

August 06, 2024

Paul Buck
Bison Oil & Gas IV, LLC
518 17th Street, Suite 1800
Denver, CO 80202

**Re: Koloa CR 89
Soil Analytic Summary Report
SWSE Sec 25, T8N, R60W
ECMC Facility ID 481938**

Dear Mr. Buck,

On behalf Bison IV Operating, LLC (Bison), Quandary Consultants, LLC (Quandary) has prepared a soil analytical summary report for the site assessment at the Koloa CR 89 spill (Site). On June 23, 2024, Quandary mobilized to collect two verification samples on CR 89 near the original spill area. Sample concentrations were compared to Energy and Carbon Management Commission (ECMC) Table 915-1 Residential Soil Screening Levels.

Soil Suitability and Metals Results

Initial soil analytical results indicated sample SS1 and SS2 had a pH level above the Energy and Carbon Management Commission (ECMC) allowable level at 8.63 and 9.28 respectively. Verification samples, SS1V and SS2V, were collected from the same locations on June 23, 2024, based on pH variability in soils. pH levels in the verification samples remained below ECMC criteria at 7.93 and 8.08 respectively.

All other samples were below ECMC Soil Suitability for Reclamation allowable levels or within site-specific background concentrations. Both samples on CR 89 near the Koloa pad were above the allowable level for arsenic; however, arsenic concentrations remain within 1.25x background. Likewise, one sample on CR 89 near the Koloa pad was above allowable levels for barium but concentrations remain within 1.25x background. Soil suitability and metals soil sample locations and concentrations are depicted on Figure 1 and are presented in Tables 1 and 2.

VOC and PAH Results

Soil analytical results indicate all samples were below ECMC and non-detect for benzene, toluene, ethylbenzene, xylenes, 1,2,4, trimethylbenzene, 1,3,5 trimethylbenzene, and naphthalene. Additionally, soil analytical results indicated all samples were below ECMC and non-detect for acenaphthene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, pyrene, 1-methylnaphthalene, and 2-methylnaphthalene. VOC and PAH soil sample concentrations are presented in Table 3.

Conclusion

Soil analytical results for the two sample locations on CR 89 near the Koloa pad indicate VOC, PAH, Soil Suitability parameters, and metals remain below Table 915-1 standards or within site-specific background concentrations. Quandary recommends No Further Action at the Site. Please contact Patrick Lawler with Quandary if you have any questions or require additional information on this Soil Analytical Summary Report. He can be reached at plawler@quandaryconsultants.com or 720.480.1035.

FIGURES



Legend

- Background Soil Sample
- Soil Sample

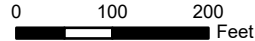
Parameters

Sample Location @ Depth (ft.)
 Sample Date
 pH = pH
 As = Arsenic (mg/kg)

mg/kg = Milligrams per Kilogram

Note: Values presented in **bold** exceed ECMC Table 915-1 regulatory limits for that compound.

*SS01V and SS02V are Verification Samples



Bison IV Operating

**Figure 1. Koloa CR89 Spill
Soil Sample Results**

40.671079, -104.219058
 SWSW & NWNW Qtr-Qtr, Sec. 9 & 16,
 T8N, R61W, 6PM
 Weld County, CO

**QUANDARY
CONSULTANTS**

Author: JG Date: 08/06/2024

Data Sources: Esri, CGIAR, USGS

TABLES

TABLE 1							
Koloa CR 89 Soil Table 915-1 Results							
Soil Suitability							
Sample ID	Excavated	Date Sampled	Depth	Boron	EC	SAR	pH
Table 915-1 Standards			ft. (bgs)	2.0 mg/L	<4 mmhos/cm	<6	6–8.3
SS1	N	6/14/2023	0.5	1.40	0.62	0.56	8.63
SS2	N	6/14/2023	0.5	0.36	0.36	0.40	9.28
SS1V	N	7/23/2024	0.5	NA	NA	NA	7.93
SS2V	N	7/23/2024	0.5	NA	NA	NA	8.08
BG1	N	12/1/2023	0.5	ND	NA	0.31	7.67
BG2	N	12/1/2023	0.5	ND	NA	0.42	7.90
BG3	N	6/27/2024	0.5	NA	NA	NA	7.89
BG4	N	6/27/2024	0.5	NA	NA	NA	7.81
BG5	N	6/27/2024	0.5	NA	NA	NA	7.85

Highest Background Concentration				
Depth	Boron	EC	SAR	pH
0.5	0	0	0.419	7.9

BOLD Exceeds Table 915-1 Soil Suitability Standards
BOLD RED Exceeds Range of Background
 NA Not Analyzed
 ND Non-Detect

TABLE 2													
Koloa CR 89 Soil Table 915-1 Results													
Metals in Soil													
Sample ID	Excavated	Date Sampled	Depth	Arsenic	Barium	Cadmium	Chromium, Hexavalent	Copper	Lead	Nickel	Selenium	Silver	Zinc
Residential Soil Screening Level				0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater Soil Screening Level				0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SS1	N	6/14/2023	0.5	1.24	45.40	0.09	ND	1.69	1.40	1.21	ND	0.02	ND
SS2	N	6/14/2023	0.5	1.45	82.70	0.06	ND	2.07	2.36	1.45	ND	6.22	7.07
BG1	N	12/1/2023	0.5	1.35	98.20	0.12	ND	4.36	6.37	3.70	0.21	0.02	18.20
BG2	N	12/1/2023	0.5	1.55	748.00	0.17	ND	4.95	6.94	4.12	0.17	0.02	21.20
BG3	N	6/27/2024	0.5	1.69	NA	NA	NA	NA	NA	NA	NA	NA	NA
BG4	N	6/27/2024	0.5	2.36	NA	NA	NA	NA	NA	NA	NA	NA	NA
BG5	N	6/27/2024	0.5	2.49	NA	NA	NA	NA	NA	NA	NA	NA	NA

Highest Background Concentration	Arsenic	Barium	Cadmium	Chromium, Hexavalent	Copper	Lead	Nickel	Selenium	Silver	Zinc
Background 0.5	3.11	935.00	0.21	0.00	6.19	8.68	5.15	0.26	0.03	26.50

BOLD Exceeds Table 915-1 Residential Soil Screening Level Concentrations
BOLD Exceeds Table 915-1 Protection of Groundwater Soil Screening Level Concentrations
BOLD RED Exceeds Range of Background
 NA Not Analyzed
 ND Non-Detect

TABLE 3

Koloa CR 89 Soil Table 915-1 Results

Organics in Soil

Sample ID	Excavated	Date Sampled	Depth	Gasoline Range Organics C6-C10	Diesel Range Organics C10-C28	Oil Range Organics C28-C40	Benzene	Toluene	Ethylbenzene	Xylenes, total	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methyl-naphthalene	2-Methyl-naphthalene	Naphthalene	Pyrene	
Residential Soil Screening Level				500	500	500	1.2	490	5.8	58	30	27	360	1800	1.1	1.1	11	0.11	110	0.11	240	240	1.1	18	24	2.4	180	
Protection of Groundwater Soil Screening Level Concentrations				500	500	500	0.0026	0.69	0.78	9.9	0.0081	0.0087	0.55	5.8	0.011	0.3	2.9	0.24	9	0.096	8.9	0.54	0.98	0.006	0.019	0.0038	1.3	
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SS1	N	6/14/2023	0.5	ND	2	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SS2	N	6/14/2023	0.5	ND	4.4	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG1	N	12/1/2023	0.5	ND	10	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG2	N	12/1/2023	0.5	ND	45	35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG3	N	6/27/2024	0.5	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG4	N	6/27/2024	0.5	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG5	N	6/27/2024	0.5	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

BOLD Exceeds Table 915-1 Residential Soil Screening Level Concentrations
BOLD Exceeds Table 915-1 Protection of Groundwater Soil Screening Level Concentrations
BOLD RED Exceeds Range of Background
 NA Not Analyzed
 ND Non-Detect

LABORATORY ANALYTICAL



10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

July 07, 2023

Tarah Garza
Bison Oil and Gas
518 17th St
STE 1800
Denver, CO 80202

Work Order: **HS23060921**

Laboratory Results for: **CR 89**

Dear Tarah Garza,

ALS Environmental received 2 sample(s) on Jun 14, 2023 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Tyler Monroe

Client: Bison Oil and Gas
Project: CR 89
Work Order: HS23060921

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23060921-01	SS1	Soil		14-Jun-2023 14:45	14-Jun-2023 15:53	<input type="checkbox"/>
HS23060921-02	SS2	Soil		14-Jun-2023 14:52	14-Jun-2023 15:53	<input type="checkbox"/>

Client: Bison Oil and Gas
Project: CR 89
Work Order: HS23060921

CASE NARRATIVE

Work Order Comments

- The analyses for Total Metals Method 6020 was subcontracted to ALS Environmental in Kelso, WA. Final report attached.
- The analysis for Boron was subcontracted to ALS Environmental in Holland, MI. Final report attached.
- Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.
The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 °C.

GC Semivolatiles by Method SW8015M

Batch ID: 196365

Sample ID: HS23060828-05MS

- MS and MSD are for an unrelated sample

GC Volatiles by Method SW8015

Batch ID: R439419

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Semivolatiles by Method SW8270

Batch ID: 196603

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260

Batch ID: R439277

Sample ID: SS1 (HS23060921-01MS)

- MS/MSD failed QC limits for some compounds.

