	

GC VOA (Continued)

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
MB 280-500144/3-A	Method Blank	Total/NA	Solid	8015B	500144
LCS 280-500144/1-A	Lab Control Sample	Total/NA	Solid	8015B	500144
LCSD 280-500144/2-A	Lab Control Sample Dup	Total/NA	Solid	8015B	500144

GC Semi VOA

Prep Batch: 499774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137696-1	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	3546	
280-137696-2	A-47 WEST LEG C-2 (WLC2)	Total/NA	Solid	3546	
280-137696-3	A-47 WEST LEG C-1 (ELC1)	Total/NA	Solid	3546	
280-137696-4	A-47 WEST LEG C-2 (ELC-2)	Total/NA	Solid	3546	
VIB 280-499774/1-A	Method Blank	Total/NA	Solid	3546	
_CS 280-499774/2-A	Lab Control Sample	Total/NA	Solid	3546	
_CS 280-499774/3-A	Lab Control Sample	Total/NA	Solid	3546	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-499774/1-A	Method Blank	Total/NA	Solid	8015B	499774
LCS 280-499774/2-A	Lab Control Sample	Total/NA	Solid	8015B	499774
LCS 280-499774/3-A	Lab Control Sample	Total/NA	Solid	8015B	499774

Analysis Batch: 501099

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-137696-1	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	8015B	499774
280-137696-2	A-47 WEST LEG C-2 (WLC2)	Total/NA	Solid	8015B	499774
280-137696-3	A-47 WEST LEG C-1 (ELC1)	Total/NA	Solid	8015B	499774
280-137696-4	A-47 WEST LEG C-2 (ELC-2)	Total/NA	Solid	8015B	499774

General Chemistry

Analysis Batch: 499151

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-137696-1	A-47 WEST LEG C-1 (WLC1)	Total/NA	Solid	Moisture	
280-137696-2	A-47 WEST LEG C-2 (WLC2)	Total/NA	Solid	Moisture	
280-137696-3	A-47 WEST LEG C-1 (ELC1)	Total/NA	Solid	Moisture	
280-137696-4	A-47 WEST LEG C-2 (ELC-2)	Total/NA	Solid	Moisture	

Leach Batch: 500118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137696-1	A-47 WEST LEG C-1 (WLC1)	Soluble	Solid	DI Leach	
280-137696-2	A-47 WEST LEG C-2 (WLC2)	Soluble	Solid	DI Leach	
280-137696-3	A-47 WEST LEG C-1 (ELC1)	Soluble	Solid	DI Leach	
280-137696-4	A-47 WEST LEG C-2 (ELC-2)	Soluble	Solid	DI Leach	
MB 280-500118/2-A	Method Blank	Soluble	Solid	DI Leach	
LCS 280-500118/1-A	Lab Control Sample	Soluble	Solid	DI Leach	

Analysis Batch: 500256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-137696-1	A-47 WEST LEG C-1 (WLC1)	Soluble	Solid	9056A	500118
280-137696-2	A-47 WEST LEG C-2 (WLC2)	Soluble	Solid	9056A	500118
280-137696-3	A-47 WEST LEG C-1 (ELC1)	Soluble	Solid	9056A	500118

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Job ID: 280-137696-1

Lab Sample ID

MB 280-500118/2-A

LCS 280-500118/1-A

MRL 280-500256/3

280-137696-4

QC Association Summary

Prep Type

Soluble

Soluble

Soluble

Total/NA

Matrix

Solid

Solid

Solid

Solid

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

General Chemistry (Continued) Analysis Batch: 500256 (Continued)

Client Sample ID

Lab Control Sample

Lab Control Sample

Method Blank

A-47 WEST LEG C-2 (ELC-2)

Job ID: 280-137696-1

Method	Prep Batch	
9056A	500118	1.2
9056A	500118	9
9056A	500118	
9056A		

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Job ID: 280-137696-1

Matrix: Solid

Lab Sample ID: 280-137696-1

Lab Chronicle

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Client Sample ID: A-47 WEST LEG C-1 (WLC1) Date Collected: 06/15/20 09:50 Date Received: 06/16/20 09:58

	Batch	Batch	_	Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.260 g	5 mL	499552	06/21/20 09:37	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	499551	06/21/20 12:09	GPM	TAL DEN
Total/NA	Prep	5035			4.42 g	5 mL	500144	06/15/20 09:50	AAR	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	500261	06/26/20 22:35	CAS	TAL DEN
Total/NA	Ргер	3546			16.0 g	1 mL	499774	06/23/20 15:02	MB	TAL DEN
Total/NA	Analysis	8015B		1			501099	07/07/20 04:13	MAM	TAL DEN
Soluble	Leach	Di Leach			10.13 g	100 mL	500118	06/25/20 12:13	JAP	TAL DEN
Soluble	Analysis	9056A		1	5 mL	5 mL	500256	06/26/20 16:02	JAP	TAL DEN
Total/NA	Analysis	Moisture		1			499151	06/17/20 15:20	FRG	TAL DEN

Client Sample ID: A-47 WEST LEG C-2 (WLC2) Date Collected: 06/15/20 10:10 Date Received: 06/16/20 09:58

Lab Sample ID: 280-137696-2

Lab Sample ID: 280-137696-3

Matrix: Solid

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.280 g	5 mL	499552	06/21/20 09:37	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	499551	06/21/20 13:18	GPM	TAL DEN
Total/NA	Prep	5035			3.641 g	5 mL	500144	06/15/20 10:10	AAR	TAL DEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	500158	06/26/20 02:01	CAS	TAL DEN
Total/NA	Prep	3546			15.3 g	1 mL	499774	06/23/20 15:02	мв	TAL DEN
Total/NA	Analysis	8015B		1			501099	07/07/20 04:35	MAM	TAL DEN
Soluble	Leach	DI Leach			10.38 g	100 mL	500118	06/25/20 12:13	JAP	TAL DEN
Soluble	Analysis	9056A		1	5 mL	5 mL	500256	06/26/20 16:19	JAP	TAL DEN
Total/NA	Analysis	Moisture		1			499151	06/17/20 15:20	FRG	TAL DEN

Client Sample ID: A-47 WEST LEG C-1 (ELC1) Date Collected: 06/15/20 10:30 Date Received: 06/16/20 09:58

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.488 g	5 mL	499552	06/21/20 09:37	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	499551	06/21/20 13:40	GPM	TAL DEN
Total/NA	Prep	5035			4.214 g	5 mL	500144	06/15/20 10:30	AAR	TAL DEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	500158	06/26/20 02:21	CAS	TAL DEN
Total/NA	Prep	3546			15.5 g	1 mL	499774	06/23/20 15:02	MB	TAL DEN
Total/NA	Analysis	8015B		1			501099	07/07/20 04:58	MAM	TAL DEN
Soluble	Leach	DI Leach			10.18 g	100 mL	500118	06/25/20 12:13	JAP	TAL DEN
Soluble	Analysis	9056A		1	5 mL	5 mL	500256	06/26/20 16:35	JAP	TAL DEN
Total/NA	Analysis	Moisture		1			499151	06/17/20 15:20	FRG	TAL DEN

Lab Chronicle

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Client Sample ID: A-47 WEST LEG C-2 (ELC-2) Date Collected: 06/15/20 10:50 Date Received: 06/16/20 09:58

Batch Batch Dil Initial Final Batch Prepared Ргер Туре Method Туре Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA Prep 5030B 5.407 g 499552 5 mL 06/21/20 09:37 GPM TAL DEN Total/NA Analysis 8260B 1 5 g 5 mL 499551 06/21/20 14:03 GPM TAL DEN Total/NA Prep 5035 3.885 g 5 mL 500144 06/15/20 10:50 AAR TAL DEN Total/NA Analysis 8015B 5 mL 5 mL 500158 06/26/20 02:41 CAS TAL DEN 1 Total/NA Prep 3546 16.0 g 1 ml 499774 06/23/20 15:02 MB TAL DEN Total/NA 8015B Analysis 1 501099 07/07/20 05:19 MAM TAL DEN Soluble Leach DI Leach 10.91 g 100 mL 500118 06/25/20 12:13 JAP TAL DEN Soluble 9056A Analysis 5 mL 5 mL 500256 1 06/26/20 16:52 JAP TAL DEN Total/NA Moisture Analysis 1 499151 06/17/20 15:20 FRG TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Job ID: 280-137696-1

Lab Sample ID: 280-137696-4 Matrix: Solid

Accreditation/Certification Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-137696-1

