

**TABLE 1**  
**SOIL SAMPLE ANALYTICAL AND FIELD RESULTS**  
**NEWBY STATE 36N-4HZ HOT OILER**  
**WELD COUNTY, COLORADO**  
**KERR-MCGEE OIL & GAS ONSHORE, LP**

Analyte	COGCC Table 915-1 Allowable Levels	BG01	SS01@2"	SS02@2"	B01@1.5'	B02@1.5'
		3/4/2021	3/4/2021	3/4/2021	3/26/2021	3/26/2021
<b>Photoionization Detector Reading</b>						
PID (ppm)	NA	NA	3.7	1.3	0.0	0.0
<b>Total Petroleum Hydrocarbons by USEPA Method 8015D</b>						
TPH-GRO* (mg/kg)	500	NA	0.654	0.385	NA	NA
TPH-DRO* (mg/kg)	500	NA	<25.0	<25.0	NA	NA
TPH-RRO* (mg/kg)	500	NA	<100	<100	NA	NA
<b>Soil Suitability for Reclamation</b>						
EC (mmhos/cm)	4	1.37	0.673	2.03	NA	NA
Sodium Adsorption Ratio (units)	6	2.33	<b>6.01</b>	1.82	2.17	NA
pH, Lab (pH units)	6-8.3	7.69	7.56	7.35	<b>NA</b>	<b>NA</b>
Boron (mg/L)	2	1.2	1.6	1.0	NA	NA
<b>Soil Suitability for Reclamation (Residential Screening Levels)</b>						
Benzene (mg/kg)	1.2	NA	0.00670	<0.00200	NA	NA
Toluene (mg/kg)	490	NA	0.0395	<0.00200	NA	NA
Ethylbenzene (mg/kg)	5.8	NA	0.00502	<0.00200	NA	NA
1,2,4-Trimethylbenzene (mg/kg)	30	NA	0.00484	0.00304	NA	NA
1,3,5-Trimethylbenzene (mg/kg)	27	NA	0.00228	<0.00200	NA	NA
Acenaphthene (mg/kg)	360	<0.00390	0.0346	<0.00390	NA	NA
Anthracene (mg/kg)	1800	<0.00390	<0.00403	<0.00390	NA	NA
Benzo (a) anthracene (mg/kg)	1.1	<0.00390	<0.00403	<0.00390	NA	NA
Benzo (b) fluoranthene (mg/kg)	1.1	0.00273	<0.00403	0.00234	NA	NA
Benzo (k) fluoranthene (mg/kg)	11	<0.00390	<0.00403	<0.00390	NA	NA
Benzo (a) pyrene (mg/kg)	0.11	<0.00390	<0.00403	<0.00390	NA	NA
Chrysene (mg/kg)	110	0.00195	<0.00403	0.00351	NA	NA
Fluoranthene (mg/kg)	240	0.00234	<0.00403	0.00312	NA	NA
Fluorene (mg/kg)	240	<0.00390	<0.00403	0.00624	NA	NA
Indeno (1,2,3-cd) pyrene (mg/kg)	1.1	<0.00390	<0.00403	<0.00390	NA	NA
1-Methylnaphthalene (mg/kg)	18	<0.00390	0.00886	0.0214	NA	NA
2-Methylnaphthalene (mg/kg)	24	<0.00390	0.0137	0.0406	NA	NA
Naphthalene (mg/kg)	2	<0.00390	<0.00403	0.00624	NA	NA
Pyrene (mg/kg)	180	0.00273	0.00201	0.00312	NA	NA
<b>Metals in Soils (Residential Screening Levels)</b>						
Arsenic (mg/kg)	0.68	<b>6.04</b>	<b>6.26</b>	<b>6.07</b>	<b>3.8</b>	<b>3.68</b>
Barium (mg/kg)	15000	174	194	168	NA	NA
Cadmium (mg/kg)	71	0.195	0.187	0.192	NA	NA
Copper (mg/kg)	3100	12.3	12.6	11.7	NA	NA
Lead (mg/kg)	400	13.6	13.5	13.2	NA	NA
Nickel (mg/kg)	1500	14.4	14.4	14.3	NA	NA
Selenium (mg/kg)	390	1.43	1.54	1.49	NA	NA
Silver (mg/kg)	390	<0.548	<0.554	<0.528	NA	NA

**TABLE 1**  
**SOIL SAMPLE ANALYTICAL AND FIELD RESULTS**  
**NEWBY STATE 36N-4HZ HOT OILER**  
**WELD COUNTY, COLORADO**  
**KERR-MCGEE OIL & GAS ONSHORE, LP**

Analyte	COGCC Table 915-1 Allowable Levels	BG01	SS01@2"	SS02@2"	B01@1.5'	B02@1.5'
		3/4/2021	3/4/2021	3/4/2021	3/26/2021	3/26/2021
Zinc (mg/kg)	23000	48.8	50.4	52.8	NA	NA

**Notes:**

COGCC - Colorado Oil and Gas Conservation Commission  
mg/kg - milligrams per kilogram  
PID - Photoionization Detector  
ppm - parts per million  
TPH - total petroleum hydrocarbons  
GRO - gasoline range organics  
DRO - diesel range organics  
RRO - residual range organics

EC - electrical conductivity  
SAR - sodium adsorption ratio  
mmhos/cm - millimhos per centimeter  
<0.00200 - less than laboratory reporting limit  
NA - Not Applicable / Not Analyzed  
Bold indicates exceeds allowable level  
\*Allowable level for TPH is 500 mg/kg for combined GRO,  
DRO, and RRO

March 11, 2021

WSP USA

Brian Sulzberger

4600 W. 60th Ave.

Arvada CO 80003

Project Name - **KMG - Newby State 36N-4HZ Hot Oil** Project Number - **[none]**

Attached are your analytical results for KMG - Newby State 36N-4HZ Hot Oil received by Origins Laboratory, Inc. March 04, 2021. This project is associated with Origins project number Y103096-01.