Metals by Method La29B SAR

Batch ID: R439752

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method La29B-6020A

Batch ID: 196635

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A

Batch ID: 196431

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Bison Oil and Gas
Project: CR 89
Work Order: HS23060921

CASE NARRATIVE

WetChemistry by Method SW9045D

Batch ID: R439566

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
-

WetChemistry by Method SW9050M

Batch ID: R439498

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
-

WetChemistry by Method SW7196

Batch ID: 196610

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
-

Client: Bison Oil and Gas
 Project: CR 89
 Sample ID: SS1
 Collection Date: 14-Jun-2023 14:45

ANALYTICAL REPORT
 WorkOrder:HS23060921
 Lab ID:HS23060921-01
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		Method:SW8260		Analyst: WLR			
1,2,4-Trimethylbenzene	U		0.95	4.8	ug/Kg	1	19-Jun-2023 21:53
1,3,5-Trimethylbenzene	U		0.76	4.8	ug/Kg	1	19-Jun-2023 21:53
Benzene	U		0.48	4.8	ug/Kg	1	19-Jun-2023 21:53
Ethylbenzene	U		0.66	4.8	ug/Kg	1	19-Jun-2023 21:53
Naphthalene	U		0.76	4.8	ug/Kg	1	19-Jun-2023 21:53
Toluene	U		0.57	4.8	ug/Kg	1	19-Jun-2023 21:53
Xylenes, Total	U		0.95	4.8	ug/Kg	1	19-Jun-2023 21:53
<i>Surr: 1,2-Dichloroethane-d4</i>	103			70-126	%REC	1	19-Jun-2023 21:53
<i>Surr: 4-Bromofluorobenzene</i>	95.1			70-130	%REC	1	19-Jun-2023 21:53
<i>Surr: Dibromofluoromethane</i>	96.1			70-130	%REC	1	19-Jun-2023 21:53
<i>Surr: Toluene-d8</i>	105			70-130	%REC	1	19-Jun-2023 21:53
GASOLINE RANGE ORGANICS BY SW8015C		Method:SW8015		Analyst: PJM			
Gasoline Range Organics	U		0.0095	0.048	mg/Kg	1	20-Jun-2023 13:14
<i>Surr: 4-Bromofluorobenzene</i>	83.8			70-123	%REC	1	20-Jun-2023 13:14
SEMIVOLATILES		Method:SW8270		Prep:SW3541 / 22-Jun-2023		Analyst: GEY	
1-Methylnaphthalene	U		34	170	ug/Kg	1	27-Jun-2023 01:03
2-Methylnaphthalene	U		27	170	ug/Kg	1	27-Jun-2023 01:03
Acenaphthene	U		15	170	ug/Kg	1	27-Jun-2023 01:03
Anthracene	U		12	170	ug/Kg	1	27-Jun-2023 01:03
Benz(a)anthracene	U		10	170	ug/Kg	1	27-Jun-2023 01:03
Benzo(a)pyrene	U		12	170	ug/Kg	1	27-Jun-2023 01:03
Benzo(b)fluoranthene	U		12	170	ug/Kg	1	27-Jun-2023 01:03
Benzo(k)fluoranthene	U		15	170	ug/Kg	1	27-Jun-2023 01:03
Chrysene	U		17	170	ug/Kg	1	27-Jun-2023 01:03
Dibenz(a,h)anthracene	U		15	170	ug/Kg	1	27-Jun-2023 01:03
Fluoranthene	U		14	170	ug/Kg	1	27-Jun-2023 01:03
Fluorene	U		17	170	ug/Kg	1	27-Jun-2023 01:03
Indeno(1,2,3-cd)pyrene	U		14	170	ug/Kg	1	27-Jun-2023 01:03
Pyrene	U		43	170	ug/Kg	1	27-Jun-2023 01:03
<i>Surr: 2,4,6-Tribromophenol</i>	79.2			36-126	%REC	1	27-Jun-2023 01:03
<i>Surr: 2-Fluorobiphenyl</i>	91.6			43-125	%REC	1	27-Jun-2023 01:03
<i>Surr: 2-Fluorophenol</i>	63.7			37-125	%REC	1	27-Jun-2023 01:03
<i>Surr: 4-Terphenyl-d14</i>	87.9			32-125	%REC	1	27-Jun-2023 01:03
<i>Surr: Nitrobenzene-d5</i>	76.0			37-125	%REC	1	27-Jun-2023 01:03
<i>Surr: Phenol-d6</i>	68.3			40-125	%REC	1	27-Jun-2023 01:03
TPH DRO/ORO BY SW8015C		Method:SW8015M		Prep:SW3541 / 19-Jun-2023		Analyst: SAM	
TPH (Oil Range)	10		1.8	3.4	mg/Kg	1	20-Jun-2023 11:54
TPH (Diesel Range)	2.0		0.99	1.7	mg/Kg	1	20-Jun-2023 11:54
<i>Surr: 2-Fluorobiphenyl</i>	84.2			60-129	%REC	1	20-Jun-2023 11:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Bison Oil and Gas
 Project: CR 89
 Sample ID: SS1
 Collection Date: 14-Jun-2023 14:45

ANALYTICAL REPORT
 WorkOrder:HS23060921
 Lab ID:HS23060921-01
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LA29B SODIUM ADSORPTION RATIO		Method:La29B SAR					Analyst: JHD
Sodium Adsorption Ratio	0.555		0.0100	0.0100	meq/meq	1	23-Jun-2023 16:20
LA 29B - 1:1 SOLUBLE CATIONS FOR SAR		Method:La29B-6020A				Prep:La29B-6020A / 22-Jun-2023	Analyst: MSC
Calcium	38.1		4.99	4.99	mg/L	10	23-Jun-2023 15:00
Magnesium	10.0		4.99	4.99	mg/L	10	23-Jun-2023 15:00
Sodium	14.9		4.99	4.99	mg/L	10	23-Jun-2023 15:00
METALS BY SW6020A		Method:SW6020A				Prep:SW3050B / 21-Jun-2023	Analyst: MSC
Barium	45.4		0.0274	0.457	mg/Kg	1	21-Jun-2023 23:29
Copper	1.69		0.0348	0.183	mg/Kg	1	21-Jun-2023 23:29
Lead	1.44		0.0119	0.457	mg/Kg	1	21-Jun-2023 23:29
Nickel	1.21		0.0439	0.457	mg/Kg	1	21-Jun-2023 23:29
Silver	0.0160	J	0.0137	0.457	mg/Kg	1	21-Jun-2023 23:29
Zinc	6.22		0.156	0.457	mg/Kg	1	21-Jun-2023 23:29
HEXAVALENT CHROMIUM BY SW7196A		Method:SW7196				Prep:SW3060A / 21-Jun-2023	Analyst: MZD
Chromium, Hexavalent	U		0.300	2.00	mg/kg	1	22-Jun-2023 15:08
PH SOIL BY SW9045D		Method:SW9045D					Analyst: DW
pH	8.63	H	0.100	0.100	pH Units	1	22-Jun-2023 12:02
Temp Deg C @pH	22.6	H	0	0	°C	1	22-Jun-2023 12:02
SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT		Method:SW9050M					Analyst: CD
Conductance, Soil Extract	619		50.0	50.0	umhos/cm	10	21-Jun-2023 15:31
SUBCONTRACT ANALYSIS - METALS ANALYSIS		Method:NA					Analyst: SUBK
Subcontract Analysis	See Attached		0		NA	1	06-Jul-2023 19:46
SUBCONTRACTED ANALYSIS		Method:NA					Analyst: SUBHO
Miscellaneous Analysis	See Attached		0		NA	1	22-Jun-2023 09:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Bison Oil and Gas
 Project: CR 89
 Sample ID: SS2
 Collection Date: 14-Jun-2023 14:52

ANALYTICAL REPORT
 WorkOrder:HS23060921
 Lab ID:HS23060921-02
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES BY SW8260C		Method:SW8260		Analyst: WLR			
1,2,4-Trimethylbenzene	U		0.98	4.9	ug/Kg	1	19-Jun-2023 22:15
1,3,5-Trimethylbenzene	U		0.78	4.9	ug/Kg	1	19-Jun-2023 22:15
Benzene	U		0.49	4.9	ug/Kg	1	19-Jun-2023 22:15
Ethylbenzene	U		0.69	4.9	ug/Kg	1	19-Jun-2023 22:15
Naphthalene	U		0.78	4.9	ug/Kg	1	19-Jun-2023 22:15
Toluene	U		0.59	4.9	ug/Kg	1	19-Jun-2023 22:15
Xylenes, Total	U		0.98	4.9	ug/Kg	1	19-Jun-2023 22:15
<i>Surr: 1,2-Dichloroethane-d4</i>	104			70-126	%REC	1	19-Jun-2023 22:15
<i>Surr: 4-Bromofluorobenzene</i>	96.7			70-130	%REC	1	19-Jun-2023 22:15
<i>Surr: Dibromofluoromethane</i>	95.5			70-130	%REC	1	19-Jun-2023 22:15
<i>Surr: Toluene-d8</i>	104			70-130	%REC	1	19-Jun-2023 22:15
GASOLINE RANGE ORGANICS BY SW8015C		Method:SW8015		Analyst: PJM			
Gasoline Range Organics	U		0.0096	0.048	mg/Kg	1	20-Jun-2023 12:58
<i>Surr: 4-Bromofluorobenzene</i>	91.4			70-123	%REC	1	20-Jun-2023 12:58
SEMIVOLATILES		Method:SW8270		Prep:SW3541 / 22-Jun-2023		Analyst: GEY	
1-Methylnaphthalene	U		34	170	ug/Kg	1	27-Jun-2023 01:25
2-Methylnaphthalene	U		27	170	ug/Kg	1	27-Jun-2023 01:25
Acenaphthene	U		15	170	ug/Kg	1	27-Jun-2023 01:25
Anthracene	U		12	170	ug/Kg	1	27-Jun-2023 01:25
Benz(a)anthracene	U		10	170	ug/Kg	1	27-Jun-2023 01:25
Benzo(a)pyrene	U		12	170	ug/Kg	1	27-Jun-2023 01:25
Benzo(b)fluoranthene	U		12	170	ug/Kg	1	27-Jun-2023 01:25
Benzo(k)fluoranthene	U		15	170	ug/Kg	1	27-Jun-2023 01:25
Chrysene	U		17	170	ug/Kg	1	27-Jun-2023 01:25
Dibenz(a,h)anthracene	U		15	170	ug/Kg	1	27-Jun-2023 01:25
Fluoranthene	U		14	170	ug/Kg	1	27-Jun-2023 01:25
Fluorene	U		17	170	ug/Kg	1	27-Jun-2023 01:25
Indeno(1,2,3-cd)pyrene	U		14	170	ug/Kg	1	27-Jun-2023 01:25
Pyrene	U		43	170	ug/Kg	1	27-Jun-2023 01:25
<i>Surr: 2,4,6-Tribromophenol</i>	82.1			36-126	%REC	1	27-Jun-2023 01:25
<i>Surr: 2-Fluorobiphenyl</i>	76.6			43-125	%REC	1	27-Jun-2023 01:25
<i>Surr: 2-Fluorophenol</i>	47.1			37-125	%REC	1	27-Jun-2023 01:25
<i>Surr: 4-Terphenyl-d14</i>	75.3			32-125	%REC	1	27-Jun-2023 01:25
<i>Surr: Nitrobenzene-d5</i>	58.8			37-125	%REC	1	27-Jun-2023 01:25
<i>Surr: Phenol-d6</i>	52.8			40-125	%REC	1	27-Jun-2023 01:25
TPH DRO/ORO BY SW8015C		Method:SW8015M		Prep:SW3541 / 19-Jun-2023		Analyst: SAM	
TPH (Oil Range)	11		1.8	3.4	mg/Kg	1	20-Jun-2023 12:21
TPH (Diesel Range)	4.4		0.99	1.7	mg/Kg	1	20-Jun-2023 12:21
<i>Surr: 2-Fluorobiphenyl</i>	86.1			60-129	%REC	1	20-Jun-2023 12:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Bison Oil and Gas
 Project: CR 89
 Sample ID: SS2
 Collection Date: 14-Jun-2023 14:52

