Final Site Closure Report
for the
Givan No. 1 Lease
Washington County, Colorado

Prepared for:

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May 2018

1.0 INTRODUCTION

Nicholson GeoSolutions LLC was retained by HRM Resources II, LLC to perform final site closure activities at the Givan No. 1 Lease, located in the NE¼ NW¼ Section 8, T6N, R60W, Morgan County, Colorado. Remediation and reclamation activities were conducted in accordance with the Colorado Oil and Gas Conservation Commission (COGCC) Series 900 and 1000 Rules.

The site formerly consisted of a wellhead, a horizontal separator, and a tank battery with two 300-bbl storage tanks and a partially buried produced water vessel. Figure 1 shows the site layout. The well was plugged and abandoned and all surface facilities were removed from the site by others in February 2018. No impacted soil was reported to be present at the wellhead area or storage tank area.

The partially buried produced water vessel was removed on February 13th, 2018 by Shorty's Oilfield Service with oversight by Nicholson GeoSolutions under COGCC Remediation #11001. No impacted soil was encountered during the removal of the vessel.

Impacted soil was encountered at the surface at the location of the horizontal separator. Associated impacted soil was excavated and transported to the Waste Management Buffalo Ridge Landfill located near Keenesburg, Colorado for disposal. Excavation of the separator area, backfilling, regrading, reseeding, and installation of erosion controls was performed by Shorty's and Jayhawk Grading, Inc. with oversight from Nicholson GeoSolutions.

2.0 REMEDIATION AND RECLAMATION ACTIVITIES

The following sections discuss the site remediation and reclamation procedures. Photographs that document the excavation and removal of impacted soils from the separator area, site reclamation, and installation of erosion controls are included in Appendix A.

Impacted soils from the separator area were excavated and trucked to the landfill for disposal. Appendix B contains a summary of the landfill gatehouse tickets. Visual observations were conducted by Nicholson GeoSolutions during excavation and used to evaluate when the approximate limits of the impacted soils had been reached. Confirmation samples were then collected to assess whether compliance with the COGCC Table 910-1 standards had been achieved. Additional soil was excavated if the initial confirmation samples were above the COGCC standards and the area resampled. A total of approximately 1,173 yards of soil was excavated and transported to the landfill for disposal. The laboratory reports are included in Appendix C.

2.1 Excavation Activities

Excavation of the impacted soil at the separator area was initiated on February 26th, 2018. Petroleum-contaminated soil was present beneath the former separator to an approximate maximum depth of 20 feet.

A total of twelve confirmation samples were collected from the sidewalls and base of the excavation and analyzed for sodium adsorption ratio (SAR), pH, conductivity, Total Volatile Petroleum Hydrocarbons (TVPH – gasoline range), Total Extractable Petroleum Hydrocarbons (TEPH – diesel and motor oil range), and BTEX compounds (benzene, toluene, ethylbenzene, and xylenes). The final extent of the excavation and the locations of the confirmation samples are shown on Figure 2. Table 1 provides the results for the initial confirmation samples collected on February 26th, 2018.

Table 1 Separator Area Excavation Initial Confirmation Sample Results

Sample ID, Location, and depth	pH	SAR	SC	Benzene (mg/kg)	TVPH – Gasoline (mg/kg)	TEPH – Diesel (mg/kg)	TEPH – Motor Oil (mg/kg)
Givan-SA-1 (bottom 16')	7.99 J	2.01	0.398	**1.87**	**1,640**	**697**	**11.7**
Givan-SA-2 (west 8')	8.41 J	1.26	0.126	**1.13**	**1,810**	**628**	**17.2**
Givan-SA-3 (south 8')	8.02 J	0.585	0.188	0.0233	71.9	40	13.5
Givan-SA-4 (east 8')	8.23 J	1.19	0.20	0.00188	0.156	<4.0	<4.0
Givan-SA-5 (north 12')	8.11 J	0.974	0.19	0.00128	<0.1	<4.0	<4.0
Table 910-1 Standard	6-9	<12	<4.0	0.17	500[1]		

[1]The standard is 500 mg/kg for the combined TEPH and TVPH results
J= estimated concentration
Bold values exceed standards

The combined results for petroleum hydrocarbons were above the standard of 500 mg/kg for the initial confirmation samples from the west wall and the base of the excavation. All other results were below the standards. Additional impacted soil was also present on the south wall beneath the flowlines to the separator.

In response to the initial confirmation sample results, additional soil was removed from the west and south walls and the base of the skim pit excavation. Three additional confirmation samples were collected from the west wall and the base of the excavation on March 13th, 2018. Table 2 provides these results.

Table 2 Additional Confirmation Sample Results – March 13, 2018

Sample ID, Location, and depth	pH	SAR	SC	Benzene (mg/kg)	TVPH – Gasoline (mg/kg)	TEPH – Diesel (mg/kg)	TEPH – Motor Oil (mg/kg)
Givan-SA-6 (east bottom 20')	8.00 J	0.793	0.201	0.00183	<0.1	<4.0	5.24
Givan-SA-7 (west 10')	8.13 J	0.743	0.512	0.000691	<0.1	9.48	<4.0
Givan-SA-8 (west bottom 20')	8.15 J	0.933	0.217	0.00607	2.08	<4.0	<4.0
Table 910-1 Standard	6-9	<12	<4.0	0.17	500[1]		

[1]The standard is 500 mg/kg for the combined TEPH and TVPH results
J= estimated concentration

All results for the three additional confirmation samples were below the standards. Additional impacted soil was subsequently removed from the south and southwest walls and the base of the excavation. Four additional confirmation samples were collected from the south and southwest walls and the base of the excavation on March 28th, 2018. Table 3 provides these results.

Table 3 Additional Confirmation Sample Results – March 28, 2018

Sample ID, Location, and depth	pH	SAR	SC	Benzene (mg/kg)	TVPH – Gasoline (mg/kg)	TEPH – Diesel (mg/kg)	TEPH – Motor Oil (mg/kg)
Givan-SA-9 (south 8')	8.11 J	1.23	0.394	0.00524	0.451	9.17	<4.0
Givan-SA-10 (southwest 8')	7.93 J	0.463	0.633	0.00112	<0.1	<4.0	<4.0
Givan-SA-11 (south bottom 12')	8.00 J	0.401	0.654	0.00131	<0.1	<4.0	<4.0
Givan-SA-12 (south 6')	8.03 J	1.22	0.787	0.000904	<0.1	<4.0	<4.0
Table 910-1 Standard	6-9	<12	<4.0		500[1]		

[1]The standard is 500 mg/kg for the combined TEPH and TVPH results
J= estimated concentration

All results for the four final confirmation samples were below the standards. After receipt of the confirmation sample results, the excavation was backfilled using clean fill imported to the site and the area was regraded.

2.2 Installation of Erosion Controls and Reseeding

During the excavation of the separator area, erosion controls were installed along the west side of the excavation to protect the adjacent ephemeral drainage. The sidewall of the drainage was rebuilt, reseeded with a dryland pasture seed mix by hand, and covered with erosion control blankets. A line of straw waddles was installed along the top edge of the blankets to prevent the formation of rills on the repaired sidewall of the drainage. A silt fence was also installed along the base of the blankets on the west side to further protect the drainage.

After backfilling of the excavation, portions of the site were reseeded to provide a 50-foot wide buffer strip of grass between the adjacent field and the ephemeral drainage. The remainder of the site, including the access road, the wellhead area, and portions of the tank area, were deep ripped to allow these areas to revert to cultivation at the request of the landowner.

Table 4 provides the seed mix details.

Table 4 Seed Mix Details

Species	Variety	% Pure	Germ %	Origin
Western Wheatgrass	Arriba	38.37	95.00	Wyoming
Sideoats Grama	Vaughn	30.87	63.00	Kansas
Green Needle	Lodorm	12.63	93.00	Washington
Switchgrass	Blackwell	5.63	95.00	Kansas
Blue Grama	Lovington	3.44	86.00	Colorado
Other Crop			0.53	
Inert Matter			8.52	
Weed Seed			0.02	

Seed provided by Buffalo Brand Seed, Greeley, Colorado

2.3 Data Quality Review

A data quality review was conducted using the quality assurance reports supplied by the laboratory and standard EPA data validation guidance. All analyses were conducted within the recommended holding times, except for pH for all samples. All pH results were qualified as estimated "J". All method blank results were reported as not detected above the method reporting limits. All laboratory control sample (LCS), surrogate, laboratory duplicate, and matrix spike/matrix spike duplicate (MS/MSD) recoveries were within the laboratory control limits. All results are usable for the intended purposes of this remediation.

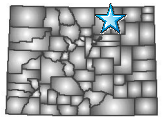
3.0 CERTIFICATION

Nicholson GeoSolutions LLC has prepared this report using all available site data and professional judgement. If you have any questions please call me at 303-601-2023.