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



WSP USA  
4600 W. 60th Ave.  
Arvada CO 80003

Brian Sulzberger  
Project Number: [none]  
Project: KMG - Newby State 36N-4HZ Hot Oil

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@2"	Y103096-01	Soil	March 4, 2021 13:45	03/04/2021 16:57
SS02@2"	Y103096-02	Soil	March 4, 2021 13:50	03/04/2021 16:57
BG01	Y103096-03	Soil	March 4, 2021 14:02	03/04/2021 16:57

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.*



WSP USA

4600 W. 60th Ave.

Arvada CO 80003

Brian Sulzberger

Project Number: [none]

Project: KMG - Newby State 36N-4HZ Hot Oil

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y1030914

Client: WSP

Client Project ID: KMG - Newby State

Checklist Completed by: jm

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

Date/time completed: 3-4-21

Airbill #: N/A

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

Cooler Number/Temperature: 14.9 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe)

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)			X	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)			X	
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?			X	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

<sup>(1)</sup>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: jm (Project Manager)

Date/Time Reviewed: 3-4-21

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**SS01@2"**  
**3/4/2021 1:45:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**AAL, Inc.**  
**Y103096-01 (Soil)**

**Boron (Sorbitol)**

Boron	1.6			mg/L	1	[none]	03/08/2021	03/10/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B1C0413	03/04/2021	03/04/2021	Ua
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	63.5 %		50-150			"	"	"	
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	0.00484		0.00200	mg/kg	1	B1C0412	03/04/2021	03/04/2021	
1,3,5-Trimethylbenzene	0.00228		0.00200	"	"	"	"	"	
Benzene	0.00670		0.00200	"	"	"	"	"	
Ethylbenzene	0.00502		0.00200	"	"	"	"	"	
m,p-Xylene	0.0384		0.00400	"	"	"	"	"	
o-Xylene	0.0103		0.00200	"	"	"	"	"	
Toluene	0.0395		0.00200	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.654		0.200	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	105 %		70-130			"	"	"	
Surrogate: Toluene-d8	95.7 %		70-130			"	"	"	

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**SS01@2"**  
**3/4/2021 1:45:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y103096-01 (Soil)**

**GBTEX+TMBs**

Surrogate: 4-Bromofluorobenzene	91.5 %		70-130			B1C04 12	03/04/2021	03/04/2021	
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**Metals (Saturated Paste Prep)**

Calcium	2.48			me/L	1	[none]	03/08/2021	03/10/2021	
Magnesium	1.36			"	"	"	"	"	
Sodium	8.33			"	"	"	"	"	

**PAH by EPA 8270D SIM**

1-Methylnaphthalene	0.00886	0.00133	0.00403	mg/kg dry	1	2100479	03/09/2021	03/10/2021	
2-Methylnaphthalene	0.0137	0.00133	0.00403	"	"	"	"	"	
Acenaphthene	0.0346	0.00133	0.00403	"	"	"	"	"	
Anthracene	ND	0.00133	0.00403	"	"	"	"	"	U
Benzo(a)anthracene	ND	0.00133	0.00403	"	"	"	"	"	U
Benzo(a)pyrene	ND	0.00133	0.00403	"	"	"	"	"	U
Benzo(b)fluoranthene	ND	0.00133	0.00403	"	"	"	"	"	U
Benzo(k)fluoranthene	ND	0.00133	0.00403	"	"	"	"	"	U
Chrysene	ND	0.00133	0.00403	"	"	"	"	"	U
Dibenzo(a,h)anthracene	ND	0.00133	0.00403	"	"	"	"	"	U
Fluoranthene	ND	0.00133	0.00403	"	"	"	"	"	U
Fluorene	ND	0.00133	0.00403	"	"	"	"	"	U

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**SS01@2"**

**3/4/2021 1:45:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
**Y103096-01 (Soil)**

**PAH by EPA 8270D SIM**

Indeno(1,2,3-cd)pyrene	ND	0.00133	0.00403	mg/kg dry	1	2100479	03/09/2021	03/10/2021	U
Naphthalene	ND	0.00133	0.00403	"	"	"	"	"	U
Pyrene	<b>0.00201</b>	<b>0.00133</b>	0.00403	"	"	"	"	"	J

Surrogate: 5-alpha-Androstane 76 % 25-121 " " "