ANALYTICAL REPORT
 WorkOrder:HS23060921
 Lab ID:HS23060921-02
 Matrix:Soil

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LA29B SODIUM ADSORPTION RATIO		Method:La29B SAR					Analyst: JHD
Sodium Adsorption Ratio	0.420		0.0100	0.0100	meq/meq	1	23-Jun-2023 16:20
LA 29B - 1:1 SOLUBLE CATIONS FOR SAR		Method:La29B-6020A				Prep:La29B-6020A / 22-Jun-2023	Analyst: MSC
Calcium	23.2		4.99	4.99	mg/L	10	23-Jun-2023 15:02
Magnesium	7.91		4.99	4.99	mg/L	10	23-Jun-2023 15:02
Sodium	9.18		4.99	4.99	mg/L	10	23-Jun-2023 15:02
METALS BY SW6020A		Method:SW6020A				Prep:SW3050B / 21-Jun-2023	Analyst: MSC
Barium	82.7		0.0274	0.457	mg/Kg	1	21-Jun-2023 23:31
Copper	2.07		0.0347	0.183	mg/Kg	1	21-Jun-2023 23:31
Lead	2.36		0.0119	0.457	mg/Kg	1	21-Jun-2023 23:31
Nickel	1.45		0.0439	0.457	mg/Kg	1	21-Jun-2023 23:31
Silver	U		0.0137	0.457	mg/Kg	1	21-Jun-2023 23:31
Zinc	7.07		0.155	0.457	mg/Kg	1	21-Jun-2023 23:31
HEXAVALENT CHROMIUM BY SW7196A		Method:SW7196				Prep:SW3060A / 21-Jun-2023	Analyst: MZD
Chromium, Hexavalent	U		0.300	2.00	mg/kg	1	22-Jun-2023 15:08
PH SOIL BY SW9045D		Method:SW9045D					Analyst: DW
pH	9.28	H	0.100	0.100	pH Units	1	22-Jun-2023 12:02
Temp Deg C @pH	22.3	H	0	0	°C	1	22-Jun-2023 12:02
SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT		Method:SW9050M					Analyst: CD
Conductance, Soil Extract	361		50.0	50.0	umhos/cm	10	21-Jun-2023 15:31
SUBCONTRACT ANALYSIS - METALS ANALYSIS		Method:NA					Analyst: SUBK
Subcontract Analysis	See Attached		0		NA	1	06-Jul-2023 19:46
SUBCONTRACTED ANALYSIS		Method:NA					Analyst: SUBHO
Miscellaneous Analysis	See Attached		0		NA	1	22-Jun-2023 09:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

Batch ID: 6093 **Start Date:** 19 Jun 2023 10:23 **End Date:** 19 Jun 2023 10:23
Method: VOLATILES BY SW8260C

Sample ID	Container	Sample Wt/Vol	Final Volume	Weight Factor	Container Type
HS23060921-01	1	5.268 (g)	5 (mL)	0.95	Bulk (5030B)
HS23060921-02	1	5.107 (g)	5 (mL)	0.98	Bulk (5030B)

Batch ID: 6098 **Start Date:** 20 Jun 2023 08:42 **End Date:** 20 Jun 2023 08:42
Method: GASOLINE RANGE ORGANICS BY SW8015C **Prep Code:**

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23060921-01	1	5.252 (g)	5 (mL)	0.95	Bulk (5030B)
HS23060921-02	1	5.194 (g)	5 (mL)	0.96	Bulk (5030B)

Batch ID: 196365 **Start Date:** 19 Jun 2023 06:30 **End Date:** 19 Jun 2023 06:30
Method: SOPREP: 3541 TPH **Prep Code:** 8015SPR_LL

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23060921-01		30.34 (g)	1 (mL)	0.03296	Ziplock Bag
HS23060921-02		30.16 (g)	1 (mL)	0.03316	Ziplock Bag

Batch ID: 196431 **Start Date:** 21 Jun 2023 07:30 **End Date:** 21 Jun 2023 07:30
Method: METALS PREP - SOLIDS - SW3050B **Prep Code:** 3050_I_LOW

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23060921-01		0.5466 (g)	50 (mL)	91.47	Ziplock Bag
HS23060921-02		0.5471 (g)	50 (mL)	91.39	Ziplock Bag

Batch ID: 196603 **Start Date:** 22 Jun 2023 12:30 **End Date:** 22 Jun 2023 12:30
Method: SV SOXHLET EXTRACTION - SW3541 **Prep Code:** 3541_B

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23060921-01		30.12 (grams)	1 (mL)	0.0332	Ziplock Bag
HS23060921-02		30.02 (grams)	1 (mL)	0.03331	Ziplock Bag

Batch ID: 196610 **Start Date:** 21 Jun 2023 16:22 **End Date:** 21 Jun 2023 16:22
Method: CR6 PREP - SOIL **Prep Code:** CR6_S_PR3060A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23060921-01		2.5 (g)	100 (mL)	40	Ziplock Bag
HS23060921-02		2.5 (g)	100 (mL)	40	Ziplock Bag

Batch ID: 196635 **Start Date:** 22 Jun 2023 09:30 **End Date:** 22 Jun 2023 09:30
Method: LA29B SAR CATION PREP **Prep Code:** LA29B SAR CATPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23060921-01		100.2 (g)	100 (mL)	0.998	Ziplock Bag
HS23060921-02		100.3 (g)	100 (mL)	0.997	Ziplock Bag

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 196365 (1)		Test Name : TPH DRO/ORO BY SW8015C			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45		19 Jun 2023 06:30	20 Jun 2023 11:54	1
HS23060921-02	SS2	14 Jun 2023 14:52		19 Jun 2023 06:30	20 Jun 2023 12:21	1
Batch ID: 196431 (0)		Test Name : METALS BY SW6020A			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45		21 Jun 2023 07:30	21 Jun 2023 23:29	1
HS23060921-02	SS2	14 Jun 2023 14:52		21 Jun 2023 07:30	21 Jun 2023 23:31	1
Batch ID: 196603 (0)		Test Name : SEMIVOLATILES			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45		22 Jun 2023 12:30	27 Jun 2023 01:03	1
HS23060921-02	SS2	14 Jun 2023 14:52		22 Jun 2023 12:30	27 Jun 2023 01:25	1
Batch ID: 196610 (0)		Test Name : HEXAVALENT CHROMIUM BY SW7196A			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45		21 Jun 2023 16:22	22 Jun 2023 15:08	1
HS23060921-02	SS2	14 Jun 2023 14:52		21 Jun 2023 16:22	22 Jun 2023 15:08	1
Batch ID: 196635 (0)		Test Name : LA 29B - 1:1 SOLUBLE CATIONS FOR SAR			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45		22 Jun 2023 09:30	23 Jun 2023 15:00	10
HS23060921-02	SS2	14 Jun 2023 14:52		22 Jun 2023 09:30	23 Jun 2023 15:02	10
Batch ID: R439277 (0)		Test Name : VOLATILES BY SW8260C			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45			19 Jun 2023 21:53	1
HS23060921-02	SS2	14 Jun 2023 14:52			19 Jun 2023 22:15	1
Batch ID: R439419 (0)		Test Name : GASOLINE RANGE ORGANICS BY SW8015C			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45			20 Jun 2023 13:14	1
HS23060921-02	SS2	14 Jun 2023 14:52			20 Jun 2023 12:58	1
Batch ID: R439498 (0)		Test Name : SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45			21 Jun 2023 15:31	10
HS23060921-02	SS2	14 Jun 2023 14:52			21 Jun 2023 15:31	10
Batch ID: R439541 (0)		Test Name : SUBCONTRACTED ANALYSIS			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45			22 Jun 2023 09:16	1
HS23060921-02	SS2	14 Jun 2023 14:52			22 Jun 2023 09:16	1
Batch ID: R439566 (0)		Test Name : PH SOIL BY SW9045D			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45			22 Jun 2023 12:02	1
HS23060921-02	SS2	14 Jun 2023 14:52			22 Jun 2023 12:02	1
Batch ID: R439752 (0)		Test Name : LA29B SODIUM ADSORPTION RATIO			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45			23 Jun 2023 16:20	1
HS23060921-02	SS2	14 Jun 2023 14:52			23 Jun 2023 16:20	1
Batch ID: R440708 (0)		Test Name : SUBCONTRACT ANALYSIS - METALS ANALYSIS			Matrix: Soil	
HS23060921-01	SS1	14 Jun 2023 14:45			06 Jul 2023 19:46	1
HS23060921-02	SS2	14 Jun 2023 14:52			06 Jul 2023 19:46	1

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: 196365 (1)		Instrument: FID-8		Method: TPH DRO/ORO BY SW8015C						
MBLK	Sample ID: MBLK-196365	Units: mg/Kg			Analysis Date: 19-Jun-2023 20:01					
Client ID:	Run ID: FID-8_439436	SeqNo: 7375316		PrepDate: 19-Jun-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	

TPH (Oil Range)	U	3.4							
TPH (Diesel Range)	U	1.7							
Surr: 2-Fluorobiphenyl	2.785	0.10	3.33	0	83.6	60 - 129			

LCS	Sample ID: LCS-196365	Units: mg/Kg			Analysis Date: 19-Jun-2023 20:28				
Client ID:	Run ID: FID-8_439436	SeqNo: 7375317		PrepDate: 19-Jun-2023		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

TPH (Oil Range)	38.56	3.4	33.33	0	116	70 - 130			
TPH (Diesel Range)	36.78	1.7	33.33	0	110	70 - 130			
Surr: 2-Fluorobiphenyl	3.915	0.10	3.33	0	118	60 - 129			

MS	Sample ID: HS23060828-05MS	Units: mg/Kg			Analysis Date: 19-Jun-2023 21:21				
Client ID:	Run ID: FID-8_439436	SeqNo: 7375319		PrepDate: 19-Jun-2023		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

TPH (Oil Range)	139.6	3.4	33.16	79.51	181	70 - 130			SE
TPH (Diesel Range)	145	1.7	33.16	100.8	133	70 - 130			SE
Surr: 2-Fluorobiphenyl	5.002	0.10	3.313	0	151	60 - 129			S

MSD	Sample ID: HS23060828-05MSD	Units: mg/Kg			Analysis Date: 19-Jun-2023 21:47				
Client ID:	Run ID: FID-8_439436	SeqNo: 7375320		PrepDate: 19-Jun-2023		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

TPH (Oil Range)	136.8	3.4	32.91	79.51	174	70 - 130	139.6	2.04	30	SE
TPH (Diesel Range)	141.2	1.7	32.91	100.8	123	70 - 130	145	2.66	30	E
Surr: 2-Fluorobiphenyl	4.874	0.099	3.288	0	148	60 - 129	5.002	2.59	30	S