Laboratory: Eurofins TestAmerica, Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date	
A2LA	Dept. of Defense ELAP	2907_01	10-31-21	
A2LA	ISO/IEC 17025	2907.01	10-31-21	
Alabama	State Program	40730	09-30-12 *	
Alaska (UST)	State	18-001	02-08-21	
Arizona	State	AZ0713	12-20-20	
Arkansas DEQ	State	19-047-0	06-01-21	
California	State	2513	01-08-21	
Connecticut	State	PH-0686	09-30-20	
Florida	NELAP	E87667-57	07-01-21	
Georgia	State	4025-011	01-09-21	
Illinois	NELAP	2000172019-1	04-30-21	
lowa	State	IA#370	12-01-20	
Kansas	NELAP	E-10166	04-30-21	
Louisiana	NELAP	30785	06-30-14 *	
Louisiana	NELAP	30785	06-30-21	
Maine	State	2019011 (231)	03-03-21	
Vinnesota	NELAP	1788752	12-31-20	
Nevada	State	CO000262020-1	07-31-20	
New Hampshire	NELAP	205319	04-29-21	
New Jersey	NELAP	190002	06-30-21	
New York	NELAP	59923	04-01-21	
North Carolina (WW/SW)	State	358	12-31-20	
North Dakota	State	R-034	01-08-21	
Oklahoma	State	2018-006	08-31-20	
Dregon	NELAP	4025-011	01-08-21	
Pennsylvania	NELAP	013	08-01-20	
South Carolina	State	72002001	01-08-21	
Texas	NELAP	T104704183-19-17	09-30-20	
JS Fish & Wildlife	US Federal Programs	058448	07-31-20	
JSDA	US Federal Programs	P330-18-00099	03-26-21	
Jtah	NELAP	CO000262019-11	07-31-20	
/irginia	NELAP	10490	06-14-21	
Vashington	State	C583-19	08-05-20	
Vest Virginia DEP	State	354	11-30-20	
Misconsin	State	999615430	08-31-20	
Nyoming (UST)	A2LA	2907.01	10-31-21	

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

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Denver	
#280	

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Street, Street,

4955 Увлом Street Arvada, CO 80002 Phone (303) 736-0100 Fax (303) 431-7171

Client Information	Randy L	Ma	Auson	Lab i Turr	Mier. Sh	helby	R					Carne	r Trackir	ng No(s)			COC No 280-99869-295	968.1
Client Contact. Mr. Randy Madison	Phone 55	-420.	-/12) E-Ma	ii by.tun	ner@	testar	neric	ainc.c	om							Page Page 1 of 1	
Company Wapiti Operating, LLC	1				Í				an ing a		s Red	1	hod				Job g	
Address	Due Date Reques	ted:				T	1					lues				1	Proservation Co	odes:
PO BOX 190 309 Silver Street City: Raton State, Zip: NM, 87740 Phone	TAT Requested (d	lays):			100.00	The second s											A - HCL B = NaOH C - Zh Acetate D - Nitric Acid E = NaHSO4 F - MeOH	M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3
575-445-6706(Tel)	Pay by Credit C	Card			6		5 list	5 list				11					G - American H - Ascorbic Acid	8 - H2SO4
Email: rmadison@wapilienergy.com	WO #				N LO	thod	d 801	d 801	2					1			I - Icë J - DI Water	U - Acelona V - MCAA
Project Name Produced Water Spill	Projuci # 28020400				Yes	al Ne	andar	ndar	CCA							alnar	K-EDTA	W - pH 4-5 Z - other ispecify
Site: A-47	SSOW#				ample	DD) Loc	OD) Sta	ob) Stz	TEX by							of contai	Other:	
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp,	Matrix (W-wales, S-suid O-wastatol BT-Tinson Arden	Field Filtered Sample (Yes or	9056A 28D - (MOD) Local Method	80158_DRO - (MOD) Standard 8015 list	80158_GRO - (MOD) Standard 8015 list	8260B - (MOD) BTEX by GC/MS		ļ					Total Number o		
	Sample Date			ation Code:	X		N	F	N		100	16.0				X	Special	Instructions/Note:
A-47 Westleen C-1/WLCI	10/15/20	0550	C	Solid	Na	JX	XX	X	X							T		
10-47 Wastt. 1-7 Will	2 6/15/2		C	Solid	Nh	1X	X	Y	1v1		+						1	
A-41 East lost C-1 (ELC		102	C	Solid	D	IV	1,	V	$ \langle \rangle $		-			-				
A-47 Fast ISC C-2 (FLG-			50	Solid	W.		X	t	K	-+	+			+		12		
					IT	•	TA	A	1									
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Possible Hazard Identification	· · ·			2	1												ned longer tha	
Deliverable Requested: I. II. III. IV. Other (specify)	ison B Unk	nown	Radiologica	u	-				Clien				sal By	Lab		Arc	hive For	Months
Empty Kit Relinquished by:		Date:			Tim		-	_	_				Metho	d of Ship	ment			
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Rounguismen by	Date/fime	206 C	100	Company	E,	_	eceivad	_		a				Dat	6-h	6-0	20095	
Relinquished by	Date/Time:			Company			0001000								e/Time:			
											_				ASCENTING.			Corepany
Custody Seals Intact: Custody Seal No.: Δ Yes Δ No						C	2.	Sube	TR	S an		Ruman	hsm	\$ 6	-16.	20	2	
																		Ver: 01/16/2019

Chain of Custody Record

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7/9/2020

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Received by OCD: 9/15/2020 10:28:56 AM

Login Sample Receipt Checklist

Client: Wapiti Operating, LLC

Login Number: 137696

Job Number: 280-137696-1

List Source: Eurofins TestAmerica, Denver

3 4 5 6 7 8 9 10 12 13 11 15

List Number: 1 Creator: Lubin, Julius C		List Source: Eurofins TestAmer
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Randy Madison

From:	Randy Madison
Sent:	Wednesday, July 15, 2020 6:44 AM
То:	'Smith, Cory, EMNRD'
Subject:	Emailing: J137696-1 UDS Level 2 Report Final Report, J134318-1 UDS Level 2 Report Final Report
Attachments:	J137696-1 UDS Level 2 Report Final Report.pdf; J134318-1 UDS Level 2 Report Final Report.pdf

Cory,

Find attached the lab results for the initial grab and the composites done on 6/15/20. There is a great difference between the 2 analysis's. I want to do a third so we are sure we have a good representation of the area. I also want to do a back ground sample to see if something is naturally there giving us the higher reading. Randy

Randy L. Madison, HSE Specialist Wapiti Operating, LLC P.O. Box 190 309 Silver St. Raton, NM 87740 Office 575-445-6706 Cell 575-420-1120 rmadison@wapitienergy.com

Your message is ready to be sent with the following file or link attachments:

J137696-1 UDS Level 2 Report Final Report J134318-1 UDS Level 2 Report Final Report

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Randy Madison

From:	Randy Madison
Sent:	Friday, July 10, 2020 9:06 AM
То:	'Smith, Cory, EMNRD'
Subject:	Extension Request Incident # NRM 2005230899
Attachments:	2nd Extension Request Signed.pdf

Mr. Smith, I am requesting a 2nd extension on Major Release NRM 2005230899. See attachment Thanks Randy

Randy L. Madison, HSE Specialist Wapiti Operating, LLC P.O. Box 190 309 Silver St. Raton, NM 87740 Office 575-445-6706 Cell 575-420-1120 rmadison@wapitienergy.com

Your message is ready to be sent with the following file or link attachments:

2nd Extension Request Signed

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.



July 10, 2020

TO: Cory Smith, Environmental Specialist NMOCD District 3 & 4 1000 Rio Brazos Aztec, NM 87410

FR: Randy Madison, HSE Specialist

REF: Major Spill VPR A-47, API# 30-007-20197, Incident #NRM2005230899

Mr. Smith,

I had previously requested a time extension on the closure report for this incident until 8/1/20. It is unlikely Wapiti will meet the 8/1/20 dead line, which you had approve. I am requesting an additional 30 days (9-1-20) to complete the closure report. We are continuing to make every effort to gather the additional information and provide closure. Thank you for your consideration in this matter.

Kinds Regards,

Randy L. Madison, HSE Specialist

Randy Madison

From:	Randy Madison
Sent:	Tuesday, July 14, 2020 3:29 PM
То:	'Smith, Cory, EMNRD'
Cc:	lan Johnston
Subject:	RE: Extension Request Incident # NRM 2005230899

Cory,

I requested the first the extension on 4/23/20 and you approved it on 4/30/20 I submitted my Sample plan on 5/4/20 and you requested more information.

I submitted the 2nd Sample plan on 5/13/20 and you approved it.

I requested sampling supplies and scheduled the sampling for 6/1/20 because of Memorial Day weekend. Notified you 48 hrs. prior.

Conducted samples on 6/1/20 and they got to the lab on 6/5/20 at 17 degrees Celsius. They were no good.

Re-scheduled the sampling for 6/15/20 and notified you prior. Conducted the samples and this time they go to the lab within temperature range.