**pH in Soil by EPA 9045D**

pH 7.56 pH Units 1 B1C0507 03/05/2021 03/05/2021

**SAR by 20B Saturated Paste**

SAR 6.01 1 [none] 03/08/2021 03/10/2021

**Specific Conductance by Modified 9050A**

Specific Conductance (EC) 0.673 0.00500 mmhos/cm 1 B1C0508 03/05/2021 03/05/2021

**Total Metals by EPA 6020A**

Zinc 50.4 0.961 4.81 mg/kg dry 2 2101133 03/10/2021 03/11/2021

**Total Metals by EPA 6010C**

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**SS01@2"**

**3/4/2021 1:45:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
**Y103096-01 (Soil)**

**Total Metals by EPA 6010C**

Silver	ND	0.111	0.554	mg/kg dry	1	2100194	03/08/2021	03/09/2021	U
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**Total Metals by EPA 6020A**

Arsenic	6.26	0.380	1.12	mg/kg dry	2	2100198	"	03/09/2021	
Barium	194	0.112	0.900	"	"	"	"	"	
Cadmium	0.187	0.0225	0.225	"	"	"	"	"	J
Copper	12.6	0.0742	0.450	"	"	"	"	"	
Lead	13.5	0.112	0.450	"	"	"	"	"	
Nickel	14.4	0.112	0.450	"	"	"	"	"	
Selenium	1.54	0.405	1.12	"	"	"	"	"	

**Total Metals by EPA 7196A**

Hexavalent Chromium	0.219	0.185	0.462	mg/kg dry	1	2099153	03/10/2021	03/11/2021	J
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Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**SS02@2"**  
**3/4/2021 1:50:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**AAL, Inc.**  
**Y103096-02 (Soil)**

**Boron (Sorbitol)**

Boron	1.0			mg/L	1	[none]	03/08/2021	03/10/2021	
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		25.0	mg/kg	1	B1C0413	03/04/2021	03/04/2021	Ua
Residual Range Organics (C28-C40)	ND		100	"	"	"	"	"	Ua

Surrogate: o-Terphenyl	62.9 %		50-150			"	"	"	
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**GBTEX+TMBs**

1,2,4-Trimethylbenzene	0.00304		0.00200	mg/kg	1	B1C0412	03/04/2021	03/04/2021	
1,3,5-Trimethylbenzene	ND		0.00200	"	"	"	"	"	Ua
Benzene	ND		0.00200	"	"	"	"	"	Ua
Ethylbenzene	ND		0.00200	"	"	"	"	"	Ua
m,p-Xylene	ND		0.00400	"	"	"	"	"	Ua
o-Xylene	ND		0.00200	"	"	"	"	"	Ua
Toluene	ND		0.00200	"	"	"	"	"	Ua
Gasoline Range Hydrocarbons	0.385		0.200	"	"	"	"	"	

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**SS02@2"**

**3/4/2021 1:50:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y103096-02 (Soil)**

**GBTEX+TMBs**

Surrogate: 1,2-Dichloroethane-d4	110 %		70-130			B1C04 12	03/04/2021	03/04/2021	
Surrogate: Toluene-d8	93.6 %		70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	93.5 %		70-130			"	"	"	

**Metals (Saturated Paste Prep)**

Calcium	9.76			me/L	1	[none]	03/08/2021	03/10/2021	
Magnesium	5.06			"	"	"	"	"	
Sodium	4.96			"	"	"	"	"	

**PAH by EPA 8270D SIM**

1-Methylnaphthalene	0.0214	0.00129	0.00390	mg/kg dry	1	2100479	03/09/2021	03/10/2021	
2-Methylnaphthalene	0.0406	0.00129	0.00390	"	"	"	"	"	
Acenaphthene	ND	0.00129	0.00390	"	"	"	"	"	U
Anthracene	ND	0.00129	0.00390	"	"	"	"	"	U
Benzo(a)anthracene	ND	0.00129	0.00390	"	"	"	"	"	U
Benzo(a)pyrene	ND	0.00129	0.00390	"	"	"	"	"	U
Benzo(b)fluoranthene	0.00234	0.00129	0.00390	"	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.00129	0.00390	"	"	"	"	"	U
Chrysene	0.00351	0.00129	0.00390	"	"	"	"	"	J
Dibenzo(a,h)anthracene	ND	0.00129	0.00390	"	"	"	"	"	U
Fluoranthene	0.00312	0.00129	0.00390	"	"	"	"	"	J

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**SS02@2"**

**3/4/2021 1:50:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
**Y103096-02 (Soil)**

**PAH by EPA 8270D SIM**

Fluorene	0.00624	0.00129	0.00390	mg/kg dry	1	2100479	03/09/2021	03/10/2021	
Indeno(1,2,3-cd)pyrene	ND	0.00129	0.00390	"	"	"	"	"	U
Naphthalene	0.00624	0.00129	0.00390	"	"	"	"	"	
Pyrene	0.00312	0.00129	0.00390	"	"	"	"	"	J

Surrogate: 5-alpha-Androstane 79 % 25-121 " " "