The following samples were analyzed in this batch:

HS23060921-01	HS23060921-02
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Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: R439419 (0)		Instrument: FID-20		Method: GASOLINE RANGE ORGANICS BY SW8015C						
MBLK	Sample ID: MBLK-230620	Units: mg/Kg			Analysis Date: 20-Jun-2023 10:21					
Client ID:	Run ID: FID-20_439419	SeqNo: 7374377		PrepDate:			DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	

Gasoline Range Organics	U	0.050							
<i>Surr: 4-Bromofluorobenzene</i>	0.08268	0.0050	0.1	0	82.7	75 - 121			

LCS	Sample ID: LCS-230620	Units: mg/Kg			Analysis Date: 20-Jun-2023 09:49				
Client ID:	Run ID: FID-20_439419	SeqNo: 7374375		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Gasoline Range Organics	0.9127	0.050	1	0	91.3	72 - 121			
<i>Surr: 4-Bromofluorobenzene</i>	0.08513	0.0050	0.1	0	85.1	75 - 121			

LCSD	Sample ID: LCSD-230620	Units: mg/Kg			Analysis Date: 20-Jun-2023 10:05				
Client ID:	Run ID: FID-20_439419	SeqNo: 7374376		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Gasoline Range Organics	0.8774	0.050	1	0	87.7	72 - 121	0.9127	3.95	30
<i>Surr: 4-Bromofluorobenzene</i>	0.0852	0.0050	0.1	0	85.2	75 - 121	0.08513	0.0798	30

The following samples were analyzed in this batch: HS23060921-01 HS23060921-02

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: 196431 (0)		Instrument: ICPMS07		Method: METALS BY SW6020A						
MBLK	Sample ID: MBLK-196431	Units: mg/Kg			Analysis Date: 21-Jun-2023 22:33					
Client ID:	Run ID: ICPMS07_439474	SeqNo: 7376912		PrepDate: 21-Jun-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual	
Barium	U	0.496								
Copper	U	0.199								
Lead	0.06672	0.496							J	
Nickel	U	0.496								
Silver	U	0.496								
Zinc	U	0.496								
LCS	Sample ID: LCS-196431	Units: mg/Kg			Analysis Date: 21-Jun-2023 22:35					
Client ID:	Run ID: ICPMS07_439474	SeqNo: 7376913		PrepDate: 21-Jun-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual	
Barium	10.41	0.497	9.944	0	105	80 - 120				
Copper	11.33	0.199	9.944	0	114	80 - 120				
Lead	10.55	0.497	9.944	0	106	80 - 120				
Nickel	11.28	0.497	9.944	0	113	80 - 120				
Zinc	11.05	0.497	9.944	0	111	80 - 120				
LCS	Sample ID: LCS-196431	Units: mg/Kg			Analysis Date: 22-Jun-2023 13:14					
Client ID:	Run ID: ICPMS07_439595	SeqNo: 7378233		PrepDate: 21-Jun-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual	
Silver	11.52	0.497	9.944	0	116	80 - 120				
MS	Sample ID: HS23061115-06MS	Units: mg/Kg			Analysis Date: 21-Jun-2023 22:41					
Client ID:	Run ID: ICPMS07_439474	SeqNo: 7376916		PrepDate: 21-Jun-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual	
Barium	18.08	0.489	9.781	8.225	101	75 - 125				
Copper	13.32	0.196	9.781	2.332	112	75 - 125				
Lead	11.87	0.489	9.781	1.39	107	75 - 125				
Nickel	15.7	0.489	9.781	6.297	96.2	75 - 125				
Zinc	22.06	0.489	9.781	13.59	86.6	75 - 125				

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: 196431 (0)	Instrument: ICPMS07	Method: METALS BY SW6020A								
MS	Sample ID: HS23061115-06MS	Units: mg/Kg	Analysis Date: 22-Jun-2023 13:16							
Client ID:	Run ID: ICPMS07_439595	SeqNo: 7378234	PrepDate: 21-Jun-2023 DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Silver	10.82	0.464	9.275	0	117	75 - 125				
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MSD	Sample ID: HS23061115-06MSD	Units: mg/Kg	Analysis Date: 21-Jun-2023 22:43							
Client ID:	Run ID: ICPMS07_439474	SeqNo: 7376917	PrepDate: 21-Jun-2023 DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Barium	18.55	0.464	9.275	8.225	111	75 - 125	18.08	2.57	20	
Copper	11.86	0.185	9.275	2.332	103	75 - 125	13.32	11.6	20	
Lead	11.13	0.464	9.275	1.39	105	75 - 125	11.87	6.43	20	
Nickel	15.18	0.464	9.275	6.297	95.8	75 - 125	15.7	3.4	20	
Silver	11.45	0.464	9.275	0.01122	123	75 - 125	12.38	7.8	20	
Zinc	21.36	0.464	9.275	13.59	83.8	75 - 125	22.06	3.24	20	

PDS	Sample ID: HS23061115-06PDS	Units: mg/Kg	Analysis Date: 21-Jun-2023 22:45							
Client ID:	Run ID: ICPMS07_439474	SeqNo: 7376918	PrepDate: 21-Jun-2023 DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual

Barium	18.95	0.480	9.593	8.225	112	75 - 125				
Copper	13.17	0.192	9.593	2.332	113	75 - 125				
Lead	12.04	0.480	9.593	1.39	111	75 - 125				
Nickel	16.82	0.480	9.593	6.297	110	75 - 125				
Zinc	23.86	0.480	9.593	13.59	107	75 - 125				

SD	Sample ID: HS23061115-06SD	Units: mg/Kg	Analysis Date: 21-Jun-2023 22:39							
Client ID:	Run ID: ICPMS07_439474	SeqNo: 7376915	PrepDate: 21-Jun-2023 DF: 5							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	RPD Limit	Qual

Barium	8.388	2.40					8.225	1.98	10	
Copper	2.456	0.959					2.332	5.34	10	
Lead	1.518	2.40					1.39	0	10	J
Nickel	6.518	2.40					6.297	3.51	10	
Silver	U	2.40					0.01122	0	10	
Zinc	14.15	2.40					13.59	4.08	10	

The following samples were analyzed in this batch:

HS23060921-01	HS23060921-02
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Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: 196635 (0)		Instrument: ICPMS07		Method: LA 29B - 1:1 SOLUBLE CATIONS FOR SAR						
MBLK	Sample ID: MBLK-196635	Units: mg/L		Analysis Date: 23-Jun-2023 14:58						
Client ID:		Run ID: ICPMS07_439687		SeqNo: 7381584	PrepDate: 22-Jun-2023	DF: 10				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Calcium	U	5.00								
Magnesium	U	5.00								
Sodium	U	5.00								

DUP		Sample ID: HS23060921-02DUP		Units: mg/L		Analysis Date: 23-Jun-2023 15:04				
Client ID: SS2		Run ID: ICPMS07_439687		SeqNo: 7381587	PrepDate: 22-Jun-2023	DF: 10				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Calcium	23.09	4.98					23.15	0.26	30	
Magnesium	7.945	4.98					7.912	0.409	30	
Sodium	7.036	4.98					9.18	26.4	30	

The following samples were analyzed in this batch: HS23060921-01 HS23060921-02

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: 196603 (0)	Instrument: SV-4	Method: SEMIVOLATILES
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MBLK	Sample ID: MBLK-196603	Units: ug/Kg	Analysis Date: 26-Jun-2023 15:42							
Client ID:	Run ID: SV-4_439983	SeqNo: 7387561	PrepDate: 22-Jun-2023 DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

1-Methylnaphthalene	U	170								
2-Methylnaphthalene	U	170								
Acenaphthene	U	170								
Anthracene	U	170								
Benz(a)anthracene	U	170								
Benzo(a)pyrene	U	170								
Benzo(b)fluoranthene	U	170								
Benzo(k)fluoranthene	U	170								
Chrysene	U	170								
Dibenz(a,h)anthracene	U	170								
Fluoranthene	U	170								
Fluorene	U	170								
Indeno(1,2,3-cd)pyrene	U	170								
Pyrene	U	170								
<i>Surr: 2,4,6-Tribromophenol</i>	<i>3228</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>96.8</i>	<i>36 - 126</i>				
<i>Surr: 2-Fluorobiphenyl</i>	<i>2925</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>87.8</i>	<i>43 - 125</i>				
<i>Surr: 2-Fluorophenol</i>	<i>2207</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>66.2</i>	<i>37 - 125</i>				
<i>Surr: 4-Terphenyl-d14</i>	<i>2816</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>84.5</i>	<i>32 - 125</i>				
<i>Surr: Nitrobenzene-d5</i>	<i>2758</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>82.8</i>	<i>37 - 125</i>				
<i>Surr: Phenol-d6</i>	<i>2421</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>72.6</i>	<i>40 - 125</i>				

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: 196603 (0)		Instrument: SV-4		Method: SEMIVOLATILES						
LCS	Sample ID: LCS-196603	Units: ug/Kg			Analysis Date: 26-Jun-2023 15:20					
Client ID:	Run ID: SV-4_439983	SeqNo: 7387560		PrepDate: 22-Jun-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	1431	170	1667	0	85.8	55 - 120				
2-Methylnaphthalene	1353	170	1667	0	81.2	55 - 120				
Acenaphthene	1404	170	1667	0	84.2	55 - 120				
Anthracene	1495	170	1667	0	89.7	55 - 120				
Benz(a)anthracene	1368	170	1667	0	82.1	55 - 125				
Benzo(a)pyrene	1376	170	1667	0	82.5	55 - 120				
Benzo(b)fluoranthene	1367	170	1667	0	82.0	55 - 125				
Benzo(k)fluoranthene	1229	170	1667	0	73.7	55 - 130				
Chrysene	1335	170	1667	0	80.1	55 - 125				
Dibenz(a,h)anthracene	1413	170	1667	0	84.7	55 - 120				
Fluoranthene	1451	170	1667	0	87.1	55 - 125				
Fluorene	1483	170	1667	0	89.0	55 - 120				
Indeno(1,2,3-cd)pyrene	1412	170	1667	0	84.7	55 - 125				
Pyrene	1421	170	1667	0	85.2	55 - 125				
<i>Surr: 2,4,6-Tribromophenol</i>	<i>3407</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>102</i>	<i>36 - 126</i>				
<i>Surr: 2-Fluorobiphenyl</i>	<i>2996</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>89.9</i>	<i>43 - 125</i>				
<i>Surr: 2-Fluorophenol</i>	<i>2454</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>73.6</i>	<i>37 - 125</i>				
<i>Surr: 4-Terphenyl-d14</i>	<i>2961</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>88.8</i>	<i>32 - 125</i>				
<i>Surr: Nitrobenzene-d5</i>	<i>2786</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>83.6</i>	<i>37 - 125</i>				
<i>Surr: Phenol-d6</i>	<i>2696</i>	<i>170</i>	<i>3333</i>	<i>0</i>	<i>80.9</i>	<i>40 - 125</i>				