Got the results of the tests on the NRM 2005230899 on 7/9/20. The results of the test came back all over the place. I do not know if this is due to shipping or something in the lab. I contacted the lab and asked that they run them again. They requested additional samples. I plan to sample again on 7/20/20. I do not believe I will have the results back by 8/1/20. I want to get you the most accurate results, that is the reason for my request. Randy

-----Original Message-----

From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Sent: Tuesday, July 14, 2020 2:38 PM To: Randy Madison <RMadison@WapitiEnergy.com> Subject: RE: Extension Request Incident # NRM 2005230899

Randy,

I need a reason why Wapiti is requesting a 2nd extension, also please include what has been done since the last extension.

Thanks,

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

-----Original Message-----From: Randy Madison <RMadison@WapitiEnergy.com> Sent: Friday, July 10, 2020 9:06 AM To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Subject: [EXT] Extension Request Incident # NRM 2005230899 Mr. Smith, I am requesting a 2nd extension on Major Release NRM 2005230899. See attachment Thanks Randy

Randy L. Madison, HSE Specialist Wapiti Operating, LLC P.O. Box 190 309 Silver St. Raton, NM 87740 Office 575-445-6706 Cell 575-420-1120 rmadison@wapitienergy.com

Your message is ready to be sent with the following file or link attachments:

2nd Extension Request Signed

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Randy Madison

From:	Randy Madison
Sent:	Thursday, July 16, 2020 10:30 AM
То:	'Smith, Cory, EMNRD'
Cc:	lan Johnston
Subject:	Sampling A-47 NRM2005230899

Mr. Smith,

I agree with you recommendation of do a grab sample. I will do 2 samples approx. 50' to the east of the spill area and 50' to the west of the spill this should get a good representation of the area. The reason I will be going east and west is I do not have an un-disturbed area above. I will still need an 2nd extension (8-1-20) to get this done and turned around. Once I have the results in my hand I will move this along as quickly as possible. I am also including in this e-mail my notification of Sampling on 7/20/20 at 1100 hrs. This gives you your 48 hrs. per NMAC.

I have also been in contact with Shelby Turner from Eurofins TestAmerica. This is the lab that I use and I quote her "I think doing a background sample to see if there are any natural occurring contaminates is a good idea. Regarding the high DRO results, our analyst indicated that there may be high organic materials in the soil causing high DRO readings:" To do my samples I have to scrap the duff away anywhere from 2" to 4" to get to soil.

Thanks Randy

Randy L. Madison, HSE Specialist Wapiti Operating, LLC P.O. Box 190 309 Silver St. Raton, NM 87740 Office 575-445-6706 Cell 575-420-1120 rmadison@wapitienergy.com


Randy Madison

From:	Randy Madison
Sent:	Thursday, July 16, 2020 7:40 AM
То:	'Smith, Cory, EMNRD'
Subject:	Sampling at A-47 Incident # NRM2005230899

Mr. Smith,

At the present time I plan to Sample the A-47 on 7/20/20 at 1000 hrs. This will serve as you 48 hour notification. Thank you Randy

Randy L. Madison, HSE Specialist Wapiti Operating, LLC P.O. Box 190 309 Silver St. Raton, NM 87740 Office 575-445-6706 Cell 575-420-1120 rmadison@wapitienergy.com



Randy Madison

From:	Randy Madison
Sent:	Tuesday, August 4, 2020 11:01 AM
То:	'Smith, Cory, EMNRD'
Subject:	Emailing: J138764-1 UDS Level 2 Report Final Report Back Ground Samples 8-3-20
Attachments:	J138764-1 UDS Level 2 Report Final Report Back Ground Samples 8-3-20.pdf; J137696-1
	UDS Level 2 Report Final Report Spill Samples 7-9-20.pdf

Cory,

Take a look at these reports there is no vegetation dead in the area. The area is covered in pine duff which keeps the weeds down as you walk through the area.

Randy

Your message is ready to be sent with the following file or link attachments:

J138764-1 UDS Level 2 Report Final Report Back Ground Samples 8-3-20

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Randy Madison

From:	Randy Madison
Sent:	Tuesday, August 4, 2020 1:54 PM
То:	'Smith, Cory, EMNRD'
Subject:	RE: Emailing: J138764-1 UDS Level 2 Report Final Report Back Ground Samples 8-3-20

Cory,

There is a typo in the East Background it should be N 36.975313, W -104.81285. Randy

-----Original Message-----From: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Sent: Tuesday, August 4, 2020 1:13 PM To: Randy Madison <RMadison@WapitiEnergy.com> Subject: RE: Emailing: J138764-1 UDS Level 2 Report Final Report Back Ground Samples 8-3-20

Randy,

Hard to determine if the background samples are any good without some kind of reference to sample locations. Just as a reminder background samples should not have any TPH, the EPA method 8015B is segregates out carbon ranges that are typically associated with organics.

Cory Smith Environmental Specialist Oil Conservation Division Energy, Minerals, & Natural Resources 1000 Rio Brazos, Aztec, NM 87410 (505)334-6178 ext 115 cory.smith@state.nm.us

-----Original Message-----From: Randy Madison <RMadison@WapitiEnergy.com> Sent: Tuesday, August 4, 2020 11:01 AM To: Smith, Cory, EMNRD <Cory.Smith@state.nm.us> Subject: [EXT] Emailing: J138764-1 UDS Level 2 Report Final Report Back Ground Samples 8-3-20

Cory,

Take a look at these reports there is no vegetation dead in the area. The area is covered in pine duff which keeps the weeds down as you walk through the area.

Randy

Your message is ready to be sent with the following file or link attachments:

J138764-1 UDS Level 2 Report Final Report Back Ground Samples 8-3-20

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.



Released



Received by OCD: 9/15/2020 10:28:56 AM



Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Denver 4955 Yarrow Street Arvada, CO 80002 Tel: (303)736-0100

Laboratory Job ID: 280-138764-1

Client Project/Site: Produced Water Spill

For:

Wapiti Operating, LLC **PO BOX 190** 309 Silver Street Raton, New Mexico 87740

Attn: Mr. Randy Madison

helby Turner

Authorized for release by: 8/3/2020 12:13:27 PM

Shelby Turner, Project Manager I (303)736-0100 Shelby.Turner@Eurofinset.com

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory-

LINKS **Review your project** results through Total Access **Have a Question?** Askhe Expert Visit us at: www.eurofinsus.com/Env

Released to Imaging: 10/28/2022 8:01 25 AM

Client: Wapiti Operating, LLC

Project/Site: Produced Water Spill

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Definitions/Glossary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Qualifiers **GC/MS VOA**

Job ID: 280-138764-1

		3	}	
		ł		

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
2C	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
ſEF	Toxicity Equivalent Factor (Dioxin)
ΓEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-138764-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Case Narrative

Client: Wapiti Operating, LLC

Project: Produced Water Spill

Report Number: 280-138764-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 7/22/2020 9:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.5° C.

Receipt Exceptions

The container labels for the following samples did not match the information listed on the Chain-of-Custody (COC): A-47 WEST BACKGROUND SAMPLE (280-138764-1) and A-47 EAST BACKGROUND SAMPLE (280-138764-2). The container labels do not list "SAMPLE" at the end of the IDs, while the COC lists IDs "A-47 WEST BACKGROUND SAMPLE" and "A-47 EAST BACKGROUND SAMPLE" The samples were logged per the IDs listed on the COC.

Sample A-47 EAST BACKGROUND SAMPLE (280-138764-2) was received with the MeOH (methanol) preservative dried up in the 2 x 40mLTared Vials for GRO analysis. It is assumed the 5mL of MeOH preservative was absorbed in the dry soil sample. Therefore, the lab will document the final MeOH volume for analysis as 10mL since they will need to add 5mL to dissolve in water as part of the GRO test.

The Chain-of-Custody (COC) does not list the sample matrix type. The samples were logged as solid volume per observation of volume received. No corrective action is necessary.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples A-47 WEST BACKGROUND SAMPLE (280-138764-1) and A-47 EAST BACKGROUND SAMPLE (280-138764-2) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 07/27/2020.

Internal standard (ISTD) response for 1,4-Dichlorobenzene-d4 for the following sample was outside acceptance criteria: A-47 EAST BACKGROUND SAMPLE (280-138764-2). This ISTD does not correspond to any of the requested target compounds; therefore, the data has been flagged and reported.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples A-47 WEST BACKGROUND SAMPLE (280-138764-1) and A-47 EAST BACKGROUND SAMPLE (280-138764-2) were analyzed for Gasoline Range Organics (GRO) in accordance with EPA SW-846 Method 8015B - GRO. The samples were prepared on 07/20/2020 and analyzed on 07/27/2020.

Page 4 of 21

Page 153 of 171

Case Narrative

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-138764-1

Job ID: 280-138764-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DIESEL RANGE ORGANICS

Samples A-47 WEST BACKGROUND SAMPLE (280-138764-1) and A-47 EAST BACKGROUND SAMPLE (280-138764-2) were analyzed for diesel range organics in accordance with EPA SW-846 Method 8015B - DRO. The samples were prepared on 07/29/2020 and analyzed on 07/31/2020.