**pH in Soil by EPA 9045D**

pH 7.35 pH Units 1 B1C0507 03/05/2021 03/05/2021

**SAR by 20B Saturated Paste**

SAR 1.82 1 [none] 03/08/2021 03/10/2021

**Specific Conductance by Modified 9050A**

Specific Conductance (EC) 2.03 0.00500 mmhos/cm 1 B1C0508 03/05/2021 03/05/2021

**Total Metals by EPA 6020A**

Zinc 52.8 0.850 4.25 mg/kg dry 2 2101133 03/10/2021 03/11/2021

**Total Metals by EPA 6010C**

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**SS02@2"**

**3/4/2021 1:50:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
**Y103096-02 (Soil)**

**Total Metals by EPA 6010C**

Silver	ND	0.106	0.528	mg/kg dry	1	2100194	03/08/2021	03/09/2021	U
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**Total Metals by EPA 6020A**

Arsenic	6.07	0.350	1.04	mg/kg dry	2	2100198	"	03/09/2021	
Barium	168	0.104	0.829	"	"	"	"	"	
Cadmium	0.192	0.0207	0.207	"	"	"	"	"	J
Copper	11.7	0.0684	0.415	"	"	"	"	"	
Lead	13.2	0.104	0.415	"	"	"	"	"	
Nickel	14.3	0.104	0.415	"	"	"	"	"	
Selenium	1.49	0.373	1.04	"	"	"	"	"	

**Total Metals by EPA 7196A**

Hexavalent Chromium	ND	0.170	0.424	mg/kg dry	1	2099153	03/10/2021	03/11/2021	U
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Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**BG01**

**3/4/2021 2:02:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**AAL, Inc.**

**Y103096-03 (Soil)**

**Boron (Sorbitol)**

Boron	1.2			mg/L	1	[none]	03/08/2021	03/10/2021	
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**Metals (Saturated Paste Prep)**

Calcium	9.69			me/L	1	[none]	"	03/10/2021	
Magnesium	5.70			"	"	"	"	"	
Sodium	6.47			"	"	"	"	"	

**PAH by EPA 8270D SIM**

1-Methylnaphthalene	ND	0.00129	0.00390	mg/kg dry	1	2100479	03/09/2021	03/10/2021	U
2-Methylnaphthalene	ND	0.00129	0.00390	"	"	"	"	"	U
Acenaphthene	ND	0.00129	0.00390	"	"	"	"	"	U
Anthracene	ND	0.00129	0.00390	"	"	"	"	"	U
Benzo(a)anthracene	ND	0.00129	0.00390	"	"	"	"	"	U
Benzo(a)pyrene	ND	0.00129	0.00390	"	"	"	"	"	U
Benzo(b)fluoranthene	0.00273	0.00129	0.00390	"	"	"	"	"	J
Benzo(k)fluoranthene	ND	0.00129	0.00390	"	"	"	"	"	U
Chrysene	0.00195	0.00129	0.00390	"	"	"	"	"	J
Dibenzo(a,h)anthracene	ND	0.00129	0.00390	"	"	"	"	"	U
Fluoranthene	0.00234	0.00129	0.00390	"	"	"	"	"	J
Fluorene	ND	0.00129	0.00390	"	"	"	"	"	U
Indeno(1,2,3-cd)pyrene	ND	0.00129	0.00390	"	"	"	"	"	U

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**BG01**

**3/4/2021 2:02:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
**Y103096-03 (Soil)**

**PAH by EPA 8270D SIM**

Naphthalene	ND	0.00129	0.00390	mg/kg dry	1	2100479	03/09/2021	03/10/2021	U
Pyrene	<b>0.00273</b>	<b>0.00129</b>	0.00390	"	"	"	"	"	J

Surrogate: 5-alpha-Androstane 85 % 25-121 " " "

**pH in Soil by EPA 9045D**

pH	<b>7.69</b>			pH Units	1	B1C0507	03/05/2021	03/05/2021	
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**SAR by 20B Saturated Paste**

SAR	<b>2.33</b>				1	[none]	03/08/2021	03/10/2021	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	<b>1.37</b>		0.00500	mmhos/cm	1	B1C0508	03/05/2021	03/05/2021	
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**Total Metals by EPA 6020A**

Zinc	<b>48.8</b>	<b>0.820</b>	4.10	mg/kg dry	2	2101133	03/10/2021	03/11/2021	
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**Total Metals by EPA 6010C**

Silver	ND	0.110	0.548	mg/kg dry	1	2100194	03/08/2021	03/09/2021	U
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Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**BG01**

**3/4/2021 2:02:00PM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**GEL Laboratories, LLC**  
**Y103096-03 (Soil)**

**Total Metals by EPA 6020A**

Arsenic	6.04	0.359	1.06	mg/kg dry	2	2100198	"	03/09/2021	
Barium	174	0.106	0.849	"	"	"	"	"	
Cadmium	0.195	0.0212	0.212	"	"	"	"	"	J
Copper	12.3	0.0701	0.425	"	"	"	"	"	
Lead	13.6	0.106	0.425	"	"	"	"	"	
Nickel	14.4	0.106	0.425	"	"	"	"	"	
Selenium	1.43	0.382	1.06	"	"	"	"	"	

**Total Metals by EPA 7196A**

Hexavalent Chromium	ND	0.181	0.453	mg/kg dry	1	2099153	03/10/2021	03/11/2021	U
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Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B1C0412 - EPA 5030 (soil)**