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: 196603 (0)		Instrument: SV-4		Method: SEMIVOLATILES						
MS	Sample ID: HS23060988-14MS	Units: ug/Kg			Analysis Date: 27-Jun-2023 02:08					
Client ID:	Run ID: SV-4_439987	SeqNo: 7387715	PrepDate: 22-Jun-2023	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	1088	170	1663	0	65.5	55 - 120				
2-Methylnaphthalene	1804	170	1663	0	108	55 - 120				
Acenaphthene	1044	170	1663	0	62.8	55 - 120				
Anthracene	1100	170	1663	0	66.1	55 - 120				
Benz(a)anthracene	1059	170	1663	0	63.7	55 - 125				
Benzo(a)pyrene	1086	170	1663	0	65.3	55 - 120				
Benzo(b)fluoranthene	1042	170	1663	0	62.7	55 - 125				
Benzo(k)fluoranthene	1024	170	1663	0	61.6	55 - 130				
Chrysene	1100	170	1663	0	66.2	55 - 125				
Dibenz(a,h)anthracene	1139	170	1663	0	68.5	55 - 120				
Fluoranthene	1133	170	1663	0	68.1	55 - 125				
Fluorene	1134	170	1663	0	68.2	55 - 120				
Indeno(1,2,3-cd)pyrene	1098	170	1663	0	66.1	55 - 125				
Pyrene	1045	170	1663	0	62.9	55 - 125				
<i>Surr: 2,4,6-Tribromophenol</i>	<i>2522</i>	<i>170</i>	<i>3324</i>	<i>0</i>	<i>75.9</i>	<i>36 - 126</i>				
<i>Surr: 2-Fluorobiphenyl</i>	<i>2308</i>	<i>170</i>	<i>3324</i>	<i>0</i>	<i>69.4</i>	<i>43 - 125</i>				
<i>Surr: 2-Fluorophenol</i>	<i>1809</i>	<i>170</i>	<i>3324</i>	<i>0</i>	<i>54.4</i>	<i>37 - 125</i>				
<i>Surr: 4-Terphenyl-d14</i>	<i>2275</i>	<i>170</i>	<i>3324</i>	<i>0</i>	<i>68.5</i>	<i>32 - 125</i>				
<i>Surr: Nitrobenzene-d5</i>	<i>1956</i>	<i>170</i>	<i>3324</i>	<i>0</i>	<i>58.8</i>	<i>37 - 125</i>				
<i>Surr: Phenol-d6</i>	<i>2000</i>	<i>170</i>	<i>3324</i>	<i>0</i>	<i>60.2</i>	<i>40 - 125</i>				

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: 196603 (0)		Instrument: SV-4		Method: SEMIVOLATILES						
MSD	Sample ID: HS23060988-14MSD	Units: ug/Kg			Analysis Date: 27-Jun-2023 02:30					
Client ID:	Run ID: SV-4_439987	SeqNo: 7387716		PrepDate: 22-Jun-2023		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	1177	170	1664	0	70.7	55 - 120	1088	7.79	30	
2-Methylnaphthalene	1954	170	1664	0	117	55 - 120	1804	8	30	
Acenaphthene	1159	170	1664	0	69.6	55 - 120	1044	10.4	30	
Anthracene	1213	170	1664	0	72.9	55 - 120	1100	9.82	30	
Benz(a)anthracene	1173	170	1664	0	70.5	55 - 125	1059	10.2	30	
Benzo(a)pyrene	1205	170	1664	0	72.4	55 - 120	1086	10.4	30	
Benzo(b)fluoranthene	1121	170	1664	0	67.3	55 - 125	1042	7.29	30	
Benzo(k)fluoranthene	1137	170	1664	0	68.3	55 - 130	1024	10.4	30	
Chrysene	1235	170	1664	0	74.2	55 - 125	1100	11.6	30	
Dibenz(a,h)anthracene	1321	170	1664	0	79.4	55 - 120	1139	14.8	30	
Fluoranthene	1171	170	1664	0	70.4	55 - 125	1133	3.34	30	
Fluorene	1229	170	1664	0	73.8	55 - 120	1134	7.96	30	
Indeno(1,2,3-cd)pyrene	1266	170	1664	0	76.1	55 - 125	1098	14.2	30	
Pyrene	1133	170	1664	0	68.1	55 - 125	1045	8.04	30	
Surr: 2,4,6-Tribromophenol	2775	170	3327	0	83.4	36 - 126	2522	9.56	30	
Surr: 2-Fluorobiphenyl	2558	170	3327	0	76.9	43 - 125	2308	10.3	30	
Surr: 2-Fluorophenol	2073	170	3327	0	62.3	37 - 125	1809	13.6	30	
Surr: 4-Terphenyl-d14	2466	170	3327	0	74.1	32 - 125	2275	8.05	30	
Surr: Nitrobenzene-d5	2256	170	3327	0	67.8	37 - 125	1956	14.2	30	
Surr: Phenol-d6	2219	170	3327	0	66.7	40 - 125	2000	10.4	30	

The following samples were analyzed in this batch: HS23060921-01 HS23060921-02

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: R439277 (0)	Instrument: VOA5	Method: VOLATILES BY SW8260C
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MBLK		Sample ID: VBLKS2-061923			Units: ug/Kg		Analysis Date: 19-Jun-2023 21:32			
Client ID:		Run ID: VOA5_439277			SeqNo: 7371246		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trimethylbenzene	U	5.0								
1,3,5-Trimethylbenzene	U	5.0								
Benzene	U	5.0								
Ethylbenzene	U	5.0								
Naphthalene	U	5.0								
Toluene	U	5.0								
Xylenes, Total	U	5.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>47.44</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>94.9</i>	<i>76 - 125</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>47.31</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>94.6</i>	<i>80 - 120</i>				
<i>Surr: Dibromofluoromethane</i>	<i>46.51</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>93.0</i>	<i>80 - 119</i>				
<i>Surr: Toluene-d8</i>	<i>52.82</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>106</i>	<i>81 - 118</i>				

LCS		Sample ID: VLCSS2-061923			Units: ug/Kg		Analysis Date: 19-Jun-2023 20:49			
Client ID:		Run ID: VOA5_439277			SeqNo: 7371245		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trimethylbenzene	39.76	5.0	50	0	79.5	74 - 126				
1,3,5-Trimethylbenzene	40.05	5.0	50	0	80.1	76 - 126				
Benzene	45.32	5.0	50	0	90.6	75 - 124				
Ethylbenzene	40.85	5.0	50	0	81.7	70 - 123				
Naphthalene	39.18	5.0	50	0	78.4	71 - 128				
Toluene	44.33	5.0	50	0	88.7	76 - 122				
Xylenes, Total	124.6	5.0	150	0	83.0	77 - 128				
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>50.75</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>102</i>	<i>76 - 125</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>51.65</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>80 - 120</i>				
<i>Surr: Dibromofluoromethane</i>	<i>51.94</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>104</i>	<i>80 - 119</i>				
<i>Surr: Toluene-d8</i>	<i>51.72</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>81 - 118</i>				

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: R439277 (0)		Instrument: VOA5		Method: VOLATILES BY SW8260C						
MS		Sample ID: HS23060921-01MS		Units: ug/Kg		Analysis Date: 19-Jun-2023 22:36				
Client ID: SS1		Run ID: VOA5_439277		SeqNo: 7371249		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trimethylbenzene	29.44	5.0	49.5	0	59.5	70 - 130				S
1,3,5-Trimethylbenzene	30.76	5.0	49.5	0	62.1	70 - 130				S
Benzene	43.05	5.0	49.5	0	87.0	70 - 130				
Ethylbenzene	36.46	5.0	49.5	0	73.7	70 - 130				
Naphthalene	20.54	5.0	49.5	0	41.5	70 - 130				S
Toluene	42.84	5.0	49.5	0	86.5	70 - 130				
Xylenes, Total	109.8	5.0	148.5	0	73.9	70 - 130				
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>50.51</i>	<i>0</i>	<i>49.5</i>	<i>0</i>	<i>102</i>	<i>70 - 126</i>				
<i>Surr: 4-Bromofluorobenzene</i>	<i>52.41</i>	<i>0</i>	<i>49.5</i>	<i>0</i>	<i>106</i>	<i>70 - 130</i>				
<i>Surr: Dibromofluoromethane</i>	<i>51.47</i>	<i>0</i>	<i>49.5</i>	<i>0</i>	<i>104</i>	<i>70 - 130</i>				
<i>Surr: Toluene-d8</i>	<i>53.99</i>	<i>0</i>	<i>49.5</i>	<i>0</i>	<i>109</i>	<i>70 - 130</i>				

MSD		Sample ID: HS23060921-01MSD		Units: ug/Kg		Analysis Date: 19-Jun-2023 22:57				
Client ID: SS1		Run ID: VOA5_439277		SeqNo: 7371250		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trimethylbenzene	29.53	5.0	50.5	0	58.5	70 - 130	29.44	0.284	30	S
1,3,5-Trimethylbenzene	31.83	5.0	50.5	0	63.0	70 - 130	30.76	3.41	30	S
Benzene	46.53	5.0	50.5	0	92.1	70 - 130	43.05	7.77	30	
Ethylbenzene	39.01	5.0	50.5	0	77.2	70 - 130	36.46	6.77	30	
Naphthalene	21.2	5.0	50.5	0	42.0	70 - 130	20.54	3.13	30	S
Toluene	45.99	5.0	50.5	0	91.1	70 - 130	42.84	7.09	30	
Xylenes, Total	115.7	5.0	151.5	0	76.4	70 - 130	109.8	5.27	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>50.59</i>	<i>0</i>	<i>50.5</i>	<i>0</i>	<i>100</i>	<i>70 - 126</i>	<i>50.51</i>	<i>0.16</i>	<i>30</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>53.05</i>	<i>0</i>	<i>50.5</i>	<i>0</i>	<i>105</i>	<i>70 - 130</i>	<i>52.41</i>	<i>1.21</i>	<i>30</i>	
<i>Surr: Dibromofluoromethane</i>	<i>51.64</i>	<i>0</i>	<i>50.5</i>	<i>0</i>	<i>102</i>	<i>70 - 130</i>	<i>51.47</i>	<i>0.334</i>	<i>30</i>	
<i>Surr: Toluene-d8</i>	<i>53.79</i>	<i>0</i>	<i>50.5</i>	<i>0</i>	<i>107</i>	<i>70 - 130</i>	<i>53.99</i>	<i>0.376</i>	<i>30</i>	