Nicholson GeoSolutions LLC

David K. Nicholson, P.G.
Principal Geologist

GeoSolutions NICHOLSON



Morgan County, Co

0 75 150

Feet

1 " = 150 '

Legend

XXX Access Road - 865'

Storage Tank Reclamation Area (0.31 ac)

Wellhead Reclamation Area (0.47 ac)

HRM Resources II, LLC

Givan No. 1
Final Reclamation

Figure 1

February 2018

GeoSolutions Nicholson

Morgan County, Co

0 30 60
Feet
1 " = 60 '

Legend

- Access Road - 865'
- Pit Perimeter
- Storage Tank Reclamation Area (0.31 ac)
- Wellhead Reclamation Area (0.47 ac)
- Sample

HRM Resources II, LLC

Givan No. 1
Separator Area
Excavation

Figure 2

March 2018

Appendix A
Photographs

Givan No. 1 Lease

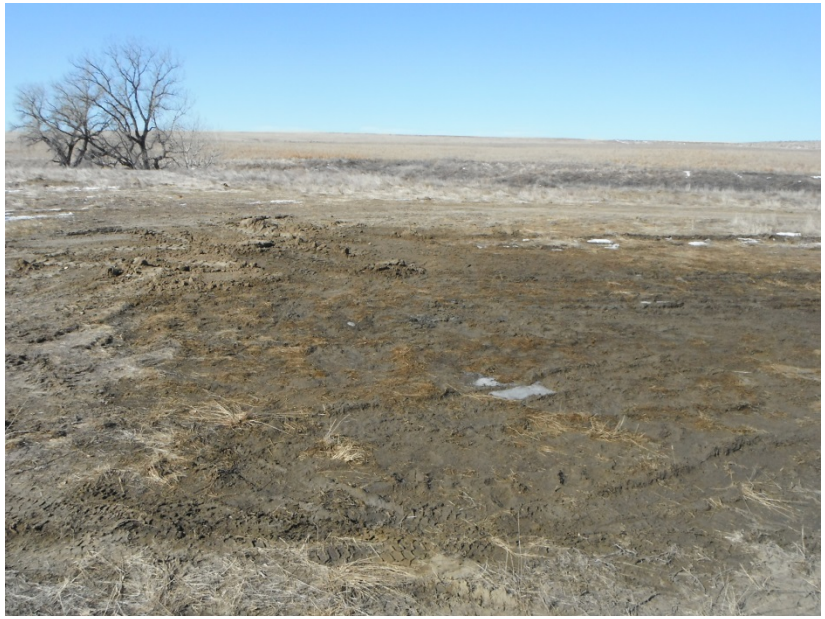
Access road

Wellhead prior to abandonment

Former separator location showing stained soil

Tank area after tank removal

Impacted soil on surface at separator



Wellhead area after well abandonment

Impacted soil beneath separator

Impacted soil from separator

Excavation of soil impacts

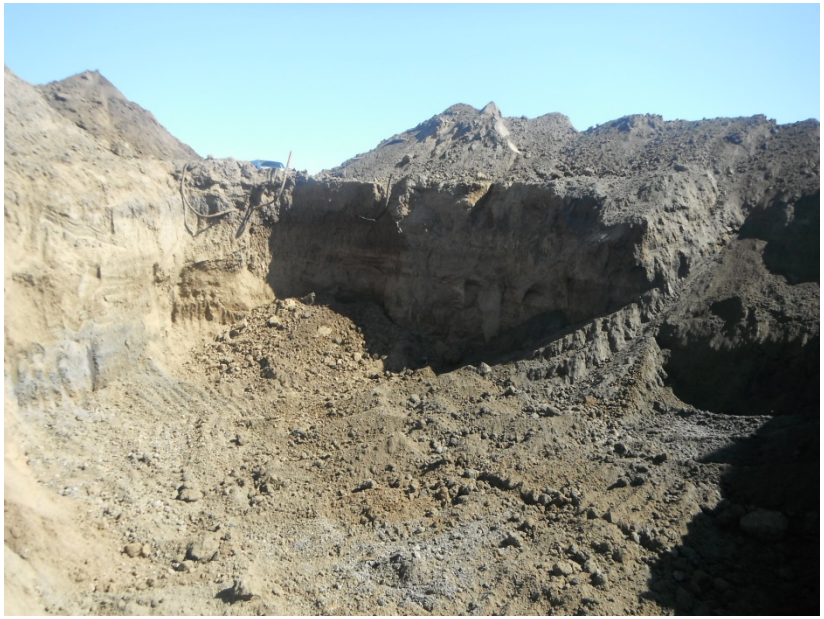
Excavation of soil impacts

Impacted soil on west side of excavation

Separator excavation looking west

Unimpacted shale in floor of excavation

Impacted soil in excavation



Final excavation looking east

Final excavation looking south

Final excavation looking west

Final excavation looking northwest

Final excavation looking northeast

Creating flat surface on top of dike

Installation of erosion control blankets

Installation of erosion control blankets

Reconstructed drainage wall looking northwest

Separator excavation area after backfilling looking southwest

Erosion controls

Separator excavation area after backfilling looking south

Separator excavation area after backfilling looking east

Tank area looking north

Hand seeding

Deep ripping of tank area

Site after reseeding and ripping

Appendix B
Landfill Gatehouse Summary

Gatehouse Summary_Givan
BRLF - Givan

Ticket Date	Ticket ID	MAS Unique ID	Customer	Generator	Manifest	Profile	Truck	Material	Material Description	Origin	Rate Unit	Rate Qty	Yards	Tons
2/27/2018	1004689	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448937	122960CO	8	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	10	10	11.9
3/2/2018	1004989	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448921	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	12	12	13.59
3/2/2018	1005033	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448918	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	10	10	15.47
3/5/2018	1005184	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448920	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	10	10	14.33
3/5/2018	1005224	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448919	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	10	10	13.29
3/5/2018	1005263	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448925	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	10	10	13.21
3/6/2018	1005326	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448922	122960CO	8	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	12.76
3/6/2018	1005341	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448926	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	10	10	14.37
3/6/2018	1005350	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448924	122960CO	8	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	10	10	13.81
3/6/2018	1005359	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448927	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	10	10	15.29
3/7/2018	1005413	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	448923	122960CO	8	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	10	10	10.78
4/17/2018	1008773	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437734	122960CO	390	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	24.29
4/17/2018	1008779	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437738	122960CO	106	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum		CYD	17	17	21.91
4/17/2018	1008812	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437740	122960CO	11	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	23.29
4/17/2018	1008821	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437743	122960CO	24	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	23.27
4/17/2018	1008823	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437741	122960CO	928	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.2
4/17/2018	1008824	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437742	122960CO	R-105	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.49
4/17/2018	1008825	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437744	122960CO	7	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.56
4/17/2018	1008826	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437745	122960CO	5	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	23.51
4/17/2018	1008829	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437747	122960CO	77	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.61
4/17/2018	1008830	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437746	122960CO	16	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.93
4/17/2018	1008846	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437748	122960CO	C10	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	25.4
4/17/2018	1008850	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437750	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.42
4/17/2018	1008851	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437751	122960CO	4	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	23.27
4/17/2018	1008861	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437749	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	24.62
4/17/2018	1008864	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437752	122960CO	106	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.55
4/17/2018	1008871	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437754	122960CO	390	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.75

Gatehouse Summary_Givan
BRLF - Givan

Ticket Date	Ticket ID	MAS Unique ID	Customer	Generator	Manifest	Profile	Truck	Material	Material Description	Origin	Rate Unit	Rate Qty	Yards	Tons
4/17/2018	1008872	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437755	122960CO	45	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	23.81
4/17/2018	1008877	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437756	122960CO	11	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.16
4/17/2018	1008881	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437758	122960CO	16	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.93
4/17/2018	1008882	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437759	122960CO	928	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	23.8
4/17/2018	1008883	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437760	122960CO	R-105	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	22.68
4/17/2018	1008884	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437761	122960CO	7	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	24.17
4/17/2018	1008885	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437762	122960CO	5	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	22.85
4/18/2018	1008907	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437757	122960CO	24	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	22.37
4/18/2018	1008925	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437771	122960CO	7	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	21.8
4/18/2018	1008932	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437779	122960CO	RS119	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	20.98
4/18/2018	1008933	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437763	122960CO	16	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	20.44
4/18/2018	1008934	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437764	122960CO	77	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	21.89
4/18/2018	1008936	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437766	122960CO	11	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	21.32
4/18/2018	1008937	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437767	122960CO	4	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	17.65
4/18/2018	1008939	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437768	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	17.93
4/18/2018	1008940	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437769	122960CO	7	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	19.96
4/18/2018	1008942	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437770	122960CO	76	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	19.44
4/18/2018	1008947	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437772	122960CO	5	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	21.44
4/18/2018	1008948	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437780	122960CO	390	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	21.48
4/18/2018	1008949	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437773	122960CO	106	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	21.59
4/18/2018	1008950	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437774	122960CO	103	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	20.97
4/18/2018	1008952	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437775	122960CO	12	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	24.5
4/18/2018	1008954	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437777	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	24.61
4/18/2018	1008956	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437778	122960CO	24	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	24.65
4/18/2018	1008958	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437781	122960CO	45	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	23.61
4/18/2018	1008959	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437776	122960CO	C10	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	24.71
4/18/2018	1008966	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437782	122960CO	77	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	24.74