The following samples could not be thoroughly homogenized before sub-sampling was performed due to sample matrix: A-47 WEST BACKGROUND SAMPLE (280-138764-1) and A-47 EAST BACKGROUND SAMPLE (280-138764-2). Sample 280-138764-1 contained rocks and vegetation.

The peak profile present in the following sample is atypical of a hydrocarbon pattern and consists of several discrete peaks: A-47 WEST BACKGROUND SAMPLE (280-138764-1).

The following samples needed to be re-digested/re-extracted due to missing RRO spike: A-47 WEST BACKGROUND SAMPLE (280-138764-1) and A-47 EAST BACKGROUND SAMPLE (280-138764-2). The samples were re-prepped within holding time and data has been reported.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (28 DAYS)

Samples A-47 WEST BACKGROUND SAMPLE (280-138764-1) and A-47 EAST BACKGROUND SAMPLE (280-138764-2) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A. The samples were leached on 07/28/2020 and analyzed on 07/30/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples A-47 WEST BACKGROUND SAMPLE (280-138764-1) and A-47 EAST BACKGROUND SAMPLE (280-138764-2) were analyzed for percent solids in accordance with ASTM D2216-90. The samples were analyzed on 07/23/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-138764-1

Client Sample ID: A-47 WE	ST BACKGROUND) SAMPLE			Lab Sa	mple ID: 2	80-138764-1
Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac I	D Method	Prep Type
Diesel Range Organics [C10-C28]	69	8.0		mg/Kg	1	8015B	Total/NA
Motor Oil (C20-C38)	120	24	1	mg/Kg	1	8015B	Total/NA

Client Sample ID. A-47 EA	SAWPLE			Lap 5	ап	ipie ID: 2	80-138/64-2	
Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Ргер Туре
Gasoline Range Organics (GRO) -C6-C10	18	2.9		mg/Kg	1		8015B	Total/NA
Diesel Range Organics [C10-C28]	510	7.9		mg/Kg	1		8015B	Total/NA
Motor Oil (C20-C38)	610	24		mg/Kg	1		8015B	Total/NA

5

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-138764-1

lethod	Method Description	Protocol	Laboratory
260B	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
015B	Gasoline Range Organics - (GC)	SW846	TAL DEN
015B	Diesel Range Organics (DRO) (GC)	SW846	TAL DEN
056A	Anions, Ion Chromatography	SW846	TAL DEN
loisture	Percent Moisture	EPA	TAL DEN
546	Microwave Extraction	SW846	TAL DEN
030B	Purge and Trap	SW846	TAL DEN
035	Closed System Purge and Trap	SW846	TAL DEN
I Leach	Deionized Water Leaching Procedure	ASTM	TAL DEN

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-138764-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID	
280-138764-1	A-47 WEST BACKGROUND SAMPLE	Solid	07/20/20 10:05	07/22/20 09:00		
280-138764-2	A-47 EAST BACKGROUND SAMPLE	Solid	07/20/20 09:50	07/22/20 09:00		

Client Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: A-47 WEST BACKGROUND SAMPLE Date Collected: 07/20/20 10:05 Date Received: 07/22/20 09:00

Date Necerveu. 0//22/20 0;	5.00							
Analyte	Result Qu	alifier RL	MDL	Unit	D	Prepared	Analyzed	C
Benzene	ND	0.0047		mg/Kg		07/27/20 10:00	07/27/20 13:51	
Ethylbenzene	ND	0.0047		mg/Kg		07/27/20 10:00	07/27/20 13:51	
Toluene	ND	0.0047		mg/Kg		07/27/20 10:00	07/27/20 13:51	
m-Xylene & p-Xylene	ND	0.0024		mg/Kg		07/27/20 10:00	07/27/20 13:51	
o-Xylene	ND	0.0024		mg/Kg		07/27/20 10:00	07/27/20 13:51	
Xylenes, Total	ND	0.0047		mg/Kg		07/27/20 10:00	07/27/20 13:51	
Surrogate	%Recovery Qu	alifier Limits				Prepared	Analyzed	Ľ
1,2-Dichloroethane-d4 (Surr)	103	58 - 140				07/27/20 10:00	07/27/20 13:51	_
Toluene-d8 (Surr)	101	80 - 126				07/27/20 10:00	07/27/20 13:51	
4-Bromofluorobenzene (Surr)	101	76 - 127				07/27/20 10:00	07/27/20 13:51	
Dibromofluoromethane (Surr)	97	75_121				07/27/20 10:00	07/27/20 13:51	

Client Sample ID: A-47 EAST BACKGROUND SAMPLE Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00

Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac Benzene ND 0.0075 07/27/20 10:00 07/27/20 14:59 mg/Kg 1 Ethylbenzene ND 0.0075 mg/Kg 07/27/20 10:00 07/27/20 14:59 1 Toluene ND 0.0075 mg/Kg 07/27/20 10:00 07/27/20 14:59 1 m-Xylene & p-Xylene ND 0.0037 mg/Kg 07/27/20 10:00 07/27/20 14:59 1 o-Xylene ND 0.0037 mg/Kg 07/27/20 10:00 07/27/20 14:59 1 Xylenes, Total ND 0.0075 mg/Kg 07/27/20 10:00 07/27/20 14:59 1 Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 108 58-140 07/27/20 10:00 07/27/20 14:59 1 Toluene-d8 (Surr) 119 80-126 07/27/20 10:00 07/27/20 14:59 1 4-Bromofluorobenzene (Surr) 124 *3 76-127 07/27/20 10:00 07/27/20 14:59 1 Dibromofluoromethane (Surr) 102 75-121 07/27/20 10:00 07/27/20 14:59 1

Method: 8015B - Gasoline Range Organics - (GC)

Client Sample ID: A-47 WEST Date Collected: 07/20/20 10:05 Date Received: 07/22/20 09:00	5	UND SAM	PLE				Lab Sam	ple ID: 280-13 Matrix	8764-1 c: Solid
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		2.4		mg/Kg		07/20/20 10:05	07/27/20 17:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene	86		77 - 123				07/20/20 10:05	07/27/20 17:16	1
Client Sample ID: A-47 EAST E Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00	ł						Lab Sam	ple ID: 280-13 Matrix	8764-2 :: Solid
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	18		2.9		mg/Kg		07/20/20 09:50	07/27/20 17:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
a.a.a-Trifluorotoluene	84						07/20/20 09:50		