The following samples were analyzed in this batch: HS23060921-01 HS23060921-02

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: 196610 (0) **Instrument:** UV-2450 **Method:** HEXAVALENT CHROMIUM BY SW7196A

MBLK	Sample ID: MBLK-196610	Units: mg/kg			Analysis Date: 22-Jun-2023 15:08				
Client ID:		Run ID: UV-2450_439625		SeqNo: 7378846	PrepDate: 21-Jun-2023	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Chromium, Hexavalent U 2.00

LCS	Sample ID: LCS-196610	Units: mg/kg			Analysis Date: 22-Jun-2023 15:08				
Client ID:		Run ID: UV-2450_439625		SeqNo: 7378845	PrepDate: 21-Jun-2023	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Chromium, Hexavalent 10.04 2.00 10 0 100 81 - 115

MS	Sample ID: HS23060921-02MS	Units: mg/kg			Analysis Date: 22-Jun-2023 15:08				
Client ID: SS2		Run ID: UV-2450_439625		SeqNo: 7378843	PrepDate: 21-Jun-2023	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Chromium, Hexavalent 9.24 2.00 10 -0.04 92.8 81 - 115

MSD	Sample ID: HS23060921-02MSD	Units: mg/kg			Analysis Date: 22-Jun-2023 15:08				
Client ID: SS2		Run ID: UV-2450_439625		SeqNo: 7378844	PrepDate: 21-Jun-2023	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual

Chromium, Hexavalent 9.08 2.00 10 -0.04 91.2 81 - 115 9.24 1.75 20

The following samples were analyzed in this batch: HS23060921-01 HS23060921-02

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: R439498 (0)		Instrument: WetChem_HS		Method: SPECIFIC CONDUCTIVITY, SOIL 10X EXTRACT						
MBLK	Sample ID: MBLK-R439498	Units: umhos/cm		Analysis Date: 21-Jun-2023 15:31						
Client ID:		Run ID: WetChem_HS_439498		SeqNo: 7375935		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual	
Conductance, Soil Extract	U	5.00								
LCS	Sample ID: LCS-R439498	Units: umhos/cm		Analysis Date: 21-Jun-2023 15:31						
Client ID:		Run ID: WetChem_HS_439498		SeqNo: 7375934		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual	
Conductance, Soil Extract	1429	5.00	1413	0	101	85 - 115				
DUP	Sample ID: HS23060921-02DUP	Units: umhos/cm		Analysis Date: 21-Jun-2023 15:31						
Client ID: SS2		Run ID: WetChem_HS_439498		SeqNo: 7375936		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual	
Conductance, Soil Extract	364	50.0					361	0.828	20	

The following samples were analyzed in this batch: HS23060921-01 HS23060921-02

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

QC BATCH REPORT

Batch ID: R439566 (0)		Instrument: WetChem_HS		Method: PH SOIL BY SW9045D						
DUP	Sample ID: HS23061115-06DUP	Units: pH Units		Analysis Date: 22-Jun-2023 12:02						
Client ID:	Run ID: WetChem_HS_439566	SeqNo: 7377726		PrepDate:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	6.09	0.100					5.72	6.27	10
Temp Deg C @pH	22.3	0					22.3	0	10

The following samples were analyzed in this batch: HS23060921-01 HS23060921-02

Client: Bison Oil and Gas
Project: CR 89
WorkOrder: HS23060921

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L23-358	31-May-2025
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352; 2022-2023	31-Jul-2023
Louisiana	03087-2023	30-Jun-2024
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-23-31	30-Apr-2024
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS23060921

Date/Time Received: 14-Jun-2023 15:53

Client Name: Bison Oil and Gas

Received by: Malcolm Burleson

Completed By: <u>/S/ Paresh M. Giga</u>	16-Jun-2023 13:44	Reviewed by: <u>/S/ Tyler Monroe</u>	19-Jun-2023 11:36
eSignature	Date/Time	eSignature	Date/Time

Matrices: **Soil** Carrier name: **FedEx Priority Overnight**

- | | | | |
|---|---|--|---|
| Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| Custody seals intact on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| VOA/TX1005/TX1006 Solids in hermetically sealed vials? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Not Present <input type="checkbox"/> |
| Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | 1 Page(s) |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | COC IDs:none |
| Samplers name present on COC? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Container/Temp Blank temperature in compliance? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |

Temperature(s)/Thermometer(s):	2.0C/1.9C U/C	IR31
Cooler(s)/Kit(s):	Blue	
Date/Time sample(s) sent to storage:	6/16/23 13:50	
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/> No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
pH adjusted by:	<div style="border: 1px solid black; height: 20px;"></div>	

Login Notes:

Client Contacted: _____ Date Contacted: _____ Person Contacted: _____

Contacted By: _____ Regarding: _____

Comments:

Corrective Action:



ALS Loveland Service Center
 965 E 11th Street
 Loveland, CO 80537
 Phone: 970-305-1648

CHAIN OF CUSTODY

Page 1 of 1

HS23060921
 Bison Oil and Gas
 CR 89

Right Solution
 Right Partner



Shipping to Samples to: _____

TURNAROUND: 10 Day 5 Day 3 Day Other _____

PROJECT NAME	PROJECT No.	SAMPLER	SITE ID	EDD FORMAT	PURCHASE ORDER	BILL TO COMPANY	INVOICE ATTN TO	ADDRESS	CITY / STATE / ZIP	PHONE	FAX	E-MAIL	MATRIX	Sample Date	Sample Time	# Bottles	Pres.	QC	MSMSD	Parameter/Method Request for Analysis
CR 89																				GR0, DR0, OR0
BISON OPERATING						Same	Same													8260 VOC'S
41005 PROS																				8270 VOC'S
BIGWASDALE ROAD																				Conductivity, PH
770 692 1965																				Total Metals - Ba, Cu, Pb, Ni, Ag, Zn
																				Hexavalent Cr
																				LA298 - Selenium Adsorption Ratio
																				SUB Keiso - Total Metals - As, Cd, Se
																				SUB Holland - Hbt Water Soluble Barren
1	SS1	S	6/14/23	2:45P																A
2	SS2	S	6/14/23	2:50P																B
3																				C
4																				D
5																				E
6																				F
7																				G
8																				H
9																				I
10																				

* MATRIX: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter
 DISPOSAL: By lab Return to Client

Comments:	QC PACKAGE (check below)		
	<input type="checkbox"/>	LEVEL II (Standard GC)	
	<input type="checkbox"/>	LEVEL III (Std GC + forms)	
	<input type="checkbox"/>	LEVEL IV (Std GC + forms + raw data)	

SIGNATURE	PRINTED NAME	DATE	TIME	COOLER TEMP
<i>[Signature]</i>	SPH B120	6/14/23	3:52	12.31
<i>[Signature]</i>	Tyler Moore	6/14/23	1:53	2.02
<i>[Signature]</i>		06/16/2023	09:30	-0.16
RELINQUISHED BY	RECEIVED BY			
RELINQUISHED BY	RECEIVED BY			
RELINQUISHED BY	RECEIVED BY			

Preservative: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4°C 9-5035

As, Barony Blunt

TRK# 6182 5244 1355 **FRI - 16 JUN 10:30A**
0201 **PRIORITY OVERNIGHT**

NA SGRA **77099**
TX-US **IAH**



Part # 15707-434 MTRV EXP 05/22 *



July 06, 2023

Service Request No:K2306906

Tyler Monroe
ALS Fort Collins
225 Commerce Drive
Fort Collins, CO 80524

Laboratory Results for: HS23060921

Dear Tyler,

Enclosed are the results of the sample(s) submitted to our laboratory June 16, 2023
For your reference, these analyses have been assigned our service request number **K2306906**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3260. You may also contact me via email at Luke.Rahn@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for Luke Rahn
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental



Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: ALS Environmental - US
Project: HS23060921
Sample Matrix: Soil

Service Request: K2306906
Date Received: 06/16/2023

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Two soil samples were received for analysis at ALS Environmental on 06/16/2023. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

Method 6020B, 07/05/2023: The Relative Percent Difference (RPD) for the replicate analysis of Arsenic in sample SS1 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Approved by  _____

Date 07/06/2023



SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

CLIENT ID: SS1	Lab ID: K2306906-001					
-----------------------	-----------------------------	--	--	--	--	--

Analyte	Results	Flag	MDL	MRL	Units	Method
Arsenic	1.24			0.48	mg/Kg	6020B
Cadmium	0.086			0.039	mg/Kg	6020B
Solids, Total	83.7				Percent	160.3 Modified

CLIENT ID: SS2	Lab ID: K2306906-002					
-----------------------	-----------------------------	--	--	--	--	--

Analyte	Results	Flag	MDL	MRL	Units	Method
Arsenic	1.45			0.40	mg/Kg	6020B
Cadmium	0.056			0.032	mg/Kg	6020B
Solids, Total	90.7				Percent	160.3 Modified



Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: ALS Environmental - US
Project: HS23060921

Service Request:K2306906

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
K2306906-001	SS1	6/14/2023	1445
K2306906-002	SS2	6/14/2023	1452



K2306906

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: Colorado

COC ID: 22042

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: Tyler Monroe
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: tyler.monroe@alsglobal.com
Alternate Contact: Jumoke M. Lawal
Email: jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS23060921
TSR: ALS_Fort Collins

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
1. HS23060921-01	SS1	Soil	14 Jun 2023 14:45
SUB Kelso Total Metals 6020 - As, Cd, Se			22 Jun 2023
2. HS23060921-02	SS2	Soil	14 Jun 2023 14:52
SUB Kelso Total Metals 6020 - As, Cd, Se			22 Jun 2023

Comments: Please analyze for the analysis listed above.
Report to MDL on Final Report.
Send report to the emails shown above.