Gatehouse Summary_Givan

BRLF - Givan

Ticket Date	Ticket ID	MAS Unique ID	Customer	Generator	Manifest	Profile	Truck	Material	Material Description	Origin	Rate Unit	Rate Qty	Yards	Tons
4/18/2018	1008967	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437783	122960CO	16	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	23.4
4/18/2018	1008968	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437786	122960CO	4	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	21.09
4/18/2018	1008969	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437787	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	21.99
4/18/2018	1008970	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437788	122960CO	7	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	22.1
4/18/2018	1008972	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437789	122960CO	76	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	23.64
4/18/2018	1008979	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437791	122960CO	103	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	22.03
4/18/2018	1008980	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437790	122960CO	106	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	21.28
4/18/2018	1008985	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437792	122960CO	7	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	22.33
4/18/2018	1008986	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437793	122960CO	5	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	18.94
4/18/2018	1008987	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437795	122960CO	24	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	17.92
4/18/2018	1008995	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437794	122960CO	C10	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	23.39
4/18/2018	1009005	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437765	122960CO	301	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	17.79
4/17/2018	1009018	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437732	122960CO	45	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	22.13
4/17/2018	1009019	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437733	122960CO	C10	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	26.01
4/17/2018	1009020	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437736	122960CO	4	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	22.67
4/17/2018	1009021	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437735	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	23.35
4/17/2018	1009022	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437737	122960CO	1	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	24.12
4/17/2018	1009023	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437739	122960CO	103	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVEN #1	CYD	17	17	23.12
4/17/2018	1009404	165222433001	HRM RESOURCES II, LLC	125-HRMRESOURCESIILLC	437753	122960CO	103	Cont Soil Pet-Cubic Yards	Cont. Soil - Petroleum	GIVAN 1	CYD	17	17	23.38

Appendix C
Laboratory Reports

ANALYTICAL REPORT

March 08, 2018

HRM Resources, LLC - Denver, CO

Sample Delivery Group:	L974075
Samples Received:	03/01/2018
Project Number:	
Description:	Givan

Report To: Dave Nicholson
410 17th St., Ste. 1600
Denver, CO 80202

Entire Report Reviewed By:

Mark W. Beasley
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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GIVAN-SA-1 L974075-01 Solid

Collected by: D. Nicholson | Collected date/time: 02/26/18 12:20 | Received date/time: 03/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1080546	1	03/07/18 08:00	03/08/18 11:25	CCE
Wet Chemistry by Method 9045D	WG1080080	1	03/05/18 10:00	03/05/18 12:00	MLW
Wet Chemistry by Method 9050AMod	WG1079579	1	03/02/18 15:12	03/02/18 16:01	MA
Volatile Organic Compounds (GC) by Method 8015/8021	WG1079987	250	03/02/18 10:43	03/03/18 07:30	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1080432	1	03/05/18 10:07	03/06/18 06:43	ACM
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1080432	5	03/05/18 10:07	03/06/18 23:02	ACM

GIVAN-SA-2 L974075-02 Solid

Collected by: D. Nicholson | Collected date/time: 02/26/18 12:25 | Received date/time: 03/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1080546	1	03/07/18 08:00	03/08/18 11:29	CCE
Wet Chemistry by Method 9045D	WG1080080	1	03/05/18 10:00	03/05/18 12:00	MLW
Wet Chemistry by Method 9050AMod	WG1079579	1	03/02/18 15:12	03/02/18 16:01	MA
Volatile Organic Compounds (GC) by Method 8015/8021	WG1079987	500	03/02/18 10:43	03/03/18 07:55	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1080432	1	03/05/18 10:07	03/06/18 06:57	ACM
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1080432	5	03/05/18 10:07	03/06/18 23:15	ACM

GIVAN-SA-3 L974075-03 Solid

Collected by: D. Nicholson | Collected date/time: 02/26/18 12:30 | Received date/time: 03/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1080546	1	03/07/18 08:00	03/08/18 11:32	CCE
Wet Chemistry by Method 9045D	WG1080080	1	03/05/18 10:00	03/05/18 12:00	MLW
Wet Chemistry by Method 9050AMod	WG1079579	1	03/02/18 15:12	03/02/18 16:01	MA
Volatile Organic Compounds (GC) by Method 8015/8021	WG1079987	50	03/02/18 10:43	03/05/18 01:25	DWR
Volatile Organic Compounds (GC) by Method 8021	WG1079987	1	03/02/18 10:43	03/03/18 08:19	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1080432	1	03/05/18 10:07	03/06/18 07:12	ACM

GIVAN-SA-4 L974075-04 Solid

Collected by: D. Nicholson | Collected date/time: 02/26/18 12:35 | Received date/time: 03/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1080546	1	03/07/18 08:00	03/08/18 11:42	CCE
Wet Chemistry by Method 9045D	WG1080080	1	03/05/18 10:00	03/05/18 12:00	MLW
Wet Chemistry by Method 9050AMod	WG1079579	1	03/02/18 15:12	03/02/18 16:01	MA
Volatile Organic Compounds (GC) by Method 8015/8021	WG1079987	1	03/02/18 10:43	03/05/18 01:47	DWR
Volatile Organic Compounds (GC) by Method 8021	WG1079987	1	03/02/18 10:43	03/03/18 08:43	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1080432	1	03/05/18 10:07	03/06/18 06:15	ACM

GIVAN-SA-5 L974075-05 Solid

Collected by: D. Nicholson | Collected date/time: 02/26/18 14:40 | Received date/time: 03/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1080546	1	03/07/18 08:00	03/08/18 11:45	CCE
Wet Chemistry by Method 9045D	WG1080080	1	03/05/18 10:00	03/05/18 12:00	MLW
Wet Chemistry by Method 9050AMod	WG1079579	1	03/02/18 15:12	03/02/18 16:01	MA
Volatile Organic Compounds (GC) by Method 8015/8021	WG1079987	1	03/02/18 10:43	03/05/18 02:09	DWR
Volatile Organic Compounds (GC) by Method 8021	WG1079987	1	03/02/18 10:43	03/03/18 09:06	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1080432	1	03/05/18 10:07	03/06/18 06:29	ACM

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley
Technical Service Representative

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.01		1	03/08/2018 11:25	WG1080546

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.99	T8	1	03/05/2018 12:00	WG1080080

Sample Narrative:

L974075-01 WG1080080: 7.99 at 21.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	398		10.0	1	03/02/2018 16:01	WG1079579

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	1.87		0.125	250	03/03/2018 07:30	WG1079987
Toluene	ND		1.25	250	03/03/2018 07:30	WG1079987
Ethylbenzene	6.56		0.125	250	03/03/2018 07:30	WG1079987
Total Xylene	51.7		0.375	250	03/03/2018 07:30	WG1079987
TPH (GC/FID) Low Fraction	1640		25.0	250	03/03/2018 07:30	WG1079987
(S) a,a,a-Trifluorotoluene(FID)	*105*		*77.0-120*		*03/03/2018 07:30*	WG1079987
(S) a,a,a-Trifluorotoluene(PID)	*120*		*75.0-128*		*03/03/2018 07:30*	WG1079987

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	697		20.0	5	03/06/2018 23:02	WG1080432
C28-C40 Oil Range	11.7		4.00	1	03/06/2018 06:43	WG1080432
(S) o-Terphenyl	*74.5*		*18.0-148*		*03/06/2018 23:02*	WG1080432
(S) o-Terphenyl	*71.4*		*18.0-148*		*03/06/2018 06:43*	WG1080432

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.26		1	03/08/2018 11:29	WG1080546

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	8.41	T8	1	03/05/2018 12:00	WG1080080

Sample Narrative:

L974075-02 WG1080080: 8.41 at 21.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	126		10.0	1	03/02/2018 16:01	WG1079579