Matrix: Solid

Dil Fac

Matrix: Solid

1 1 1

Lab Sample ID: 280-138764-1

Lab Sample ID: 280-138764-2

Client Sample Results

Job ID: 280-138764-1

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Date Received: 07/22/20 09:00	5	UND SAM	PLE				Lab Sam	ple ID: 280-13 Matrix	38764- k: Soli
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Diesel Range Organics [C10-C28]	69		8.0		mg/Kg		· · · · · · · · · · · · · · · · · · ·	07/31/20 19:07	
Motor Oil (C20-C38)	120		24		mg/Kg			07/31/20 19:07	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
o-Terphenyl	73		49_115				07/29/20 16:35	07/31/20 19:07	
Client Sample ID: A-47 EAST E Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00	I	JND SAMF	²LΕ				Lab Sam	ple ID: 280-13 Matrix	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Diesel Range Organics [C10-C28]	510		7.9		mg/Kg		07/29/20 16:35	07/31/20 19:29	
Motor Oil (C20-C38)	610		24		mg/Kg		07/29/20 16:35	07/31/20 19:29	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
o-Terphenyl	70		49 - 115				07/29/20 16:35	07/31/20 19:29	-
Date Collected: 07/20/20 10:05 Date Received: 07/22/20 09:00								Matrix	: Soli
Analyte	Result	Qualifier	RL	MIDI	Unit	D	Prepared	Analyzed	
				INDL		U	· · · · · · · · ·	Analyzeu	Dil Fa
	13.7		0.1		%			07/23/20 15:17	
	13.7 86.3			MDL					Dil Fa
Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50	86.3 BACKGROU	IND SAMP	0.1	INDL	~			07/23/20 15:17	8764-
Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00	86.3 BACKGROU	IND SAMP	0.1	MDL	<u>%</u>	D		07/23/20 15:17 07/23/20 15:17 ple ID: 280-13	
Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00 Analyte	86.3 BACKGROU		0.1 0.1		<u>%</u>		Lab Sam	07/23/20 15:17 07/23/20 15:17 07/23/20 15:17 ple ID: 280-13 Matrix	8764- :: Soli
Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00 Analyte Percent Moisture	86.3 BACKGROU Result		0.1 0.1 PLE RL		% % Unit		Lab Sam	07/23/20 15:17 07/23/20 15:17 ple ID: 280-13 Matrix Analyzed	8764- : Solie
Percent Moisture Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00 Analyte Percent Moisture Percent Solids eneral Chemistry - Solub	86.3 BACKGROU Result 15.4 84.6		0.1 0.1 PLE RL 0.1		% % Unit%		Lab Sam	07/23/20 15:17 07/23/20 15:17 ple ID: 280-13 Matrix Analyzed 07/23/20 15:17	8764- : Soli Dil Fa
Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00 Analyte Percent Moisture Percent Solids eneral Chemistry - Solub Client Sample ID: A-47 WEST E Date Collected: 07/20/20 10:05	86.3 BACKGROU Result 15.4 84.6	Qualifier	0.1 0.1 PLE RL 0.1 0.1		% % Unit%		Lab Sam	07/23/20 15:17 07/23/20 15:17 ple ID: 280-13 Matrix Analyzed 07/23/20 15:17	8764- c: Soli Dil Fa
Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00 Analyte Percent Moisture Percent Solids eneral Chemistry - Solub Client Sample ID: A-47 WEST E Date Collected: 07/20/20 10:05 Date Received: 07/22/20 09:00 Analyte	86.3 BACKGROU Result 15.4 84.6 Ie BACKGROU	Qualifier	0.1 0.1 PLE RL 0.1 0.1		% % Unit % %		Lab Sam	07/23/20 15:17 07/23/20 15:17 ple ID: 280-13 Matrix Analyzed 07/23/20 15:17 07/23/20 15:17	8764- :: Soli Dil Fa :: Soli :: Soli
Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00 Inalyte Percent Moisture Percent Solids eneral Chemistry - Solub Client Sample ID: A-47 WEST E Date Collected: 07/20/20 10:05 Date Received: 07/22/20 09:00 Inalyte	86.3 BACKGROU Result 15.4 84.6 Ie BACKGROU	Qualifier JND SAMF	0.1 0.1 PLE 0.1 0.1 0.1	MDL	% % Unit % %	D	Lab Sam	07/23/20 15:17 07/23/20 15:17 ple ID: 280-13 Matrix Analyzed 07/23/20 15:17 07/23/20 15:17 07/23/20 15:17	8764- :: Soli Dil Fa
Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00 Analyte Percent Moisture Percent Solids eneral Chemistry - Solub Client Sample ID: A-47 WEST E Date Collected: 07/20/20 10:05 Date Received: 07/22/20 09:00 Analyte Chloride Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50	86.3 BACKGROU Result 15.4 84.6 Ie BACKGROU Result ND	Qualifier JND SAMF Qualifier	0.1 0.1 PLE RL 0.1 0.1 0.1 PLE RL 29	MDL	% % Unit Unit	D	Lab Samp Prepared Lab Samp Prepared	07/23/20 15:17 07/23/20 15:17 ple ID: 280-13 Matrix Analyzed 07/23/20 15:17 07/23/20 15:17 07/23/20 15:17 07/23/20 15:17	8764- :: Soli Dil Fa 8764- :: Soli Dil Fa 8764-
Percent Solids Client Sample ID: A-47 EAST B Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00 Analyte Percent Moisture Percent Solids	86.3 BACKGROU Result 15.4 84.6 Ie BACKGROU BACKGROU	Qualifier JND SAMF Qualifier	0.1 0.1 PLE RL 0.1 0.1 0.1 PLE RL 29	MDL	% % Unit % %	D	Lab Samp Prepared Lab Samp Prepared	07/23/20 15:17 07/23/20 15:17 ple ID: 280-13 Matrix Analyzed 07/23/20 15:17 07/23/20 15:17 07/23/20 15:17 07/23/20 15:17 ple ID: 280-13 07/30/20 02:57 ple ID: 280-13	8764- :: Soli Dil Fa 8764- :: Soli Dil Fa 8764-

Job ID: 280-138764-1

Surrogate Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Method: 8260B - Volatile Organic Compounds (GC/MS) Matrix: Solid

Matrix: Solid		-				Prep Type: Total/NA
			Pe	ercent Surro	ogate Recovery (A	cceptance Limits)
		DCA	TOL	BFB	DBFM	
Lab Sample ID	Client Sample ID	(58-140)	(80-126)	(76-127)	(75-121)	
280-138764-1	A-47 WEST BACKGROUND SA	103	101	101	97	
280-138764-1 MS	A-47 WEST BACKGROUND SAMPLE	102	99	96	97	
280-138764-1 MSD	A-47 WEST BACKGROUND SAMPLE	104	98	96	100	
280-138764-2	A-47 EAST BACKGROUND SAMPLE	108	119	124 *3	102	
LCS 280-503545/1-A	Lab Control Sample	101	98	94	97	
LCSD 280-503545/2-A	Lab Control Sample Dup	101	98	94	98	
MB 280-503545/3-A	Method Blank	104	99	94	98	
Surrogate Legend						

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr) DBFM = Dibromofluoromethane (Surr)

Method: 8015B - Gasoline Range Organics - (GC) Matrix: Solid

Lab Sample ID	Client Sample ID	TFT1 (77-123)	
280-138764-1	A-47 WEST BACKGROUND SA	86	
280-138764-2	A-47 EAST BACKGROUND SAMPLE	84	
LCS 280-503581/1-A	Lab Control Sample	88	
LCSD 280-503581/2-A	Lab Control Sample Dup	90	
MB 280-503581/3-A	Method Blank	89	
Surrogate Legend			

TFT = a,a,a-Trifluorotoluene

Method: 8015B - Diesel Range Organics (DRO) (GC) Matrix: Solid

rcent Surrogate Recovery (Acceptance Limits)

Percent Surrogate Recovery (Acceptance Limits)

		OTPH1
_ab Sample ID	Client Sample ID	(49-115)
280-138764-1	A-47 WEST BACKGROUND SA	73
280-138764-2	A-47 EAST BACKGROUND SAMPLE	70
LCS 280-503887/2-A	Lab Control Sample	83
LCS 280-503887/4-A	Lab Control Sample	91
LCSD 280-503887/3-A	Lab Control Sample Dup	88
LCSD 280-503887/5-A	Lab Control Sample Dup	89
MB 280-503887/1-A	Method Blank	76
Surrogate Legend		
OTPH = o-Terphenyl		

Prep Type: Total/NA

R Prep Type: Total/NA

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QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-138764-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-503 Matrix: Solid Analysis Batch: 503511	3545/3-A						•	ole ID: Method Prep Type: Te Prep Batch:	otal/NA
A	MB	MB				_			
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0050		mg/Kg		07/27/20 10:00	07/27/20 11:57	1
Ethylbenzene	ND		0.0050		mg/Kg		07/27/20 10:00	07/27/20 11:57	1
Toluene	ND		0.0050		mg/Kg		07/27/20 10:00	07/27/20 11:57	1
m-Xylene & p-Xylene	ND		0.0025		mg/Kg		07/27/20 10:00	07/27/20 11:57	1
o-Xylene	ND		0.0025		mg/Kg		07/27/20 10:00	07/27/20 11:57	1
Xylenes, Total	ND		0.0050		mg/Kg		07/27/20 10:00	07/27/20 11:57	1
	MB	МВ							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		58 - 140				07/27/20 10:00	07/27/20 11:57	
Toluene-d8 (Surr)	99		80 - 126				07/27/20 10:00	07/27/20 11:57	1
4-Bromofluorobenzene (Surr)	94		76_127				07/27/20 10:00	07/27/20 11:57	1
Dibromofluoromethane (Surr)	98		75-121				07/27/20 10:00	07/27/20 11:57	1

Lab Sample ID: LCS 280-503545/1-A Matrix: Solid Analysis Batch: 503511

Analysis Batch: 503511							Prep Batch: 503545
	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Benzene	0.0500	0.0435		mg/Kg		87	75 - 135
Ethylbenzene	0.0500	0.0458		mg/Kg		92	73 - 125
Toluene	0.0500	0.0434		mg/Kg		87	77 - 122
m-Xylene & p-Xylene	0.0500	0.0466		mg/Kg		93	77 - 135
o-Xylene	0.0500	0.0459		mg/Kg		92	75 - 135
Xylenes, Total	0.100	0.0925		mg/Kg		93	76 - 135
LC	S LCS						

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		58-140
Toluene-d8 (Surr)	98		80_126
4-Bromofluorobenzene (Surr)	94		76 <i>-</i> 127
Dibromofluoromethane (Surr)	97		75 <i>-</i> 121

Lab Sample ID: LCSD 280-503545/2-A Matrix: Solid ____

Analysis Batch: 503511					Prep Ba	itch: 50)3545
	Spike	LCSD LCSD			%Rec.		RPD
Analyte	Added	Result Qualifier	Unit	D %Rec	Limits	RPD	Limit
Benzene	0.0500	0.0434	mg/Kg	87	75 - 135	0	20
Ethylbenzene	0.0500	0.0451	mg/Kg	90	73 ₋ 125	2	20
Toluene	0:0500	0.0434	mg/Kg	87	77 - 122	0	20
m-Xylene & p-Xylene	0.0500	0.0457	mg/Kg	91	77 - 135	2	20
o-Xylene	0.0500	0.0458	mg/Kg	92	75 ₋ 135	0	20
Xylenes, Total	0.100	0.0915	mg/Kg	92	76 ₋ 135	1	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		58-140
Toluene-d8 (Surr)	98		80-126
4-Bromofluorobenzene (Surr)	94		76-127