**Blank (B1C0412-BLK1)**

Prepared: 03/04/2021 Analyzed: 03/04/2021

1,2,4-Trimethylbenzene	ND	0.00200	mg/kg							Ua
Naphthalene	ND	0.0100	"							Ua
1,3,5-Trimethylbenzene	ND	0.00200	"							Ua
Benzene	ND	0.00200	"							Ua
Ethylbenzene	ND	0.00200	"							Ua
m,p-Xylene	ND	0.00400	"							Ua
o-Xylene	ND	0.00200	"							Ua
Toluene	ND	0.00200	"							Ua
Gasoline Range Hydrocarbons	ND	0.200	"							Ua
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.4	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		89.6	70-130			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B1C0412 - EPA 5030 (soil)

**LCS (B1C0412-BS1)**

Prepared: 03/04/2021 Analyzed: 03/04/2021

1,2,4-Trimethylbenzene	0.0565	0.00200	mg/kg	0.0500		113	70-130			
Naphthalene	0.0518	0.0100	"	0.0500		104	70-130			
1,3,5-Trimethylbenzene	0.0570	0.00200	"	0.0500		114	70-130			
Benzene	0.0559	0.00200	"	0.0500		112	70-130			
Ethylbenzene	0.0530	0.00200	"	0.0500		106	70-130			
m,p-Xylene	0.108	0.00400	"	0.100		108	70-130			
o-Xylene	0.0511	0.00200	"	0.0500		102	70-130			
Toluene	0.0554	0.00200	"	0.0500		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		95.0	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		97.0	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		89.6	70-130			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B1C0412 - EPA 5030 (soil)

Matrix Spike (B1C0412-MS1)	Source: Y103089-01			Prepared: 03/04/2021 Analyzed: 03/04/2021						
1,2,4-Trimethylbenzene	0.0471	0.00200	mg/kg	0.0500	0.00230	89.5	70-130			
Naphthalene	0.0454	0.0100	"	0.0500	0.00162	87.6	70-130			
1,3,5-Trimethylbenzene	0.0477	0.00200	"	0.0500	0.00148	92.4	70-130			
Benzene	0.0488	0.00200	"	0.0500	0.00398	89.6	70-130			
Ethylbenzene	0.0449	0.00200	"	0.0500	0.000620	88.6	70-130			
m,p-Xylene	0.0911	0.00400	"	0.100	0.00976	81.3	70-130			
o-Xylene	0.0436	0.00200	"	0.0500	0.00296	81.2	70-130			
Toluene	0.0476	0.00200	"	0.0500	0.0120	71.2	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		89.7	70-130			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B1C0412 - EPA 5030 (soil)

Matrix Spike Dup (B1C0412-MSD1)	Source: Y103089-01			Prepared: 03/04/2021 Analyzed: 03/04/2021						
1,2,4-Trimethylbenzene	0.0476	0.00200	mg/kg	0.0500	0.00230	90.6	70-130	1.18	20	
Naphthalene	0.0472	0.0100	"	0.0500	0.00162	91.1	70-130	3.76	20	
1,3,5-Trimethylbenzene	0.0482	0.00200	"	0.0500	0.00148	93.4	70-130	1.04	20	
Benzene	0.0492	0.00200	"	0.0500	0.00398	90.4	70-130	0.816	20	
Ethylbenzene	0.0454	0.00200	"	0.0500	0.000620	89.5	70-130	1.02	20	
m,p-Xylene	0.0920	0.00400	"	0.100	0.00976	82.2	70-130	0.961	20	
o-Xylene	0.0441	0.00200	"	0.0500	0.00296	82.4	70-130	1.28	20	
Toluene	0.0478	0.00200	"	0.0500	0.0120	71.6	70-130	0.419	20	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		96.7	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.11		"	0.125		91.2	70-130			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Volatile Organic Compounds by GC/MS SW846 8260D - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B1C0413 - EPA 3550B</b>										
<b>Blank (B1C0413-BLK1)</b>										
					Prepared: 03/04/2021 Analyzed: 03/04/2021					
Diesel (C10-C28)	ND	25.0	mg/kg							Ua
Residual Range Organics (C28-C40)	ND	100	"							Ua
Surrogate: o-Terphenyl	17		"	25.0		66.7	50-150			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Extractable Petroleum Hydrocarbons by 8015D - 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 B1C0413 - EPA 3550B**

**LCS (B1C0413-BS1)**

Prepared: 03/04/2021 Analyzed: 03/04/2021

Diesel (C10-C28)	1100	50.0	mg/kg	1000		110	70-130			
Residual Range Organics (C28-C40)	1100	200	"	1000		110	70-130			
Surrogate: o-Terphenyl	47		"	50.0		93.8	50-150			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Extractable Petroleum Hydrocarbons by 8015D - 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 B1C0413 - EPA 3550B**

<b>Matrix Spike (B1C0413-MS1)</b>	<b>Source: Y103089-01</b>			Prepared: 03/04/2021 Analyzed: 03/04/2021						
Diesel (C10-C28)	914	50.0	mg/kg	1000	ND	91.4	70-130			
Residual Range Organics (C28-C40)	913	200	"	1000	ND	91.3	70-130			
Surrogate: o-Terphenyl	37		"	50.0		73.1	50-150			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Extractable Petroleum Hydrocarbons by 8015D - 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 B1C0413 - EPA 3550B**