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	1.13		0.250	500	03/03/2018 07:55	WG1079987
Toluene	ND		2.50	500	03/03/2018 07:55	WG1079987
Ethylbenzene	3.97		0.250	500	03/03/2018 07:55	WG1079987
Total Xylene	51.0		0.750	500	03/03/2018 07:55	WG1079987
TPH (GC/FID) Low Fraction	1810		50.0	500	03/03/2018 07:55	WG1079987
(S) a,a,a-Trifluorotoluene(FID)	*103*		*77.0-120*		*03/03/2018 07:55*	WG1079987
(S) a,a,a-Trifluorotoluene(PID)	*121*		*75.0-128*		*03/03/2018 07:55*	WG1079987

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	628		20.0	5	03/06/2018 23:15	WG1080432
C28-C40 Oil Range	17.2		4.00	1	03/06/2018 06:57	WG1080432
(S) o-Terphenyl	*80.7*		*18.0-148*		*03/06/2018 06:57*	WG1080432
(S) o-Terphenyl	*71.0*		*18.0-148*		*03/06/2018 23:15*	WG1080432

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.585		1	03/08/2018 11:32	WG1080546

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.02	T8	1	03/05/2018 12:00	WG1080080

Sample Narrative:

L974075-03 WG1080080: 8.02 at 21.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	188		10.0	1	03/02/2018 16:01	WG1079579

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0223		0.000500	1	03/03/2018 08:19	WG1079987
Toluene	ND		0.00500	1	03/03/2018 08:19	WG1079987
Ethylbenzene	0.127		0.000500	1	03/03/2018 08:19	WG1079987
Total Xylene	2.52		0.0750	50	03/05/2018 01:25	WG1079987
TPH (GC/FID) Low Fraction	71.9		5.00	50	03/05/2018 01:25	WG1079987
(S) a,a,a-Trifluorotoluene(FID)	*88.4*		*77.0-120*		*03/05/2018 01:25*	WG1079987
(S) a,a,a-Trifluorotoluene(FID)	*99.5*		*77.0-120*		*03/03/2018 08:19*	WG1079987
(S) a,a,a-Trifluorotoluene(PID)	*103*		*75.0-128*		*03/05/2018 01:25*	WG1079987
(S) a,a,a-Trifluorotoluene(PID)	*115*		*75.0-128*		*03/03/2018 08:19*	WG1079987

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	40.0		4.00	1	03/06/2018 07:12	WG1080432
C28-C40 Oil Range	13.5		4.00	1	03/06/2018 07:12	WG1080432
(S) o-Terphenyl	*67.8*		*18.0-148*		*03/06/2018 07:12*	WG1080432

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.19		1	03/08/2018 11:42	WG1080546

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	8.23	T8	1	03/05/2018 12:00	WG1080080

Sample Narrative:

L974075-04 WG1080080: 8.23 at 21C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	200		10.0	1	03/02/2018 16:01	WG1079579

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	0.00188		0.000500	1	03/03/2018 08:43	WG1079987
Toluene	ND		0.00500	1	03/03/2018 08:43	WG1079987
Ethylbenzene	0.00163	B	0.000500	1	03/03/2018 08:43	WG1079987
Total Xylene	0.00674		0.00150	1	03/05/2018 01:47	WG1079987
TPH (GC/FID) Low Fraction	0.156		0.100	1	03/05/2018 01:47	WG1079987
(S) a,a,a-Trifluorotoluene(FID)	*110*		*77.0-120*		*03/03/2018 08:43*	WG1079987
(S) a,a,a-Trifluorotoluene(FID)	*87.7*		*77.0-120*		*03/05/2018 01:47*	WG1079987
(S) a,a,a-Trifluorotoluene(PID)	*98.3*		*75.0-128*		*03/05/2018 01:47*	WG1079987
(S) a,a,a-Trifluorotoluene(PID)	*119*		*75.0-128*		*03/03/2018 08:43*	WG1079987

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	ND		4.00	1	03/06/2018 06:15	WG1080432
C28-C40 Oil Range	ND		4.00	1	03/06/2018 06:15	WG1080432
(S) o-Terphenyl	*80.1*		*18.0-148*		*03/06/2018 06:15*	WG1080432

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.974		1	03/08/2018 11:45	WG1080546

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	8.11	T8	1	03/05/2018 12:00	WG1080080

Sample Narrative:

L974075-05 WG1080080: 8.11 at 21C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	190		10.0	1	03/02/2018 16:01	WG1079579

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	0.00128	B	0.000500	1	03/03/2018 09:06	WG1079987
Toluene	ND		0.00500	1	03/03/2018 09:06	WG1079987
Ethylbenzene	0.000809	B	0.000500	1	03/03/2018 09:06	WG1079987
Total Xylene	0.00387		0.00150	1	03/05/2018 02:09	WG1079987
TPH (GC/FID) Low Fraction	ND		0.100	1	03/05/2018 02:09	WG1079987
(S) a,a,a-Trifluorotoluene(FID)	*87.4*		*77.0-120*		*03/05/2018 02:09*	WG1079987
(S) a,a,a-Trifluorotoluene(FID)	*110*		*77.0-120*		*03/03/2018 09:06*	WG1079987
(S) a,a,a-Trifluorotoluene(PID)	*98.6*		*75.0-128*		*03/05/2018 02:09*	WG1079987
(S) a,a,a-Trifluorotoluene(PID)	*119*		*75.0-128*		*03/03/2018 09:06*	WG1079987

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	ND		4.00	1	03/06/2018 06:29	WG1080432
C28-C40 Oil Range	ND		4.00	1	03/06/2018 06:29	WG1080432
(S) o-Terphenyl	*77.8*		*18.0-148*		*03/06/2018 06:29*	WG1080432

L974075-01 Original Sample (OS) • Duplicate (DUP)

(OS) L974075-01 03/05/18 12:00 • (DUP) R3290531-3 03/05/18 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.99	8.00	1	0.125		1

Sample Narrative:

OS: 7.99 at 21.4C

DUP: 8 at 21.7C

L974387-05 Original Sample (OS) • Duplicate (DUP)

(OS) L974387-05 03/05/18 12:00 • (DUP) R3290531-4 03/05/18 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.95	7.93	1	0.252		1

Sample Narrative:

OS: 7.95 at 21.1C

DUP: 7.93 at 21.1C

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3290531-1 03/05/18 12:00 • (LCSD) R3290531-2 03/05/18 12:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	9.67	9.58	9.58	99.1	99.1	99.0-101			0.000	1

Sample Narrative:

LCS: 9.58 at 21C

LCSD: 9.58 at 20.8C

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) WG1079579-1 03/02/18 16:01

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

L973908-01 Original Sample (OS) • Duplicate (DUP)

(OS) L973908-01 03/02/18 16:01 • (DUP) WG1079579-4 03/02/18 16:01

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	281	282	1	0.355		20

L974075-02 Original Sample (OS) • Duplicate (DUP)

(OS) L974075-02 03/02/18 16:01 • (DUP) WG1079579-5 03/02/18 16:01

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	126	125	1	0.797		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG1079579-2 03/02/18 16:01 • (LCSD) WG1079579-3 03/02/18 16:01

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Specific Conductance	559	564	563	101	101	85.0-115			0.177	20

Method Blank (MB)

(MB) R3290295-5 03/03/18 06:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000161	J	0.000120	0.000500
Toluene	0.000296	J	0.000150	0.00500
Ethylbenzene	0.000168	J	0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*113*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*122*			*75.0-128*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3290295-1 03/03/18 04:42 • (LCSD) R3290295-2 03/03/18 05:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0561	0.0532	112	106	71.0-121			5.18	20
Toluene	0.0500	0.0554	0.0522	111	104	72.0-120			5.98	20
Ethylbenzene	0.0500	0.0588	0.0557	118	111	76.0-121			5.36	20
Total Xylene	0.150	0.180	0.170	120	113	75.0-124			6.06	20
(S) a,a,a-Trifluorotoluene(FID)				*113*	*113*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*120*	*121*	*75.0-128*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3290295-3 03/03/18 05:30 • (LCSD) R3290295-4 03/03/18 05:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.68	5.78	103	105	70.0-136			1.68	20
(S) a,a,a-Trifluorotoluene(FID)				*117*	*117*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*132*	*131*	*75.0-128*	J1	J1		

Method Blank (MB)

(MB) R3290662-1 03/05/18 15:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*70.1*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3290662-2 03/05/18 16:02 • (LCSD) R3290662-3 03/05/18 16:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	33.5	27.6	67.1	55.2	50.0-150			19.4	20
(S) o-Terphenyl				*76.4*	*66.6*	*18.0-148*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
T8	Sample(s) received past/too close to holding time expiration.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