QC Level: STD (Laboratory Standard QC: method blank and LCS required)

Relinquished By:
Received By:
Cooler ID(s): _____

Date/Time: 6/15/23 1400
Date/Time: 6/16/23 1030
Temperature(s): _____

RIGHT SOLUTIONS | RIGHT PARTNER

PM LR

Cooler Receipt and Preservation Form

Client Houston Service Request K23 06906
Received: 6/16/23 Opened: 6/16/23 By: VM Unloaded: 6/16/23 By: VM

- 1. Samples were received via? USPS Fed Ex UPS DHL PDX Courier Hand Delivered
- 2. Samples were received in: (circle) Cooler Box Envelope Other NA
- 3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID/ NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
	<u>0.2</u>	<u>IR04</u>	<u>22012</u>			<u>618252441344</u>	

- 4. Was a Temperature Blank present in cooler? NA Y N If yes, note the temperature in the appropriate column above:
If no, take the temperature of a representative sample bottle contained within the cooler; note in the column "Sample Temp":
- 5. Were samples received within the method specified temperature ranges? NA Y N
If no, were they received on ice and same day as collected? If not, note the cooler # above and notify the PM. NA Y N
- If applicable, tissue samples were received: Frozen Partially Thawed Thawed
- 6. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
- 7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
- 8. Were samples received in good condition (unbroken) NA Y N
- 9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
- 10. Did all sample labels and tags agree with custody papers? NA Y N
- 11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
- 12. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below NA Y N
- 13. Were VOA vials received without headspace? Indicate in the table below NA Y N
- 14. Was C12/Res negative? NA Y N
- 15. Were samples received within the method specified time limit? If not, note the error below and notify the PM NA Y N
- 16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? NA Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____



Miscellaneous Forms

ALS Environmental—Kelso Laboratory
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Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
 - i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
 - i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses**

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: ALS Environmental - US
Project: HS23060921/

Service Request: K2306906

Sample Name: SS1
Lab Code: K2306906-001
Sample Matrix: Soil

Date Collected: 06/14/23
Date Received: 06/16/23

Analysis Method
160.3 Modified
6020B

Extracted/Digested By

MSOLADEY

Analyzed By
PPRICE
KLINN

Sample Name: SS2
Lab Code: K2306906-002
Sample Matrix: Soil

Date Collected: 06/14/23
Date Received: 06/16/23

Analysis Method
160.3 Modified
6020B

Extracted/Digested By

MSOLADEY

Analyzed By
PPRICE
KLINN



Sample Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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www.alsglobal.com



Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: ALS Environmental - US
Project: HS23060921
Sample Matrix: Soil
Sample Name: SS1
Lab Code: K2306906-001

Service Request: K2306906
Date Collected: 06/14/23 14:45
Date Received: 06/16/23 10:30
Basis: Dry

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020B	1.24	mg/Kg	0.48	5	07/05/23 14:11	06/22/23	
Cadmium	6020B	0.086	mg/Kg	0.039	5	07/05/23 14:11	06/22/23	
Selenium	6020B	ND U	mg/Kg	0.96	5	07/05/23 14:11	06/22/23	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: ALS Environmental - US
Project: HS23060921
Sample Matrix: Soil
Sample Name: SS2
Lab Code: K2306906-002

Service Request: K2306906
Date Collected: 06/14/23 14:52
Date Received: 06/16/23 10:30
Basis: Dry

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020B	1.45	mg/Kg	0.40	5	07/05/23 14:23	06/22/23	
Cadmium	6020B	0.056	mg/Kg	0.032	5	07/05/23 14:23	06/22/23	
Selenium	6020B	ND U	mg/Kg	0.80	5	07/05/23 14:23	06/22/23	



General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: ALS Environmental - US
Project: HS23060921
Sample Matrix: Soil
Sample Name: SS1
Lab Code: K2306906-001

Service Request: K2306906
Date Collected: 06/14/23 14:45
Date Received: 06/16/23 10:30
Basis: As Received

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total	160.3 Modified	83.7	Percent	-	-	1	06/19/23 10:45	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: ALS Environmental - US
Project: HS23060921
Sample Matrix: Soil
Sample Name: SS2
Lab Code: K2306906-002

Service Request: K2306906
Date Collected: 06/14/23 14:52
Date Received: 06/16/23 10:30
Basis: As Received

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Q
Solids, Total	160.3 Modified	90.7	Percent	-	-	1	06/19/23 10:45	



QC Summary Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com



Metals

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1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: ALS Environmental - US
Project: HS23060921
Sample Matrix: Soil
Sample Name: Method Blank
Lab Code: KQ2310835-03

Service Request: K2306906
Date Collected: NA
Date Received: NA
Basis: Dry

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020B	ND U	mg/Kg	0.5	5	07/05/23 14:07	06/22/23	
Cadmium	6020B	ND U	mg/Kg	0.040	5	07/05/23 14:07	06/22/23	
Selenium	6020B	ND U	mg/Kg	1.0	5	07/05/23 14:07	06/22/23	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS23060921
Sample Matrix: Soil

Service Request: K2306906
Date Collected: 06/14/23
Date Received: 06/16/23
Date Analyzed: 07/5/23
Date Extracted: 06/22/23

Matrix Spike Summary
Total Metals

Sample Name: SS1
Lab Code: K2306906-001
Analysis Method: 6020B
Prep Method: EPA 3050B

Units: mg/Kg
Basis: Dry

Matrix Spike
KQ2310835-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	1.24	98.1	92.7	104	75-125
Cadmium	0.086	9.57	9.27	102	75-125
Selenium	ND U	97.1	92.7	105	75-125

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

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

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

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS23060921
Sample Matrix: Soil

Service Request: K2306906
Date Collected: 06/14/23
Date Received: 06/16/23
Date Analyzed: 07/05/23

Replicate Sample Summary

Total Metals

Sample Name: SS1
Lab Code: K2306906-001

Units: mg/Kg
Basis: Dry

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample		Average	RPD	RPD Limit
				KQ2310835-01				
				Result				
Arsenic	6020B	0.45	1.24	2.26	1.75	58 *	20	
Cadmium	6020B	0.036	0.086	0.067	0.077	25 #	20	
Selenium	6020B	0.90	ND U	ND U	ND	-	20	

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS23060921
Sample Matrix: Soil

Service Request: K2306906
Date Analyzed: 07/05/23

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis:Dry

Lab Control Sample
KQ2310835-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	6020B	95.3	100	95	80-120
Cadmium	6020B	9.80	10.0	98	80-120
Selenium	6020B	98.5	100	99	80-120



22-Jun-2023

Tyler Monroe
ALS Environmental
10450 Stancliff Rd
Suite 210
Houston, TX 77099

Re: **HS23060921**

Work Order: **23061591**

Dear Tyler,

ALS Environmental received 2 samples on 16-Jun-2023 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Chelsey Cook

Electronically approved by: Chelsey Cook

Chelsey Cook
Project Manager

Report of Laboratory Analysis

Certificate No: FL E871106

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Client: ALS Environmental
Project: HS23060921
Work Order: 23061591

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
23061591-01	SS1	Soil		6/14/2023 14:45	6/16/2023 09:00	<input type="checkbox"/>
23061591-02	SS2	Soil		6/14/2023 14:52	6/16/2023 09:00	<input type="checkbox"/>

Client: ALS Environmental
Project: HS23060921
WorkOrder: 23061591

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCS D	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight

Client: ALS Environmental
Project: HS23060921
Work Order: 23061591

Case Narrative

Samples for the above noted Work Order were received on 06/16/2023. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Metals:

No deviations or anomalies were noted.

Wet Chemistry:

No deviations or anomalies were noted.

Client: ALS Environmental
Project: HS23060921
Sample ID: SS1
Collection Date: 6/14/2023 02:45 PM

Work Order: 23061591
Lab ID: 23061591-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
HOT WATER SOLUBLE BORON BY ICP-MS							
Boron (Hot Water Soluble)	1.4		0.020	0.51	mg/Kg-dry	10	6/20/2023 14:43
							Analyst: STP
							Prep: EXTRACT / 6/20/23
MOISTURE							
Moisture	23		0.10	0.10	% of sample	1	6/20/2023 16:27
							Analyst: ALG
							Method: SW3550C
							Method: SW6020B

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Project: HS23060921
Sample ID: SS2
Collection Date: 6/14/2023 02:52 PM

Work Order: 23061591
Lab ID: 23061591-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
HOT WATER SOLUBLE BORON BY ICP-MS							
Boron (Hot Water Soluble)	0.36	J	0.017	0.42	mg/Kg-dry	10	6/20/2023 14:44
							Analyst: STP
							Prep: EXTRACT / 6/20/23
							Method: SW6020B
MOISTURE							
Moisture	8.5		0.10	0.10	% of sample	1	6/20/2023 16:27
							Analyst: ALG
							Method: SW3550C

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: ALS Environmental
Work Order: 23061591
Project: HS23060921

QC BATCH REPORT

Batch ID: **218428** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK		Sample ID: MBLK-218428-218428				Units: mg/Kg		Analysis Date: 6/20/2023 02:40 PM			
Client ID:		Run ID: ICPMS3_230620B				SeqNo: 9679603		Prep Date: 6/20/2023		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron (Hot Water Soluble)	0.02058	0.0016	0.040								J

LCS		Sample ID: LCS-218428-218428				Units: mg/Kg		Analysis Date: 6/20/2023 02:41 PM			
Client ID:		Run ID: ICPMS3_230620B				SeqNo: 9679604		Prep Date: 6/20/2023		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron (Hot Water Soluble)	0.9076	0.0016	0.040	1	0	90.8	80-120	0			

The following samples were analyzed in this batch: 23061591-01A 23061591-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
 Work Order: 23061591
 Project: HS23060921

QC BATCH REPORT

Batch ID: **R374747** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R374747				Units: % of sample			Analysis Date: 6/20/2023 04:27 PM		
Client ID:		Run ID: MOIST_230620F				SeqNo: 9682226		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	U	0.1	0.10								

LCS		Sample ID: LCS-R374747				Units: % of sample			Analysis Date: 6/20/2023 04:27 PM		
Client ID:		Run ID: MOIST_230620F				SeqNo: 9682225		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	99.99	0.1	0.10	100	0	100	98-102	0			

DUP		Sample ID: 23060956-01B DUP				Units: % of sample			Analysis Date: 6/20/2023 04:27 PM		
Client ID:		Run ID: MOIST_230620F				SeqNo: 9682206		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	8.32	0.1	0.10	0	0	0	0-0	9.2	10	10	R

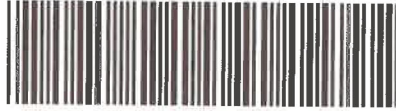
DUP		Sample ID: 23061005-01A DUP				Units: % of sample			Analysis Date: 6/20/2023 04:27 PM		
Client ID:		Run ID: MOIST_230620F				SeqNo: 9682212		Prep Date:		DF: 1	
Analyte	Result	MDL	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	5.73	0.1	0.10	0	0	0	0-0	6.03	5.1	10	

The following samples were analyzed in this batch: 23061591-01A 23061591-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

23061591

ALS - HOUSTON: ALS Environmental
Project: HS 22041



10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: Colorado

COC ID: 22041

SUBCONTRACT TO:

ALS Laboratory Group
3352 128th Ave.
Holland, MI 494249263

Phone: +1 616 399 6070

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: Tyler Monroe
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: tyler.monroe@alsglobal.com
Alternate Contact: Jumoke M. Lawal
Email: jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS23060921
TSR: ALS_Fort Collins

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	HS23060921-01	SS1	Soil	14 Jun 2023 14:45
	SUB Holland - Hot Water Soluble Boron			22 Jun 2023
2.	HS23060921-02	SS2	Soil	14 Jun 2023 14:52
	SUB Holland - Hot Water Soluble Boron			22 Jun 2023

Comments: Please analyze for the analysis listed above.