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

ontrol Sample Dup rep Type: Total/NA

Job ID: 280-138764-1

%Rec. Limits 75 - 135 73 - 125

QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 28 Matrix: Solid Analysis Batch: 503511	0-503545/2-A			Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA Prep Batch: 503545
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits	
Dibromofluoromethane (Surr)	98	Quanner	75-121	
Lab Sample ID: 280-1387 Matrix: Solid Analysis Batch: 503511	′64-1 MS			Client Sample ID: A-47 WEST BACKGROUND SAMPLE Prep Type: Total/NA Prep Batch: 503545

	Sample	Sample	Spike	MS	MS			
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec
Benzene	ND		0.0452	0.0405		mg/Kg		89
Ethylbenzene	ND		0,0452	0.0400		mg/Kg		88
Toluene	ND		0.0452	0.0388		mg/Kg		86
m-Xylene & p-Xylene	ND		0.0452	0.0388		mg/Kg		86
o-Xylene	ND		0.0452	0.0394		mg/Kg		87
Xylenes, Total	ND		0.0904	0.0782		mg/Kg		86
	MS	MS						
Surrogate	%Recovery	Qualifier	Limits					
1,2-Dichloroethane-d4 (Surr)	102		58-140					
Toluene-d8 (Surr)	99		80 - 126					

76-127

75-121

96

97

Lab Sample ID: 280-138764-1 MSD Matrix: Solid Analysis Batch: 503511

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

Client Sample ID: A-47 WEST BACKGROUND SAMPLE Prep Type: Total/NA

Analysis Batch: 503511	Sampla	Sample	Emiles	Men	MOD				Prep Ba	atch: 50	
Analyte	•	•	Spike		MSD	11	_		%Rec.		RPD
		Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	ND		0.0476	0.0441		mg/Kg		93	75 - 135	9	20
Ethylbenzene	ND		0.0476	0.0427		mg/Kg		90	73 - 125	7	20
Toluene	ND		0.0476	0.0424		mg/Kg		89	77 ₋ 122	9	20
m-Xylene & p-Xylene	ND		0.0476	0.0413		mg/Kg		87	77 - 135	6	20
o-Xylene	ND		0.0476	0.0411		mg/Kg		86	75 ₋ 135	4	20
Xylenes, Total	ND		0.0953	0.0824		mg/Kg		86	76 - 135	5	20
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	104		58-140								
Toluene-d8 (Surr)	98		80_126								
4-Bromofluorobenzene (Surr)	96		76-127								
Dibromofluoromethane (Surr)	100		75_121								

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 280-50358 Matrix: Solid Analysis Batch: 503543								le ID: Method Prep Type: To Prep Batch:	otal/NA
A		MB				_	_		
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		2.0		mg/Kg		07/27/20 13:27	07/27/20 15:57	1

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QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-138764-1

Lab Sample ID: MB 280-50 Matrix: Solid Analysis Batch: 503543	03581/3-A							Cli	ent Sam	ple ID: Metho Prep Type: T	otal/NA
Analysis Batch, 505545										Prep Batch:	503581
	M	B MB									
Surrogate		ry Qualifier						-	Prepared	Analyzed	Dil Fa
a,a,a-Trifluorotoluene	ł	39	77 - 123					07/2	27/20 13:27	07/27/20 15:57	
Lab Sample ID: LCS 280-5 Matrix: Solid Analysis Batch: 503543	603581/1-A						Clier	nt Sa	mple ID:	Lab Control S Prep Type: T Prep Batch:	otal/N/
			Spike	LCS	LCS					%Rec.	00000
Analyte			Added	Result	Qualit	fier	Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO) -C6-C10			8.54	6.85			mg/Kg		80	75 - 135	
	LCS L	cs								0.1	
Surrogate	%Recovery Q	ualifier	Limits								
a,a,a-Trifluorotoluene	88		77 - 123								
Analysis Batch: 503543			0-11							Prep Batch:	50358 1
Analysis Batch: 503543 Analyte Gasoline Range Organics (GRO) -C6-C10			Spike Added 8.54	LCSD Result 7.32			Unit mg/Kg	D	%Rec	%Rec. Limits RPI	50358 1 RPE D Limi
Analyte Gasoline Range Organics (GRO)	LCSD LC	CSD	Added	Result				D		%Rec. Limits RPE	50358 ′ RPE D Limi
Analyte Gasoline Range Organics (GRO)	LCSD LC %Recovery Q		Added	Result				D		%Rec. Limits RPE	50358 1 RPE D Limi
Analyte Gasoline Range Organics (GRO) -C6-C10	LCSD LC %Recovery Q 90		Added 8.54	Result				D		%Rec. Limits RPE	RPE D Limi
Analyte Gasoline Range Organics (GRO) -C6-C10 Surrogate	%Recovery Q	ualifier	Added 8.54 <i>Limits</i> 77 - 123	Result				D		%Rec. Limits RPE	50358 1 RPE D Limi
Analyte Gasoline Range Organics (GRO) -C6-C10 Surrogate a,a,a-Trifluorotoluene	%Recovery Q	ualifier	Added 8.54 <i>Limits</i> 77 - 123	Result					86 ent Samp	%Rec. Limits RPD 75-135	50358 RPI 2 Limi 7 30
Analyte Gasoline Range Organics (GRO) -C6-C10 Surrogate a, a, a-Trifluorotoluene lethod: 8015B - Diesel Lab Sample ID: MB 280-50	%Recovery Q	ualifier	Added 8.54 <i>Limits</i> 77 - 123	Result					86 ent Samp	%Rec. Limits RPI 75-135	50358 RPI 2 Limi 7 30 7 30
Analyte Gasoline Range Organics (GRO) -C6-C10 Surrogate a,a,a-Trifluorotoluene lethod: 8015B - Diesel Lab Sample ID: MB 280-50 Matrix: Solid	%Recovery 90 90 Range Org 3887/1-A	ualifier	Added 8.54 <i>Limits</i> 77 - 123	Result					86 ent Samp	%Rec. Limits RPD 75-135	50358 RPI 2 Limi 7 30 7 30
Analyte Gasoline Range Organics (GRO) -C6-C10 Surrogate a,a,a-Trifluorotoluene lethod: 8015B - Diesel Lab Sample ID: MB 280-50 Matrix: Solid Analysis Batch: 504172 Analyte	%Recovery 90 90 Range Org 3887/1-A Mi Resu	J <mark>anics ([</mark> Janics ([3 MB It Qualifier	Added 8.54 <i>Limits</i> 77 - 123 DRO) (GC)	Result 7.32		fier		Clie	86 ent Samp	%Rec. Limits RPI 75-135	50358 RPI 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Analyte Gasoline Range Organics (GRO) -C6-C10 Surrogate a,a,a-Trifluorotoluene lethod: 8015B - Diesel Lab Sample ID: MB 280-50 Matrix: Solid Analysis Batch: 504172 Analyte Diesel Range Organics [C10-C28]	%Recovery 90 90 Range Org 3887/1-A Mi Resu	J <mark>anics ([</mark> Janics ([B MB	Added 8.54 <i>Limits</i> 77 - 123 DRO) (GC) RL 8.0	Result 7.32	Qualif 1DL U	lier Jnit ng/Kg	mg/Kg	Clie Pr 07/2	86 ent Samp repared 9/20 16:35	%Rec. Limits RPI 75-135 Dele ID: Method Prep Type: To Prep Batch: Analyzed 07/31/20 16:33	50358 RPI D Limi 7 30 30 30 30 30 30 30 30 20 20 20 20 20 20 20 20 20 20 20 20 20
Analyte Gasoline Range Organics (GRO) -C6-C10 Surrogate a,a,a-Trifluorotoluene lethod: 8015B - Diesel Lab Sample ID: MB 280-50 Matrix: Solid Analysis Batch: 504172 Analyte Diesel Range Organics [C10-C28]	%Recovery 90 90 Range Org 3887/1-A Mi Resu	J <mark>anics ([</mark> Janics ([B MB	Added 8.54 77 - 123 DRO) (GC)	Result 7.32	Qualif 1DL U	fier Jnit	mg/Kg	Clie Pr 07/2	86 ent Samp repared 9/20 16:35	%Rec. Limits RPD 75-135 Die ID: Method Prep Type: To Prep Batch: Analyzed	50358 RPI D Limi 7 3 3 3 3 4 Blanl otal/NJ 503887 Dil Fa
Analyte Gasoline Range Organics (GRO) -C6-C10 Surrogate a,a,a-Trifluorotoluene lethod: 8015B - Diesel Lab Sample ID: MB 280-50 Matrix: Solid Analysis Batch: 504172 Analyte Diesel Range Organics [C10-C28]	%Recovery Q 90 Range Org 3887/1-A Mi Resu Ni	J <mark>anics ([</mark> Janics ([B MB	Added 8.54 <i>Limits</i> 77 - 123 DRO) (GC) RL 8.0	Result 7.32	Qualif 1DL U	lier Jnit ng/Kg	mg/Kg	Clie Pr 07/2	86 ent Samp repared 9/20 16:35	%Rec. Limits RPI 75-135 Dele ID: Method Prep Type: To Prep Batch: Analyzed 07/31/20 16:33	50358 RPI D Limi 7 30 7 30 7 30 7 30 7 9 8 8 8 8 9 8 9 8 9 8 9 8 9 9 9 9 9 9
Analyte Gasoline Range Organics (GRO) -C6-C10 Surrogate a,a,a-Trifluorotoluene lethod: 8015B - Diesel Lab Sample ID: MB 280-50 Matrix: Solid	%Recovery Q. 90 Range Org 3887/1-A Mi Resu Ni Ni	janics ([] 3 MB It Qualifier	Added 8.54 <i>Limits</i> 77 - 123 DRO) (GC) RL 8.0	Result 7.32	Qualif 1DL U	lier Jnit ng/Kg	mg/Kg	Clie Pr 07/2 07/2	86 ent Samp repared 9/20 16:35	%Rec. Limits RPI 75-135 Dele ID: Method Prep Type: To Prep Batch: Analyzed 07/31/20 16:33	50358 ⁴ RPI 2 Limi 7 30 7 30