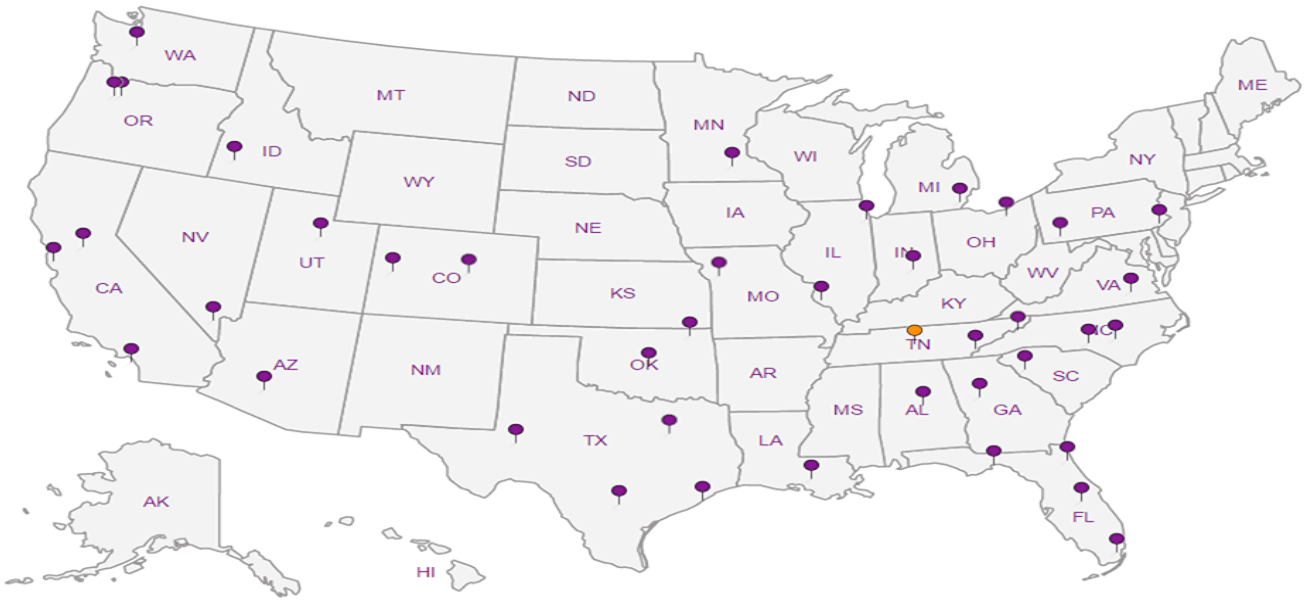
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Company Name/Address:
Nicholson GeoSolutions. LLC.
3433 E. Lake Dr.
Centennial, CO 80121

Billing Information:
Terry Pape
HRM Resources II, LLC
410 17th St, Suite 1600
Denver, CO 80202

Report to:
Dave Nicholson

Email To:
dknicholson@q.com

Project Description: Givan

City/State Collected:

Phone: **303-601-2023**
Fax:

Client Project #

Lab Project #

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):
Immediately Packed on Ice N ___ (Y)

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No ✓Yes
FAX? ✗No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

ESC LABORATORIES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L974075

Tab G165

Acctnum: NICGEOSOLO

Template:

Prelogin:

TSR:

Cooler:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TVPH/BTEX	TEPH (diesel + motor oil)	SAR	pH, SPCON	Rem./Contaminant	Sample # (lab only)
Givan-SA-1		SS		2/26	1220	4	X	X	X	X		-01
Givan-SA-2					1225	4	X	X	X	X		02
Givan-SA-3					1230	4	X	X	X	X		03
Givan-SA-4					1235	4	X	X	X	X		04
Givan-SA-5					1440	4	X	X	X	X		05

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	2/28/18	1700	Fedex
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Temp: 3.7 °C Bottles Received: 20

Date: 03.01.18 Time: 845

Condition: (lab use only) OK

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

7215 4519 7653

ESC LAB SCIENCES
Cooler Receipt Form

Client: HRMRESDCO	SDG#	L974075	
Cooler Received/Opened On: 3/01 /18	Temperature:	3.7	
Received By: **Branford Shaw**			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

ANALYTICAL REPORT

March 23, 2018

HRM Resources, LLC - Denver, CO

Sample Delivery Group:	L978096
Samples Received:	03/16/2018
Project Number:	
Description:	HRM Landfarm Sampling

Report To: Dave Nicholson
410 17th St., Ste. 1600
Denver, CO 80202

Entire Report Reviewed By:

Mark W. Beasley
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

GIVAN-SA-6 L978096-01 Solid

Collected by: D. Nicholson
Collected date/time: 03/13/18 09:10
Received date/time: 03/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1086614	1	03/19/18 19:09	03/22/18 19:25	CCE
Wet Chemistry by Method 9045D	WG1086442	1	03/19/18 15:30	03/19/18 16:35	MLW
Wet Chemistry by Method 9050AMod	WG1086201	1	03/19/18 12:52	03/19/18 13:39	TH
Volatile Organic Compounds (GC) by Method 8015/8021	WG1086337	1	03/17/18 16:02	03/19/18 12:58	RAS
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1086316	1	03/18/18 21:38	03/19/18 16:02	MTJ

GIVAN-SA-7 L978096-02 Solid

Collected by: D. Nicholson
Collected date/time: 03/13/18 09:30
Received date/time: 03/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1086614	1	03/19/18 19:09	03/22/18 19:29	CCE
Wet Chemistry by Method 9045D	WG1086733	1	03/20/18 11:20	03/20/18 12:40	GB
Wet Chemistry by Method 9050AMod	WG1086201	1	03/19/18 12:52	03/19/18 13:39	TH
Volatile Organic Compounds (GC) by Method 8015/8021	WG1086337	1	03/17/18 16:02	03/19/18 13:20	RAS
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1086316	1	03/18/18 21:38	03/19/18 16:15	MTJ

GIVAN-SA-8 L978096-03 Solid

Collected by: D. Nicholson
Collected date/time: 03/13/18 10:00
Received date/time: 03/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1086614	1	03/19/18 19:09	03/22/18 19:32	CCE
Wet Chemistry by Method 9045D	WG1086733	1	03/20/18 11:20	03/20/18 12:40	GB
Wet Chemistry by Method 9050AMod	WG1086201	1	03/19/18 12:52	03/19/18 13:39	TH
Volatile Organic Compounds (GC) by Method 8015/8021	WG1086337	1	03/17/18 16:02	03/19/18 13:43	RAS
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1086316	1	03/18/18 21:38	03/19/18 16:29	MTJ

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley
Technical Service Representative

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.793		1	03/22/2018 19:25	WG1086614

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00	T8	1	03/19/2018 16:35	WG1086442

Sample Narrative:

L978096-01 WG1086442: 8 at 22.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	201		10.0	1	03/19/2018 13:39	WG1086201

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00183		0.000500	1	03/19/2018 12:58	WG1086337
Toluene	ND		0.00500	1	03/19/2018 12:58	WG1086337
Ethylbenzene	ND		0.000500	1	03/19/2018 12:58	WG1086337
Total Xylene	0.00161		0.00150	1	03/19/2018 12:58	WG1086337
TPH (GC/FID) Low Fraction	ND		0.100	1	03/19/2018 12:58	WG1086337
(S) a,a,a-Trifluorotoluene(FID)	*94.0*		*77.0-120*		*03/19/2018 12:58*	WG1086337
(S) a,a,a-Trifluorotoluene(PID)	*95.4*		*75.0-128*		*03/19/2018 12:58*	WG1086337

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/19/2018 16:02	WG1086316
C28-C40 Oil Range	5.24		4.00	1	03/19/2018 16:02	WG1086316
(S) o-Terphenyl	*85.9*		*18.0-148*		*03/19/2018 16:02*	WG1086316

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.743		1	03/22/2018 19:29	WG1086614

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.13	T8	1	03/20/2018 12:40	WG1086733

Sample Narrative:

L978096-02 WG1086733: 8.13 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	512		10.0	1	03/19/2018 13:39	WG1086201

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000691		0.000500	1	03/19/2018 13:20	WG1086337
Toluene	ND		0.00500	1	03/19/2018 13:20	WG1086337
Ethylbenzene	ND		0.000500	1	03/19/2018 13:20	WG1086337
Total Xylene	ND		0.00150	1	03/19/2018 13:20	WG1086337
TPH (GC/FID) Low Fraction	ND		0.100	1	03/19/2018 13:20	WG1086337
(S) a,a,a-Trifluorotoluene(FID)	*96.0*		*77.0-120*		*03/19/2018 13:20*	WG1086337
(S) a,a,a-Trifluorotoluene(PID)	*96.5*		*75.0-128*		*03/19/2018 13:20*	WG1086337

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	9.48		4.00	1	03/19/2018 16:15	WG1086316
C28-C40 Oil Range	ND		4.00	1	03/19/2018 16:15	WG1086316
(S) o-Terphenyl	*89.3*		*18.0-148*		*03/19/2018 16:15*	WG1086316

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.933		1	03/22/2018 19:32	WG1086614

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.15	T8	1	03/20/2018 12:40	WG1086733