Report to MDL on Final Report.

Send report to the emails shown above.

QC Level: STD (Laboratory Standard QC: method blank and LCS required)

Relinquished By: *Amy Lyman*
Received By: *Faisal Zaki*
Cooler ID(s): _____

Date/Time: 6/15/23 1600
Date/Time: 6/16/23 900
Temperature(s): _____

Sample Receipt Checklist

Client Name: **ALS - HOUSTON**

Date/Time Received: **16-Jun-23 09:00**

Work Order: **23061591**

Received by: **WSK**

Checklist completed by Keith Wierenga 20-Jun-23
eSignature Date

Reviewed by: Chelsey Cook 20-Jun-23
eSignature Date

Matrices: Soil
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<input type="text" value="1.2/1.2 C"/>		<input type="text" value="DF2"/>
Cooler(s)/Kit(s):	<input type="text"/>		
Date/Time sample(s) sent to storage:	<input type="text" value="6/20/2023 2:43:33 PM"/>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<input type="text"/>		

Login Notes:

Client Contacted: _____ Date Contacted: _____ Person Contacted: _____
Contacted By: _____ Regarding: _____

Comments:

CorrectiveAction:

July 10, 2024

Quandary Consultants

Patrick Lawler

2252 Emerson St.

Denver

CO 80205

Project Name - Bison KOLOA CR89

Project Number - [none]

Attached are your analytical results for Bison KOLOA CR89 received by Origins Laboratory, Inc. June 27, 2024. This project is associated with Origins project number Y406817-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Quandary Consultants
2252 Emerson St.
Denver CO 80205

Patrick Lawler
Project Number: [none]
Project: Bison KOLOA CR89

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BG3	Y406817-01	Soil	June 27, 2024 9:05	06/27/2024 15:06
BG4	Y406817-02	Soil	June 27, 2024 9:15	06/27/2024 15:06
BG5	Y406817-03	Soil	June 27, 2024 9:25	06/27/2024 15:06

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Quandary Consultants
 2252 Emerson St.
 Denver CO 80205

Patrick Lawler
 Project Number: [none]
 Project: Bison KOLOA CR89

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 4400317

Client: Quandary
 Client Project ID: Bison KOLOA

Checklist Completed by: AKJ

Shipped Via: TD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/Time completed: 02/27/24

Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____


Cooler Number/Temperature: 1133 °C / _____ °C / _____ °C (Describe)

Thermometer ID: 7005

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?				<u>SD</u>
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – Is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) * (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) AKJ Date/Time Reviewed 7/1/24

Origins Laboratory, Inc.


The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Quandary Consultants
 2252 Emerson St.
 Denver CO 80205

Patrick Lawler
 Project Number: [none]
 Project: Bison KOLOA CR89

BG3

6/27/2024 9:05:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

**Origins Laboratory, Inc.
 Y406817-01 (Soil)**

pH in Soil by 9045D

pH	7.89		pH Units	1	B4G0322	EAL	07/03/2024	07/05/2024	
----	------	--	----------	---	---------	-----	------------	------------	--

Table 915 metals by EPA 6020B

Arsenic	1.69	0.256	mg/kg	10	B4F2820	KMC	06/28/2024	07/03/2024	
---------	------	-------	-------	----	---------	-----	------------	------------	--

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Quandary Consultants
 2252 Emerson St.
 Denver CO 80205

Patrick Lawler
 Project Number: [none]
 Project: Bison KOLOA CR89

BG4

6/27/2024 9:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

Origins Laboratory, Inc.
Y406817-02 (Soil)

pH in Soil by 9045D

pH	7.81		pH Units	1	B4G0322	EAL	07/03/2024	07/05/2024	
----	------	--	----------	---	---------	-----	------------	------------	--

Table 915 metals by EPA 6020B

Arsenic	2.36	0.272	mg/kg	10	B4F2820	KMC	06/28/2024	07/03/2024	
---------	------	-------	-------	----	---------	-----	------------	------------	--

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Quandary Consultants
 2252 Emerson St.
 Denver CO 80205

Patrick Lawler
 Project Number: [none]
 Project: Bison KOLOA CR89

BG5

6/27/2024 9:25:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

**Origins Laboratory, Inc.
 Y406817-03 (Soil)**

pH in Soil by 9045D

pH	7.85		pH Units	1	B4G0322	EAL	07/03/2024	07/05/2024	
----	------	--	----------	---	---------	-----	------------	------------	--

Table 915 metals by EPA 6020B

Arsenic	2.49	0.273	mg/kg	10	B4F2820	KMC	06/28/2024	07/03/2024	
---------	------	-------	-------	----	---------	-----	------------	------------	--

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Quandary Consultants
 2252 Emerson St.
 Denver CO 80205

Patrick Lawler
 Project Number: [none]
 Project: Bison KOLOA CR89

Metals by EPA 6000/7000 Series Methods - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B4F2820 - EPA 3050B										
Blank (B4F2820-BLK1)					Prepared: 06/28/2024 Analyzed: 07/03/2024					
Arsenic	ND	0.290	mg/kg							
LCS (B4F2820-BS1)					Prepared: 06/28/2024 Analyzed: 07/03/2024					
Arsenic	5.79	0.290	mg/kg	5.00		116	80-120			
Matrix Spike (B4F2820-MS1)					Source: Y406814-01 Prepared: 06/28/2024 Analyzed: 07/03/2024					
Arsenic	12.0	0.254	mg/kg	4.37	7.51	102	75-125			
Matrix Spike Dup (B4F2820-MSD1)					Source: Y406814-01 Prepared: 06/28/2024 Analyzed: 07/03/2024					
Arsenic	14.0	0.278	mg/kg	4.78	7.51	136	75-125	15.9	20	QM-07

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Quandary Consultants
 2252 Emerson St.
 Denver CO 80205

Patrick Lawler
 Project Number: [none]
 Project: Bison KOLOA CR89

Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch B4G0322 - Saturated Paste pH/EC

Duplicate (B4G0322-DUP1)

Source: Y406739-01

Prepared: 07/03/2024 Analyzed: 07/05/2024

pH	8.02		pH Units		7.98			0.500	25	
----	------	--	----------	--	------	--	--	-------	----	--

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Quandary Consultants
2252 Emerson St.
Denver CO 80205

Patrick Lawler
Project Number: [none]
Project: Bison KOLOA CR89

Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

July 29, 2024

Quandary Consultants

Patrick Lawler

2252 Emerson St.

Denver

CO 80205

Project Name - Bison KOLOA CR89

Project Number - [none]

Attached are your analytical results for Bison KOLOA CR89 received by Origins Laboratory, Inc. July 23, 2024. This project is associated with Origins project number Y407601-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



Quandary Consultants
2252 Emerson St.
Denver CO 80205

Patrick Lawler
Project Number: [none]
Project: Bison KOLOA CR89

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01V@0.5'	Y407601-01	Soil	July 23, 2024 12:14	07/23/2024 16:10
SS02V@0.5'	Y407601-02	Soil	July 23, 2024 12:54	07/23/2024 16:10

Origins Laboratory, Inc.



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Quandary Consultants
 2252 Emerson St.
 Denver CO 80205

Patrick Lawler
 Project Number: [none]
 Project: Bison KOLOA CR89

ORIGINS

LABORATORY, INC

ORIGINS WORK ORDER #

4407601

Page 1 of 1

Client: **Bison IV**

Project Manager: **Patrick Lawler**

Key:

Address:

Project Name: **KOLOA CR89**

W=Water

Telephone Number: **720 480 1035**

Project Number: **C-1011-01 soil and soil CT (6/24/11)**

GW=Groundwater

Email Address: **samples@quandary.com**

Collected By: **Robert Lodge**

SW=Surface Water

Invoice/Billing Info:

W=Waste Water

L=Liquid

S=Soil | SO=Solid | O=Oil | A=Air | G=Gas | UV=Ultraviolet | HCL=Hydrochloric | HNO3=Nitric | H2SO4=Sulfuric | NaOH=Sodium Hydroxide

#	Sample ID	Date Sampled	Time Sampled	# of Containers	Matrix Preservative	Analysis				Comments
1	SS01V@0.5	7-28-24	1214	1	NA	X				
2	SS02V@0.5	7-28-24	1254	1	NA	X				
3										
4										
5										
6										
7										
8										
9										
10										

Relinquished By: **Robert Lodge** Date: **7-28-24** Time: **1610**


Received By: **[Signature]** Date: **7/28/24** Time: **1410**

Turnaround Time: SAME DAY 24 Hr 48 Hr 72 Hr

Standard

Temp Received - **33** Received On Ice? Yes No

1725 Elk Place Denver, Co. 80211 | # 303.433.1322 | originsltd.com

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Quandary Consultants
 2252 Emerson St.
 Denver CO 80205

Patrick Lawler
 Project Number: [none]
 Project: Bison KOLOA CR89

Origins Laboratory F-012207-01-R1
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 1407601 Client: Quandary
 Client Project ID: KOLOA

Checklist Completed by: ZHO Shipped Via: HO
 Date/time completed: 7/23/24 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____

Cooler Number/Temperature: 1/33 °c / _____ °c / _____ °c (Describe) _____ °c

Thermometer ID: 1005

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?				
Is there ice present (document if blue ice is used)		<input checked="" type="checkbox"/>		<u>SD</u>
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) (pH <= 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄); (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature] Date/Time Reviewed 7/25/24

Origins Laboratory, Inc.

[Signature]

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Quandary Consultants
2252 Emerson St.
Denver CO 80205

Patrick Lawler
Project Number: [none]
Project: Bison KOLOA CR89

SS01V@0.5'

7/23/2024 12:14:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y407601-01 (Soil)

pH in Soil by 9045D

pH	7.93		pH Units	1	B4G2520	EAL	07/25/2024	07/26/2024	
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Quandary Consultants
2252 Emerson St.
Denver CO 80205

Patrick Lawler
Project Number: [none]
Project: Bison KOLOA CR89

SS02V@0.5'

7/23/2024 12:54:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y407601-02 (Soil)

pH in Soil by 9045D

pH	8.08		pH Units	1	B4G2520	EAL	07/25/2024	07/26/2024	
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Origins Laboratory, Inc.



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 Denver CO 80205

Patrick Lawler
 Project Number: [none]
 Project: Bison KOLOA CR89

Saturated Paste - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4G2520 - Saturated Paste pH/EC

Duplicate (B4G2520-DUP1)

Source: Y407575-02

Prepared: 07/25/2024 Analyzed: 07/26/2024

pH	8.32		pH Units		8.26			0.724	25	
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Origins Laboratory, Inc.



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Denver CO 80205

Patrick Lawler
Project Number: [none]
Project: Bison KOLOA CR89

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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