<b>Matrix Spike Dup (B1C0413-MSD1)</b>	<b>Source: Y103089-01</b>			<b>Prepared: 03/04/2021 Analyzed: 03/04/2021</b>						
Diesel (C10-C28)	958	50.0	mg/kg	1000	ND	95.8	70-130	4.76	35	
Residual Range Organics (C28-C40)	960	200	"	1000	ND	96.0	70-130	5.02	35	
Surrogate: o-Terphenyl	40		"	50.0		79.3	50-150			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**PAH by EPA 8270D SIM - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2100479 - SW846 3541

**BLANK (1204768903-BLK)**

Prepared: 03/09/2021 Analyzed: 03/09/2021

2-Methylnaphthalene	ND	0.00323	mg/kg				-			U
Chrysene	ND	0.00323	"				-			U
Benzo(k)fluoranthene	ND	0.00323	"				-			U
Benzo(b)fluoranthene	ND	0.00323	"				-			U
Benzo(a)pyrene	ND	0.00323	"				-			U
Benzo(a)anthracene	ND	0.00323	"				-			U
Anthracene	ND	0.00323	"				-			U
Pyrene	ND	0.00323	"				-			U
Dibenzo(a,h)anthracene	ND	0.00323	"				-			U
1-Methylnaphthalene	ND	0.00323	"				-			U
Acenaphthene	ND	0.00323	"				-			U
Fluorene	ND	0.00323	"				-			U
Indeno(1,2,3-cd)pyrene	ND	0.00323	"				-			U
Naphthalene	ND	0.00323	"				-			U
Fluoranthene	ND	0.00323	"				-			U

Surrogate: 5-alpha-Androstane

0.150

"

0.162

93

25-121

**LCS (1204768904-BKS)**

Prepared: 03/09/2021 Analyzed: 03/09/2021

Chrysene	0.287	0.00325	mg/kg	0.325		88	53-108			
Pyrene	0.269	0.00325	"	0.325		83	42-114			
Naphthalene	0.247	0.00325	"	0.325		76	52-106			
Indeno(1,2,3-cd)pyrene	0.244	0.00325	"	0.325		75	40-132			
Fluorene	0.268	0.00325	"	0.325		82	42-113			
1-Methylnaphthalene	0.245	0.00325	"	0.325		75	50-109			
Dibenzo(a,h)anthracene	0.269	0.00325	"	0.325		83	40-137			
Benzo(k)fluoranthene	0.278	0.00325	"	0.325		86	39-119			
2-Methylnaphthalene	0.248	0.00325	"	0.325		76	50-109			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**PAH by EPA 8270D SIM - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2100479 - SW846 3541**

**LCS (1204768904-BKS)**

Prepared: 03/09/2021 Analyzed: 03/09/2021

Benzo(a)pyrene	0.294	0.00325	mg/kg	0.325		90	42-123			
Benzo(a)anthracene	0.253	0.00325	"	0.325		78	51-118			
Anthracene	0.269	0.00325	"	0.325		83	49-113			
Acenaphthene	0.256	0.00325	"	0.325		79	48-107			
Benzo(b)fluoranthene	0.296	0.00325	"	0.325		91	42-119			
Fluoranthene	0.273	0.00325	"	0.325		84	43-116			
Surrogate: 5-alpha-Androstane	0.156		"	0.163		96	25-121			

**LCSD (1204768905-BKSD)**

Prepared: 03/09/2021 Analyzed: 03/09/2021

Chrysene	0.304	0.00328	mg/kg	0.328		93	53-108	6	30	
Pyrene	0.355	0.00328	"	0.328		108	42-114	28	30	
Dibenzo(a,h)anthracene	0.279	0.00328	"	0.328		85	40-137	4	30	
Fluoranthene	0.269	0.00328	"	0.328		82	43-116	1	30	
Fluorene	0.283	0.00328	"	0.328		86	42-113	5	30	
Naphthalene	0.265	0.00328	"	0.328		81	52-106	7	30	
Benzo(a)anthracene	0.267	0.00328	"	0.328		81	51-118	5	30	
Indeno(1,2,3-cd)pyrene	0.259	0.00328	"	0.328		79	40-132	6	30	
Benzo(a)pyrene	0.303	0.00328	"	0.328		92	42-123	3	30	
Anthracene	0.281	0.00328	"	0.328		86	49-113	4	30	
Acenaphthene	0.275	0.00328	"	0.328		84	48-107	7	30	
2-Methylnaphthalene	0.267	0.00328	"	0.328		81	50-109	7	30	
1-Methylnaphthalene	0.264	0.00328	"	0.328		81	50-109	7	30	
Benzo(b)fluoranthene	0.315	0.00328	"	0.328		96	42-119	6	30	
Benzo(k)fluoranthene	0.298	0.00328	"	0.328		91	39-119	7	30	
Surrogate: 5-alpha-Androstane	0.163		"	0.164		100	25-121			

**MS (1204768906 S)**

Source: 537019001

Prepared: 03/09/2021 Analyzed: 03/09/2021

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.

WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**PAH by EPA 8270D SIM - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2100479 - SW846 3541

**MS (1204768906 S)**

Source: 537019001

Prepared: 03/09/2021 Analyzed: 03/09/2021

Pyrene	0.266	0.00347	mg/kg dry	0.347	<0.00115	77	19-139			
Dibenzo(a,h)anthracene	0.279	0.00347	"	0.347	<0.00115	80	16-139			
Fluoranthene	0.264	0.00347	"	0.347	<0.00115	76	21-122			
Fluorene	0.264	0.00347	"	0.347	0.00170	76	26-123			
Chrysene	0.279	0.00347	"	0.347	<0.00115	80	31-119			
Naphthalene	0.239	0.00347	"	0.347	<0.00115	69	29-122			
Acenaphthene	0.249	0.00347	"	0.347	<0.00115	72	29-118			
Indeno(1,2,3-cd)pyrene	0.277	0.00347	"	0.347	<0.00115	80	14-132			
Benzo(k)fluoranthene	0.269	0.00347	"	0.347	<0.00115	78	26-130			
Benzo(b)fluoranthene	0.278	0.00347	"	0.347	<0.00115	80	22-130			
Benzo(a)pyrene	0.286	0.00347	"	0.347	<0.00115	82	24-129			
Anthracene	0.262	0.00347	"	0.347	<0.00115	75	29-127			
2-Methylnaphthalene	0.244	0.00347	"	0.347	<0.00115	70	23-124			
1-Methylnaphthalene	0.242	0.00347	"	0.347	<0.00115	70	30-129			
Benzo(a)anthracene	0.244	0.00347	"	0.347	<0.00115	70	31-124			

Surrogate: 5-alpha-Androstane

0.149

"

0.174

0.172

86

25-121

**MSD (1204768907 SD)**

Source: 537019001

Prepared: 03/09/2021 Analyzed: 03/09/2021

Fluorene	0.278	0.00345	mg/kg dry	0.345	0.00170	80	26-123	5	30	
Fluoranthene	0.281	0.00345	"	0.345	<0.00114	82	21-122	6	30	
Acenaphthene	0.266	0.00345	"	0.345	<0.00114	77	29-118	6	30	
Anthracene	0.280	0.00345	"	0.345	<0.00114	81	29-127	7	30	
Benzo(a)anthracene	0.263	0.00345	"	0.345	<0.00114	76	31-124	7	30	
Benzo(b)fluoranthene	0.297	0.00345	"	0.345	<0.00114	86	22-130	7	30	
1-Methylnaphthalene	0.254	0.00345	"	0.345	<0.00114	74	30-129	5	30	
Benzo(k)fluoranthene	0.288	0.00345	"	0.345	<0.00114	84	26-130	7	30	
2-Methylnaphthalene	0.259	0.00345	"	0.345	<0.00114	75	23-124	6	30	

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**PAH by EPA 8270D SIM - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2100479 - SW846 3541

MSD (1204768907 SD)	Source: 537019001			Prepared: 03/09/2021 Analyzed: 03/09/2021						
Dibenzo(a,h)anthracene	0.307	0.00345	mg/kg dry	0.345	<0.00114	89	16-139	10	30	
Benzo(a)pyrene	0.308	0.00345	"	0.345	<0.00114	89	24-129	7	30	
Indeno(1,2,3-cd)pyrene	0.307	0.00345	"	0.345	<0.00114	89	14-132	10	30	
Naphthalene	0.253	0.00345	"	0.345	<0.00114	73	29-122	6	30	
Pyrene	0.293	0.00345	"	0.345	<0.00114	85	19-139	9	30	
Chrysene	0.303	0.00345	"	0.345	<0.00114	88	31-119	8	30	
Surrogate: 5-alpha-Androstane	0.158		"	0.172	0.172	92	25-121			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Total Metals by EPA 6020A - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2101133 - SW846 3050B</b>										
<b>BLANK (1204770084-BLK)</b>					Prepared: 03/10/2021 Analyzed: 03/11/2021					
Zinc	ND	3.69	mg/kg				-			U
<b>LCS (1204770085-BKS)</b>					Prepared: 03/10/2021 Analyzed: 03/11/2021					
Zinc	4.15	3.75	mg/kg	4.69		88.5	80-120			
<b>DUP (1204770086 D)</b>					Prepared: 03/10/2021 Analyzed: 03/11/2021					
<b>Source: Y103096-01</b>										
Zinc	52.0	4.86	mg/kg dry		50.4		0-20	2.97	20	
<b>MS (1204770087 S)</b>					Prepared: 03/10/2021 Analyzed: 03/11/2021					
<b>Source: Y103096-01</b>										
Zinc	56.9	4.88	mg/kg dry	6.10	50.4	0	75-125			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Total Metals by EPA 6010C - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2100194 - SW846 3050B</b>										
<b>BLANK (1204768168-BLK)</b>					Prepared: 03/08/2021 Analyzed: 03/09/2021					
Silver	ND	0.470	mg/kg				-			U
<b>LCS (1204768169-BKS)</b>					Prepared: 03/08/2021 Analyzed: 03/09/2021					
Silver	9.54	0.491	mg/kg	9.82		97.2	80-120			
<b>DUP (1204768170 D)</b>					Source: 537035001 Prepared: 03/08/2021 Analyzed: 03/09/2021					
Silver	1.42	0.519	mg/kg dry		0.994		0-20	35.4	20	
<b>MS (1204768171 S)</b>					Source: 537035001 Prepared: 03/08/2021 Analyzed: 03/09/2021					
Silver	10.8	0.517	mg/kg dry	10.3	0.994	94.8	75-125			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Total Metals by EPA 6020A - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 2100198 - SW846 3050B**