Sample Narrative:

L978096-03 WG1086733: 8.15 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	217		10.0	1	03/19/2018 13:39	WG1086201

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00607		0.000500	1	03/19/2018 13:43	WG1086337
Toluene	ND		0.00500	1	03/19/2018 13:43	WG1086337
Ethylbenzene	ND		0.000500	1	03/19/2018 13:43	WG1086337
Total Xylene	0.0171		0.00150	1	03/19/2018 13:43	WG1086337
TPH (GC/FID) Low Fraction	2.08		0.100	1	03/19/2018 13:43	WG1086337
(S) a,a,a-Trifluorotoluene(FID)	*85.5*		*77.0-120*		*03/19/2018 13:43*	WG1086337
(S) a,a,a-Trifluorotoluene(PID)	*94.1*		*75.0-128*		*03/19/2018 13:43*	WG1086337

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	03/19/2018 16:29	WG1086316
C28-C40 Oil Range	ND		4.00	1	03/19/2018 16:29	WG1086316
(S) o-Terphenyl	*69.3*		*18.0-148*		*03/19/2018 16:29*	WG1086316

L978072-04 Original Sample (OS) • Duplicate (DUP)

(OS) L978072-04 03/19/18 16:35 • (DUP) R3294439-4 03/19/18 16:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	12.2	12.2	1	0.0823		1

Sample Narrative:

OS: 12.16 at 22.8C

DUP: 12.15 at 22.6C

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3294439-1 03/19/18 16:35 • (LCSD) R3294439-2 03/19/18 16:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	9.91	9.92	99.1	99.2	99.0-101			0.101	1

Sample Narrative:

LCS: 9.91 at 19.7C

LCSD: 9.92 at 20.3C

L978096-02 Original Sample (OS) • Duplicate (DUP)

(OS) L978096-02 03/20/18 12:40 • (DUP) R3294645-3 03/20/18 12:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.13	8.12	1	0.123		1

Sample Narrative:

OS: 8.13 at 21.5C

DUP: 8.12 at 21.5C

L978299-14 Original Sample (OS) • Duplicate (DUP)

(OS) L978299-14 03/20/18 12:40 • (DUP) R3294645-4 03/20/18 12:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	12.4	12.4	1	0.242		1

Sample Narrative:

OS: 12.4 at 20.1C

DUP: 12.43 at 20.1C

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3294645-1 03/20/18 12:40 • (LCSD) R3294645-2 03/20/18 12:40

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	9.98	9.99	99.8	99.9	99.0-101			0.100	1

Sample Narrative:

LCS: 9.98 at 20C

LCSD: 9.99 at 20C

Method Blank (MB)

(MB) WG1086201-1 03/19/18 13:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	umhos/cm		umhos/cm	umhos/cm
Specific Conductance	U		10.0	10.0

L978096-03 Original Sample (OS) • Duplicate (DUP)

(OS) L978096-03 03/19/18 13:39 • (DUP) WG1086201-4 03/19/18 13:39

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	217	218	1	0.460		20

L978491-01 Original Sample (OS) • Duplicate (DUP)

(OS) L978491-01 03/19/18 13:39 • (DUP) WG1086201-5 03/19/18 13:39

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	49.9	49.7	1	0.402		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) WG1086201-2 03/19/18 13:39 • (LCSD) WG1086201-3 03/19/18 13:39

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	559	555	554	99.3	99.1	85.0-115			0.180	20

Method Blank (MB)

(MB) R3295629-5 03/19/18 11:28

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	U		0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.6*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*100*			*75.0-128*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3295629-1 03/19/18 09:37 • (LCSD) R3295629-2 03/19/18 10:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0485	0.0480	96.9	96.1	71.0-121			0.870	20
Toluene	0.0500	0.0509	0.0501	102	100	72.0-120			1.59	20
Ethylbenzene	0.0500	0.0519	0.0512	104	102	76.0-121			1.34	20
Total Xylene	0.150	0.157	0.153	104	102	75.0-124			2.00	20
(S) a,a,a-Trifluorotoluene(FID)				*98.5*	*99.2*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*97.6*	*98.9*	*75.0-128*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3295629-3 03/19/18 10:22 • (LCSD) R3295629-4 03/19/18 10:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.04	5.19	91.7	94.4	70.0-136			2.89	20
(S) a,a,a-Trifluorotoluene(FID)				*105*	*106*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*110*	*109*	*75.0-128*				

L978092-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L978092-02 03/19/18 12:35 • (MS) R3295629-6 03/19/18 20:02 • (MSD) R3295629-7 03/19/18 20:24

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	ND	0.0362	0.0411	72.4	82.3	1	10.0-146			12.7	29
Toluene	0.0500	ND	0.0298	0.0363	59.2	72.2	1	10.0-143			19.5	30
Ethylbenzene	0.0500	ND	0.0205	0.0287	41.0	57.4	1	10.0-147		J3	33.4	31
Total Xylene	0.150	ND	0.0606	0.0845	40.4	56.3	1	10.0-149	J6	J3 J6	32.9	30
(S) a,a,a-Trifluorotoluene(FID)					*95.8*	*95.6*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*94.7*	*95.7*		*75.0-128*				

L978092-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L978092-02 03/19/18 12:35 • (MS) R3295629-8 03/19/18 20:46 • (MSD) R3295629-9 03/19/18 21:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	1.27	1.75	23.1	31.9	1	10.0-147		J3	31.9	30
(S) a,a,a-Trifluorotoluene(FID)					*93.4*	*94.6*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*96.8*	*97.7*		*75.0-128*				

Method Blank (MB)

(MB) R3294382-1 03/19/18 13:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*115*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3294382-2 03/19/18 13:35 • (LCSD) R3294382-3 03/19/18 13:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	42.8	46.7	85.6	93.4	50.0-150			8.75	20
(S) o-Terphenyl				*115*	*123*	*18.0-148*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

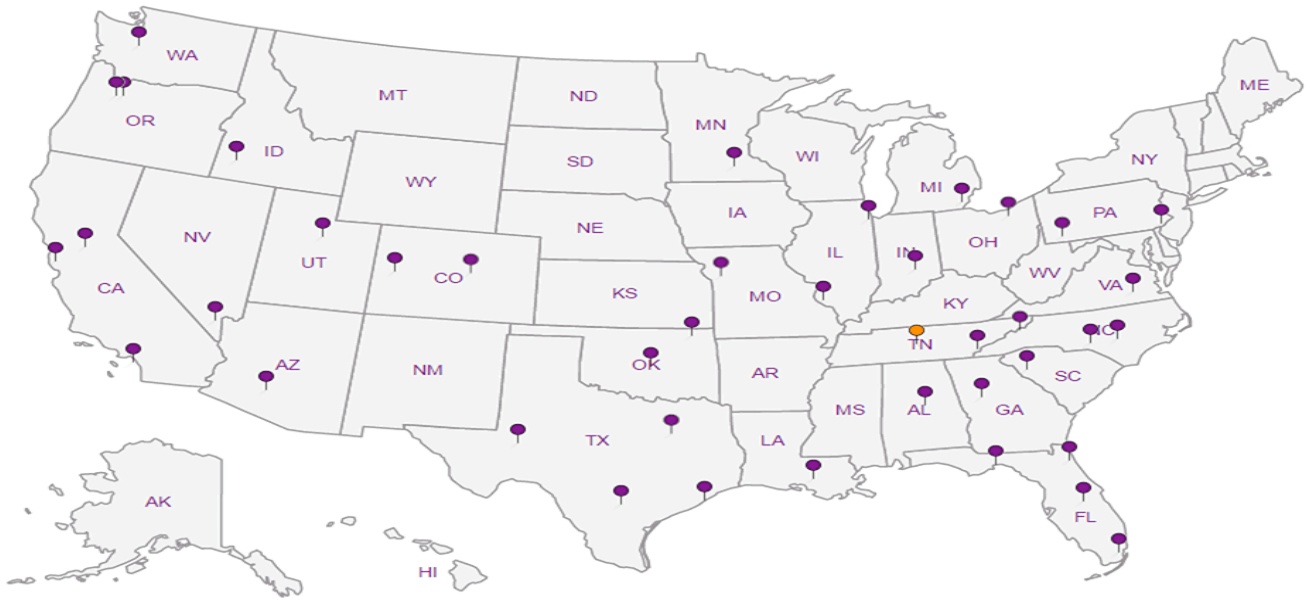
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Company Name/Address:
Nicholson GeoSolutions. LLC.
3433 E. Lake Dr.
Centennial, CO 80121

Billing Information:
Terry Pape
HRM Resources II, LLC
410 17th Street, Suite 1600
Denver, CO 80202

Report to: Dave Nicholson

Email To: dknicholson@q.com

Project Description: HRM Landfarm Sampling

City/State Collected:

Phone: 303-601-2023
Fax:

Client Project #

Lab Project #

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature): DKNicholson
Immediately Packed on Ice N ___ (Y)

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed

Email? ___No X Yes
FAX? X No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

ESC LABORATORIES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 978096
Tat G149
Acctnum: HRMRESDCO
Template:
Prelogin:
TSR:
Cooler:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TEPH(8015)Diesel & Oil Range (1) 4oz Clear-No Pres	BTEX/TVPH (1) 4oz Clear - No Pres	SAR	pH, SPCON							Rem./Contaminant	Sample # (lab only)
Givan-SA-6		SS		3/13	0910	4	X	X	X	X								01
Givan-SA-7		SS			0930	4	X	X	X	X								02
Givan-SA-8		SS			1000	4	X	X	X	X								03
		SS				2												
		SS				2												
		SS				2												
		SS				2												
		SS				2												
		SS				2												
		SS				2												

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

Remarks: 4776 0141 3229

pH _____ Temp _____
Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
DKNicholson	3/15/18	1800	FedEx
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			B. Shaw 562

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____
Temp: 0.4 IR #11 °C Bottles Received: 12
Date: 3.16.18 Time: 845

Condition: (lab use only)
COC Seal Intact: ___Y X N ___NA
pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: HRMRBSDCO	SDG#	
Cooler Received/Opened On: 3/16/18	Temperature:	0.4
Received By: Branford Shaw		
Signature: BSh		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

ANALYTICAL REPORT

April 03, 2018

HRM Resources, LLC - Denver, CO

Sample Delivery Group:	L981271
Samples Received:	03/29/2018
Project Number:	
Description:	Givan

Report To: Dave Nicholson
410 17th St., Ste. 1600
Denver, CO 80202

Entire Report Reviewed By:

Mark W. Beasley
Technical Service Representative

TABLE OF CONTENTS

GIVAN-SA-9 L981271-01 Solid

Collected by: DK Nicholson
Collected date/time: 03/28/18 09:10
Received date/time: 03/29/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1091064	1	03/30/18 15:46	03/31/18 10:42	TRB
Wet Chemistry by Method 9045D	WG1091494	1	03/30/18 10:40	03/30/18 11:35	MLW
Wet Chemistry by Method 9050AMod	WG1091372	1	03/29/18 21:20	03/29/18 23:30	MZ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1091246	1	03/29/18 11:54	03/30/18 14:30	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1091300	1	03/30/18 06:31	03/30/18 16:55	MTJ

GIVAN-SA-10 L981271-02 Solid

Collected by: DK Nicholson
Collected date/time: 03/28/18 09:15
Received date/time: 03/29/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1091064	1	03/30/18 15:46	03/31/18 10:34	TRB
Wet Chemistry by Method 9045D	WG1091494	1	03/30/18 10:40	03/30/18 11:35	MLW
Wet Chemistry by Method 9050AMod	WG1091372	1	03/29/18 21:20	03/29/18 23:30	MZ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1091246	1	03/29/18 11:54	03/30/18 06:17	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1091300	1	03/30/18 06:31	03/30/18 14:27	MTJ

GIVAN-SA-11 L981271-03 Solid

Collected by: DK Nicholson
Collected date/time: 03/28/18 09:20
Received date/time: 03/29/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1091064	1	03/30/18 15:46	03/31/18 10:37	TRB
Wet Chemistry by Method 9045D	WG1091494	1	03/30/18 10:40	03/30/18 11:35	MLW
Wet Chemistry by Method 9050AMod	WG1091372	1	03/29/18 21:20	03/29/18 23:30	MZ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1091246	1	03/29/18 11:54	03/30/18 08:41	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1091300	1	03/30/18 06:31	03/30/18 16:25	MTJ

GIVAN-SA-12 L981271-04 Solid

Collected by: DK Nicholson
Collected date/time: 03/28/18 09:25
Received date/time: 03/29/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Calculated Results	WG1091064	1	03/30/18 15:46	03/31/18 10:39	TRB
Wet Chemistry by Method 9045D	WG1091494	1	03/30/18 10:40	03/30/18 11:35	MLW
Wet Chemistry by Method 9050AMod	WG1091372	1	03/29/18 21:20	03/29/18 23:30	MZ
Volatile Organic Compounds (GC) by Method 8015/8021	WG1091246	1	03/29/18 11:54	03/30/18 09:13	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1091300	1	03/30/18 06:31	03/30/18 16:39	MTJ

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley
Technical Service Representative

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.23		1	03/31/2018 10:42	WG1091064

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.11	T8	1	03/30/2018 11:35	WG1091494

Sample Narrative:

L981271-01 WG1091494: 8.11 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	394		10.0	1	03/29/2018 23:30	WG1091372

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00524		0.000500	1	03/30/2018 14:30	WG1091246
Toluene	0.00624		0.00500	1	03/30/2018 14:30	WG1091246
Ethylbenzene	0.00382		0.000500	1	03/30/2018 14:30	WG1091246
Total Xylene	0.0324	J6	0.00150	1	03/30/2018 14:30	WG1091246
TPH (GC/FID) Low Fraction	0.451		0.100	1	03/30/2018 14:30	WG1091246
(S) a,a,a-Trifluorotoluene(FID)	*104*		*77.0-120*		*03/30/2018 14:30*	WG1091246
(S) a,a,a-Trifluorotoluene(PID)	*111*		*75.0-128*		*03/30/2018 14:30*	WG1091246

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	9.17		4.00	1	03/30/2018 16:55	WG1091300
C28-C40 Oil Range	ND		4.00	1	03/30/2018 16:55	WG1091300
(S) o-Terphenyl	*34.1*		*18.0-148*		*03/30/2018 16:55*	WG1091300

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.463		1	03/31/2018 10:34	WG1091064

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	7.93	T8	1	03/30/2018 11:35	WG1091494

Sample Narrative:

L981271-02 WG1091494: 7.93 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	633		10.0	1	03/29/2018 23:30	WG1091372

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	0.00112	B	0.000500	1	03/30/2018 06:17	WG1091246
Toluene	ND		0.00500	1	03/30/2018 06:17	WG1091246
Ethylbenzene	0.000749	B	0.000500	1	03/30/2018 06:17	WG1091246
Total Xylene	ND		0.00150	1	03/30/2018 06:17	WG1091246
TPH (GC/FID) Low Fraction	ND		0.100	1	03/30/2018 06:17	WG1091246
(S) a,a,a-Trifluorotoluene(FID)	*104*		*77.0-120*		*03/30/2018 06:17*	WG1091246
(S) a,a,a-Trifluorotoluene(PID)	*110*		*75.0-128*		*03/30/2018 06:17*	WG1091246

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	ND		4.00	1	03/30/2018 14:27	WG1091300
C28-C40 Oil Range	ND		4.00	1	03/30/2018 14:27	WG1091300
(S) o-Terphenyl	*89.7*		*18.0-148*		*03/30/2018 14:27*	WG1091300

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.401		1	03/31/2018 10:37	WG1091064

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	8.00	T8	1	03/30/2018 11:35	WG1091494

Sample Narrative:

L981271-03 WG1091494: 8 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	654		10.0	1	03/29/2018 23:30	WG1091372

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	0.00131	B	0.000500	1	03/30/2018 08:41	WG1091246
Toluene	ND		0.00500	1	03/30/2018 08:41	WG1091246
Ethylbenzene	0.000884	B	0.000500	1	03/30/2018 08:41	WG1091246
Total Xylene	ND		0.00150	1	03/30/2018 08:41	WG1091246
TPH (GC/FID) Low Fraction	ND		0.100	1	03/30/2018 08:41	WG1091246
(S) a,a,a-Trifluorotoluene(FID)	*105*		*77.0-120*		*03/30/2018 08:41*	WG1091246
(S) a,a,a-Trifluorotoluene(PID)	*111*		*75.0-128*		*03/30/2018 08:41*	WG1091246

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	ND		4.00	1	03/30/2018 16:25	WG1091300
C28-C40 Oil Range	ND		4.00	1	03/30/2018 16:25	WG1091300
(S) o-Terphenyl	*70.7*		*18.0-148*		*03/30/2018 16:25*	WG1091300

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.22		1	03/31/2018 10:39	WG1091064

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	su				
pH	8.03	T8	1	03/30/2018 11:35	WG1091494

Sample Narrative:

L981271-04 WG1091494: 8.03 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	787		10.0	1	03/29/2018 23:30	WG1091372