Matrix: Solid Analysis Batch: 504172							Prep Type: Total/NA Prep Batch: 503887
	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Diesel Range Organics [C10-C28]	132	105		mg/Kg	_	80	53 - 115
LCS	LCS						

	LUS	LUS	
Surrogate	%Recovery	Qualifier	Limits
o-Terphenyl	83		49_115

QC Sample Results

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-138764-1

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued) Lab Sample ID: LCS 280-503887/4-A **Client Sample ID: Lab Control Sample** Matrix: Solid Prep Type: Total/NA Analysis Batch: 504172 Prep Batch: 503887 LCS LCS Spike %Rec. Analyte Added Result Qualifier Limits Unit D %Rec Motor Oil (C20-C38) 334 326 57 - 115 mg/Kg 97 LCS LCS Surrogate %Recovery Qualifier Limits o-Terphenyl 49-115 91 Lab Sample ID: LCSD 280-503887/3-A Client Sample ID: Lab Control Sample Dup Matrix: Solid Prep Type: Total/NA Analysis Batch: 504172 Prep Batch: 503887 LCSD LCSD Spike %Rec. RPD Analyte Added Result Qualifier Unit %Rec Limits RPD D Limit **Diesel Range Organics** 132 116 mg/Kg 88 53 - 115 12 23 [C10-C28] LCSD LCSD Surrogate %Recovery Qualifier Limits o-Terphenyl 88 49-115 Lab Sample ID: LCSD 280-503887/5-A Client Sample ID: Lab Control Sample Dup Matrix: Solid Prep Type: Total/NA Analysis Batch: 504172 Prep Batch: 503887 Spike LCSD LCSD %Rec. RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit Motor Oil (C20-C38) 334 318 mg/Kg 57 - 115 95 2 30 LCSD LCSD Surrogate %Recovery Qualifier Limits o-Terphenyl 89 49-115

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MRL 280-503847/3								Clie	ent Sa	mple IC	: Lab Control Sample
Matrix: Solid Analysis Batch: 503847											Prep Type: Total/NA
			Spike		MRL	MRL	_				%Rec.
Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits
Chloride			5.00		4.48			mg/L		90	50 - 150
Lab Sample ID: MB 280-503718/2-/	4								Cli	ent San	nple ID: Method Blank
Matrix: Solid											Prep Type: Soluble
Analysis Batch: 503847											
-	MB	МВ									
Analyte	Result	Qualifier		RL		MDL	Unit		D P	repared	Analyzed Dil Fac
Chloride	ND		-	30			mg/Kg	3	_		07/30/20 00:54 1
Lab Sample ID: LCS 280-503718/1-	Α							Clie	ent Sa	mple IC	: Lab Control Sample
Matrix: Solid										· •	Prep Type: Soluble
Analysis Batch: 503847											op .jps: seissie
-			Spike		LCS	LCS					%Rec.
Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits
Chloride			1000		969	-		mg/Kg		97	90 - 110

f

QC Association Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill Job ID: 280-138764-1

GC/MS VOA

Analysis Batch: 503511

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
280-138764-1	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	8260B	503545
280-138764-2	A-47 EAST BACKGROUND SAMPLE	Total/NA	Solid	8260B	503545
MB 280-503545/3-A	Method Blank	Total/NA	Solid	8260B	503545
LCS 280-503545/1-A	Lab Control Sample	Total/NA	Solid	8260B	503545
LCSD 280-503545/2-A	Lab Control Sample Dup	Total/NA	Solid	8260B	503545
280-138764-1 MS	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	8260B	503545
280-138764-1 MSD	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	8260B	503545
Prep Batch: 503545					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-138764-1	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	5030B	
280-138764-2	A-47 EAST BACKGROUND SAMPLE	Total/NA	Solid	5030B	
MB 280-503545/3-A	Method Blank	Total/NA	Solid	5030B	
LCS 280-503545/1-A	Lab Control Sample	Total/NA	Solid	5030B	
LCSD 280-503545/2-A	Lab Control Sample Dup	Total/NA	Solid	5030B	
			a "''	50000	
280-138764-1 MS	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	5030B	

GC VOA

Analysis Batch: 503543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-138764-1	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	8015B	503581
280-138764-2	A-47 EAST BACKGROUND SAMPLE	Total/NA	Solid	8015B	503581
MB 280-503581/3-A	Method Blank	Total/NA	Solid	8015B	503581
LCS 280-503581/1-A	Lab Control Sample	Total/NA	Solid	8015B	503581
LCSD 280-503581/2-A	Lab Control Sample Dup	Total/NA	Solid	8015B	503581
Prep Batch: 503581					
Lab Sample ID		Prep Type	Matrix	Method	Prep Batch
Lab Sample ID 280-138764-1	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	5035	Prep Batch
Lab Sample ID 280-138764-1 280-138764-2	A-47 WEST BACKGROUND SAMPLE A-47 EAST BACKGROUND SAMPLE				Prep Batch
Lab Sample ID 280-138764-1	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	5035	Prep Batch

Total/NA

Solid

5035

GC Semi VOA

Prep Batch: 503887

LCSD 280-503581/2-A

Lab Control Sample Dup

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batci
280-138764-1	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	3546	
280-138764-2	A-47 EAST BACKGROUND SAMPLE	Total/NA	Solid	3546	
MB 280-503887/1-A	Method Blank	Total/NA	Solid	3546	
_CS 280-503887/2-A	Lab Control Sample	Total/NA	Solid	3546	
_CS 280-503887/4-A	Lab Control Sample	Total/NA	Solid	3546	
_CSD 280-503887/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
LCSD 280-503887/5-A	Lab Control Sample Dup	Total/NA	Solid	3546	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-138764-1	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	8015B	503887
280-138764-2	A-47 EAST BACKGROUND SAMPLE	Total/NA	Solid	8015B	503887

3

Job ID: 280-138764-1

QC Association Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

GC Semi VOA (Continued)

Analysis Batch: 5041	72 (Continued)				
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
MB 280-503887/1-A	Method Blank	Total/NA	Solid	8015B	503887
LCS 280-503887/2-A	Lab Control Sample	Total/NA	Solid	8015B	503887
LCS 280-503887/4-A	Lab Control Sample	Total/NA	Solid	8015B	503887
LCSD 280-503887/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	503887
LCSD 280-503887/5-A	Lab Control Sample Dup	Total/NA	Solid	8015B	503887

General Chemistry

Analysis Batch: 503267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
280-138764-1	A-47 WEST BACKGROUND SAMPLE	Total/NA	Solid	Moisture	
280-138764-2	A-47 EAST BACKGROUND SAMPLE	Total/NA	Solid	Moisture	
each Batch: 503718	3				
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batcl
280-138764-1	A-47 WEST BACKGROUND SAMPLE	Soluble	Solid	DI Leach	
280-138764-2	A-47 EAST BACKGROUND SAMPLE	Soluble	Solid	DI Leach	
MB 280-503718/2-A	Method Blank	Soluble	Solid	DI Leach	
LCS 280-503718/1-A	Lab Control Sample	Soluble	Solid	DI Leach	
nalysis Batch: 5038	347				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
280-138764-1	A-47 WEST BACKGROUND SAMPLE	Soluble	Solid	9056A	503718
280-138764-2	A-47 EAST BACKGROUND SAMPLE	Soluble	Solid	9056A	50371
MB 280-503718/2-A	Method Blank	Soluble	Solid	9056A	50371
CS 280-503718/1-A	Lab Control Sample	Soluble	Solid	9056A	50371
MRL 280-503847/3	Lab Control Sample	Total/NA	Solid	9056A	