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Benzene	0.000904	B	0.000500	1	03/30/2018 09:13	WG1091246
Toluene	ND		0.00500	1	03/30/2018 09:13	WG1091246
Ethylbenzene	ND		0.000500	1	03/30/2018 09:13	WG1091246
Total Xylene	ND		0.00150	1	03/30/2018 09:13	WG1091246
TPH (GC/FID) Low Fraction	ND		0.100	1	03/30/2018 09:13	WG1091246
(S) a,a,a-Trifluorotoluene(FID)	*104*		*77.0-120*		*03/30/2018 09:13*	WG1091246
(S) a,a,a-Trifluorotoluene(PID)	*110*		*75.0-128*		*03/30/2018 09:13*	WG1091246

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
C10-C28 Diesel Range	ND		4.00	1	03/30/2018 16:39	WG1091300
C28-C40 Oil Range	ND		4.00	1	03/30/2018 16:39	WG1091300
(S) o-Terphenyl	*80.1*		*18.0-148*		*03/30/2018 16:39*	WG1091300

L981271-02 Original Sample (OS) • Duplicate (DUP)

(OS) L981271-02 03/30/18 11:35 • (DUP) R3297752-3 03/30/18 11:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.93	7.90	1	0.379		1

Sample Narrative:

OS: 7.93 at 21.5C

DUP: 7.9 at 21.3C

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3297752-1 03/30/18 11:35 • (LCSD) R3297752-2 03/30/18 11:35

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	10.0	10.0	100	100	99.0-101			0.200	1

Sample Narrative:

LCS: 10.02 at 19.4C

LCSD: 10 at 19.4C

Method Blank (MB)

(MB) R3297605-1 03/29/18 23:30

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

L981055-01 Original Sample (OS) • Duplicate (DUP)

(OS) L981055-01 03/29/18 23:30 • (DUP) R3297605-4 03/29/18 23:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	606	603	1	0.496		20

L981288-08 Original Sample (OS) • Duplicate (DUP)

(OS) L981288-08 03/29/18 23:30 • (DUP) R3297605-5 03/29/18 23:30

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	2140	2140	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3297605-2 03/29/18 23:30 • (LCSD) R3297605-3 03/29/18 23:30

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Specific Conductance	559	553	556	98.9	99.5	85.0-115			0.541	20

Method Blank (MB)

(MB) R3298106-5 03/29/18 21:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000157	J	0.000120	0.000500
Toluene	0.000340	J	0.000150	0.00500
Ethylbenzene	0.000189	J	0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	0.0329	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*106*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*112*			*75.0-128*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3298106-1 03/29/18 19:35 • (LCSD) R3298106-2 03/29/18 19:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.0517	0.0536	103	107	71.0-121			3.69	20
Toluene	0.0500	0.0493	0.0511	98.5	102	72.0-120			3.71	20
Ethylbenzene	0.0500	0.0521	0.0544	104	109	76.0-121			4.31	20
Total Xylene	0.150	0.158	0.164	105	109	75.0-124			3.73	20
(S) a,a,a-Trifluorotoluene(FID)				*106*	*106*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*112*	*112*	*75.0-128*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3298106-3 03/29/18 20:23 • (LCSD) R3298106-4 03/29/18 20:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.90	5.89	107	107	70.0-136			0.118	20
(S) a,a,a-Trifluorotoluene(FID)				*112*	*111*	*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*125*	*125*	*75.0-128*				

L981271-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L981271-01 03/30/18 14:30 • (MS) R3298106-6 03/30/18 15:09 • (MSD) R3298106-7 03/30/18 15:34

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.0500	0.00524	0.0225	0.0247	34.6	38.9	1	10.0-146			9.30	29
Toluene	0.0500	0.00624	0.0192	0.0215	25.9	30.6	1	10.0-143			11.6	30
Ethylbenzene	0.0500	0.00382	0.0157	0.0187	23.8	29.8	1	10.0-147			17.5	31
Total Xylene	0.150	0.0324	0.0573	0.0665	16.6	22.7	1	10.0-149	J6	J6	14.9	30
(S) a,a,a-Trifluorotoluene(FID)					*104*	*104*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*110*	*110*		*75.0-128*				

L981271-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L981271-01 03/30/18 14:30 • (MS) R3298106-8 03/30/18 15:58 • (MSD) R3298106-9 03/30/18 16:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	0.451	1.47	1.28	18.6	15.1	1	10.0-147			14.2	30
(S) a,a,a-Trifluorotoluene(FID)					*100*	*101*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*111*	*112*		*75.0-128*				

Method Blank (MB)

(MB) R3297795-1 03/30/18 12:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*86.5*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3297795-2 03/30/18 12:19 • (LCSD) R3297795-3 03/30/18 12:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	33.2	37.4	66.4	74.9	50.0-150			12.0	20
(S) o-Terphenyl				*87.2*	*94.5*	*18.0-148*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

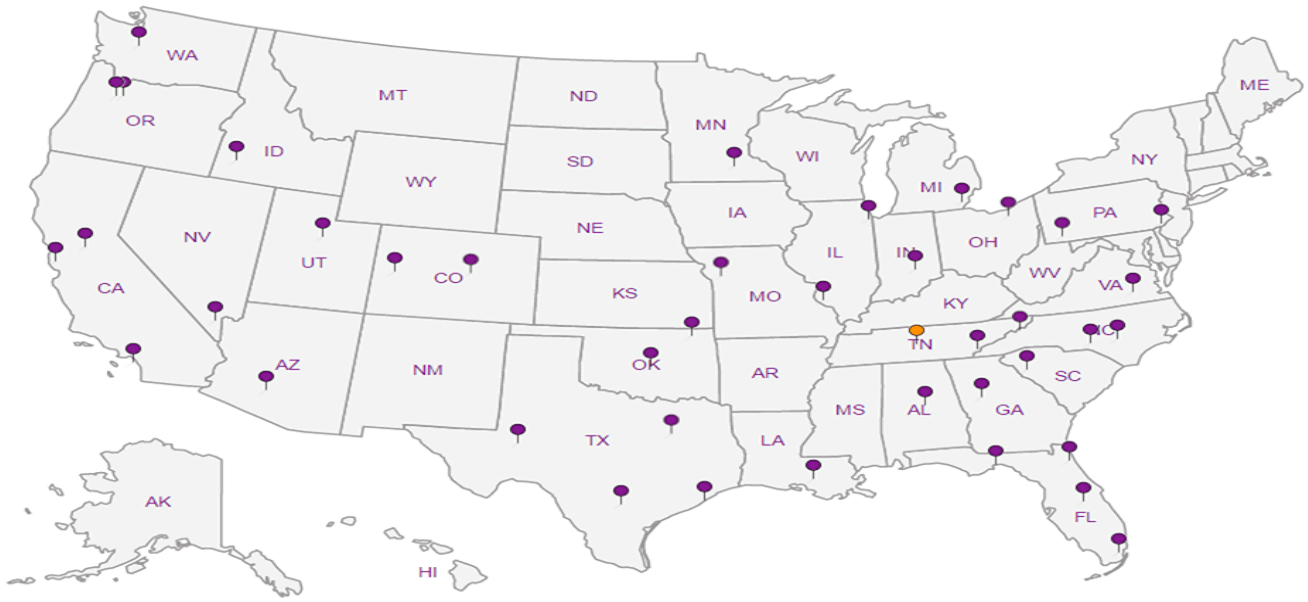
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Company Name/Address:
Nicholson GeoSolutions. LLC.
3133 E. Lake Dr.
Centennial, CO 80121

Billing Information:
Terry Pape
HRM Resources II, LLC
410 17th St, Suite 1600
Denver, Co 80202

Report to:
Dave Nicholson

Email To:
dknicholson@q.com

Project Description: Givan

City/State Collected:

Phone: 303-601-2023
Fax:

Client Project #

Lab Project #

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):
DK Nicholson
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
X Three Day 25%

Date Results Needed

Email? ___No ✓Yes
FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TVPH/BTEX	TEPH (Diesel + Motor oil)	SAR	pH, SPCON	Rem./Contaminant	Sample # (lab only)
Givan-SA-9		SS		3/28	0910	4	X	X	X	X		-01
Givan-SA-10		↓		↓	0915	4	X	X	X	X		02
Givan-SA-11					0920	4	X	X	X	X		03
Givan-SA-12					0925	4	X	X	X	X		04

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L981271

Table E033

Acctnum: NICGEOCCO
Template:
Prelogin:
TSR:
Cooler:
Shipped Via:

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

Remarks: 4270 0141 2781

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ _____

Hold #

Condition: (lab use only) OK

COC Seal Intact: ___Y ___N X NA

pH Checked: NCF:

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
DK Nicholson	3/28/18	1700	FedEx
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Temp: 0.6 °C KM 11 Bottles Received: 16

Date: 3/29/18 Time: 845

ESC LAB SCIENCES
Cooler Receipt Form

Client: HRMRESDCO	SDG#	L981271	
Cooler Received/Opened On: 3/24/18	Temperature:	0.6	
Received By: Christian Kacar			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?			
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			