Job ID: 280-138764-1

Matrix: Solid

Lab Sample ID: 280-138764-1

Lab Chronicle

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Client Sample ID: A-47 WEST BACKGROUND SAMPLE Date Collected: 07/20/20 10:05 Date Received: 07/22/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.264 g	5 mL	503545	07/27/20 10:00	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	503511	07/27/20 13:51	GPM	TAL DEN
Total/NA	Prep	5035			4.162 g	5 mL	503581	07/20/20 10:05	AAR	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	503543	07/27/20 17:16	CAS	TAL DEN
Total/NA	Prep	3546			15.0 g	1 mL	503887	07/29/20 16:35	DCL	TAL DEN
Total/NA	Analysis	8015B		1			504172	07/31/20 19:07	MAM	TAL DEN
Soluble	Leach	DI Leach			10.23 g	100 mL	503718	07/28/20 12:24	JAP	TAL DEN
Soluble	Analysis	9056A		1	5 mL	5 mL	503847	07/30/20 02:57	JAP	TAL DEN
Total/NA	Analysis	Moisture		1			503267	07/23/20 15:17	DLB	TAL DEN

Client Sample ID: A-47 EAST BACKGROUND SAMPLE Date Collected: 07/20/20 09:50 Date Received: 07/22/20 09:00

Lab Sample ID: 280-138764-2 Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			3.347 g	5 mL	503545	07/27/20 10:00	GPM	TAL DEN
Total/NA	Analysis	8260B		1	5 g	5 mL	503511	07/27/20 14:59	GPM	TAL DEN
Total/NA	Prep	5035			3.445 g	5 mL	503581	07/20/20 09:50	AAR	TAL DEN
Total/NA	Analysis	8015B		1	0.1 mL	5 mL	503543	07/27/20 17:36	CAS	TAL DEN
Total/NA	Prep	3546			15.2 g	1 mL	503887	07/29/20 16:35	DCL	TAL DEN
Total/NA	Analysis	8015B		1			504172	07/31/20 19:29	MAM	TAL DEN
Soluble	Leach	DI Leach			10.5 4 g	100 mL	503718	07/28/20 12:24	JAP	TAL DEN
Soluble	Analysis	9056A		1	5 mL	5 mL	503847	07/30/20 03:14	JAP	TAL DEN
Total/NA	Analysis	Moisture		31			503267	07/23/20 15:17	DLB	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Wapiti Operating, LLC Project/Site: Produced Water Spill

Job ID: 280-138764-1

Laboratory: Eurofins TestAmerica, Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date		
A2LA	Dept. of Defense ELAP	2907.01	10-31-21		
A2LA	ISO/IEC 17025	2907_01	10-31-21		
Alabama	State Program	40730	09-30-12 *		
Alaska (UST)	State	18-001	02-08-21		
Arizona	State	AZ0713	12-20-20		
Arkansas DEQ	State	19-047-0	06-01-21		
California	State	2513	01-08-21		
Connecticut	State	PH-0686	09-30-20		
Florida	NELAP	E87667-57	07-01-21		
Georgia	State	4025-011	01-09-21		
Illinois	NELAP	2000172019-1	04-30-21		
lowa	State	IA#370	12-01-20		
Kansas	NELAP	E-10166	04-30-21		
Louisiana	NELAP	30785	06-30-14 *		
Louisiana	NELAP	30785	06-30-21		
Maine	State	2019011 (231)	03-03-21		
Vinnesota	NELAP	1788752	12-31-20		
Nevada	State	CO000262020-1	07-31-20		
New Hampshire	NELAP	205319	04-29-21		
New Jersey	NELAP	190002	06-30-21		
New York	NELAP	59923	04-01-21		
North Carolina (WW/SW)	State	358	12-31-20		
North Dakota	State	R-034	01-08-21		
Oklahoma	State	2018-006	08-31-20		
Oregon	NELAP	4025-011	01-08-21		
Pennsylvania	NELAP	013	07-31-21		
South Carolina	State	72002001	01-08-21		
Texas	NELAP	T104704183-19-17	09-30-20		
JS Fish & Wildlife	US Federal Programs	058448	07-31-20		
JSDA	US Federal Programs	P330-18-00099	03-26-21		
Jtah	NELAP	CO000262019-11	07-31-20		
/irginia	NELAP	10490	06-14-21		
Vashington	State	C583-19	08-05-20		
Vest Virginia DEP	State	354	11-30-20		
Visconsin	State	999615430	08-31-20		
Nyoming (UST)	A2LA	2907.01	10-31-21		

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Furofins TestAmerica, Denver 955 Yarrow Street rvada, CO 80002 hone (303) 736-0100 Fax (303) 431-7171	C	Chain d	of Cus	tody R	eco	rd					D(#	en ² 2	ve 80	er)		🔆 curofins	Environment Te Testamentes
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leni Contact Ir: Randy Madison	Phone 2	47)-	1230	E-Mai	t						-					Page	
umpany	1512	13		Shen	y.turni	ar en te	stan	ienca	-	7.5				_		Job #	
Vapili Operating, LLC	Due Date Request	led:				-			An	alysis	Requ	lested	r - r-		_		
O. Box 190 309 Silver Street																Preservation Co	des: M-Hexane
lalon	TAT Requested (d	ayat:									11					B - NaOH C - Zh Acetate	N - None O - AsNaO2
tale Zip IM, 87740															0	D - Nitrie Acid E - NaHSO4	P - Na2045 Q - Na2503
hone: 75-445-6706(Tel)	PO #						5	N								F - MeOH G - America	R - Na2S203 S - H2SO4
mail	Pay by Credit C WO #	ard			(ON L	R	015 13	Standard 8015 Ilst				1				H - Ascerbic Acid	T - TSP Dodecahyd
madison@wapilienergy.com	Project #				la (Yea or No es or No)	vieth,	ard B	ard 8	GC/MS			Ľ.			2	L DIWater	U - Acelone V - MCAA
Produced Water Spill	28020400				10 2	Scat	Stand	preto	þy GO						containers	L - EDA	W - pH 4-5 Z - other (specify)
(*A-47	SSOW#				Sampl	(MOD) Local	- (MOD) Standard 8015 list	(ao	BTEX {								
			Sample	Matrix	MS/M		W.	GRO - (MOD)	B (Q)						ber of		
			Туре	(Wrwster S-sold		28D	DRO	GR) M	sture					Num		
ample Identification	Sample Date	Sample Time	(C=comp, G=grab)	Orwastwoll, Drivativoll,	Field FII Perform	9056A	80158	80158	8260B - (MOD)	% Moisture					Total Number		
	>	><		tion Code:	K				-	N					×	Special	nstructions/Note:
4-47 West Background					T									-	-		
Scalle	カんしか	DOS	G		H	V	X	X	V	M				++			
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H-4] Last Background		-			⊢⊢												
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Possible Hazard Identification							Oin			6.000							
Non-Hazard Flammable Skin Irritant	ison B Unkr	nown	Radiologica	ń.,	36		etum	Dosa 1 Tol	u (A Clien	ree ma	X	ssessei sposal i	a Ir san Bull ab	nples are	e retai	i <mark>ned longer than</mark> hive For	S
Deliverable Requested: I, II, III, IV, Other (specify)					Sp	ecial	Instr	uctio	ns/Q	C Requ	iremen	its:	by Lau		AICI	nive For	Months
Empty Kit Relinquished by:		Date:			Time	-				-	_	Met	hod of S	Noment			
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Relinquished by	Dato/Time:			Company			erved t							Date/Time			Company
Custody Seals Intact: Custody Seal No.						Cool	er Tor	прега	ture(s	C and	Other Ro	marks				=1 171221	
A Yes A No										0.00	0.0	- 0.1	117	8#11	D K	51,571271	202.0

Page 20 of 21

8/3/2020

Received by OCD: 9/15/2020 10:28:56 AM

Login Sample Receipt Checklist

Client: Wapiti Operating, LLC

Login Number: 138764

Job Number: 280-138764-1

List Source: Eurofins TestAmerica, Denver

List Number: 1 Creator: Lubin, Julius C		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details,
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided,	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

District I 1625 N. French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV 1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico Energy, Minerals and Natural Resources **Oil Conservation Division** 1220 S. St Francis Dr. Santa Fe, NM 87505

CONDITIONS

Operator:	OGRID:			
Wapiti Operating, LLC	328741			
1310 W Sam Houston PKWY N	Action Number:			
Houston, TX 77043	10192			
	Action Type:			
	[C-141] Release Corrective Action (C-141)			

CONDITIONS Created Condition By Due to the natural conditions of where the release occurred, Paragraph 1 of Subsection D of 19.15.29.13 NMAC requirement should not be considered as nvelez stringently. Therefore, the report content is satisfactory and approved. Release resolved.

CONDITIONS

Action 10192

Condition Date

10/28/2022

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