**BLANK (1204768178-BLK)**

Prepared: 03/08/2021 Analyzed: 03/09/2021

Nickel	ND	0.377	mg/kg				-			U
Lead	0.117	0.377	"				-			J
Copper	ND	0.377	"				-			U
Cadmium	ND	0.189	"				-			U
Barium	ND	0.755	"				-			U
Arsenic	ND	0.943	"				-			U
Selenium	ND	0.943	"				-			U

**LCS (1204768179-BKS)**

Prepared: 03/08/2021 Analyzed: 03/09/2021

Nickel	4.77	0.375	mg/kg	4.68		102	80-120			
Selenium	4.06	0.936	"	4.68		86.7	80-120			
Lead	4.82	0.375	"	4.68		103	80-120			
Copper	4.78	0.375	"	4.68		102	80-120			
Cadmium	4.27	0.187	"	4.68		91.2	80-120			
Barium	4.77	0.749	"	4.68		102	80-120			
Arsenic	4.08	0.936	"	4.68		87.2	80-120			

**DUP (1204768180 D)**

Source: Y103096-01

Prepared: 03/08/2021 Analyzed: 03/09/2021

Nickel	14.3	0.477	mg/kg dry	14.4		0-20	0.511	20		
Lead	13.4	0.477	"	13.5		0-20	0.898	20		
Copper	12.4	0.477	"	12.6		0-20	1.61	20		
Cadmium	0.194	0.238	"	0.187		0-20	3.72	20		J
Selenium	1.53	1.19	"	1.54		0-20	0.659	20		
Barium	176	0.954	"	194		0-20	9.74	20		
Arsenic	7.17	1.19	"	6.26		0-20	13.5	20		

**MS (1204768181 S)**

Source: Y103096-01

Prepared: 03/08/2021 Analyzed: 03/09/2021

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Total Metals by EPA 6020A - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 2100198 - SW846 3050B

**MS (1204768181 S)**

**Source: Y103096-01**

Prepared: 03/08/2021 Analyzed: 03/09/2021

Barium	206	0.959	mg/kg dry	5.99	194	0	75-125			
Cadmium	5.49	0.240	"	5.99	0.187	88.4	75-125			
Copper	18.2	0.480	"	5.99	12.6	92.9	75-125			
Lead	20.3	0.480	"	5.99	13.5	115	75-125			
Nickel	20.7	0.480	"	5.99	14.4	106	75-125			
Selenium	6.43	1.20	"	5.99	1.54	81.6	75-125			
Arsenic	12.2	1.20	"	5.99	6.26	99.4	75-125			

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: [none]  
 Project: KMG - Newby State 36N-4HZ Hot Oil

**Total Metals by EPA 7196A - Quality Control**  
**GEL Laboratories, LLC**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2099153 - SW846 3060A</b>										
<b>BLANK (1204765963-BLK)</b>					Prepared: 03/10/2021 Analyzed: 03/11/2021					
Hexavalent Chromium	ND	0.379	mg/kg				-			U
<b>LCS (1204765964-BKS)</b>					Prepared: 03/10/2021 Analyzed: 03/11/2021					
Hexavalent Chromium	4.00	0.365	mg/kg	3.65		109	80-120			
<b>ILCS (1204765965-ILCS)</b>					Prepared: 03/10/2021 Analyzed: 03/11/2021					
Hexavalent Chromium	9.26	0.391	mg/kg	7.83		118	80-120			
<b>DUP (1204765966 D)</b>					Source: 535784004 Prepared: 03/10/2021 Analyzed: 03/11/2021					
Hexavalent Chromium	ND	0.454	mg/kg dry		<0.182		0-50	96.2	50	U
<b>MS (1204765967 S)</b>					Source: 535784004 Prepared: 03/10/2021 Analyzed: 03/11/2021					
Hexavalent Chromium	4.46	0.422	mg/kg dry	4.22	<0.169	105	75-125			

Origins Laboratory, Inc.



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WSP USA  
4600 W. 60th Ave.  
Arvada CO 80003

Brian Sulzberger  
Project Number: [none]  
Project: KMG - Newby State 36N-4HZ Hot Oil

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**Notes and Definitions**

- Ua Sample is Non-Detect.
- U Result not detected above the detection limit
- J Greater than the detection limit but less than the reporting limit
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- All soil results are reported on 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.*

April 05, 2021

WSP USA

Brian Sulzberger

4600 W. 60th Ave.

Arvada CO 80003

**Project Name - KMG - Newby State 36N-4HZ Hot Oiler**      **Project Number - TE105720050**

Attached are your analytical results for KMG - Newby State 36N-4HZ Hot Oiler received by Origins Laboratory, Inc. March 26, 2021. This project is associated with Origins project number Y103470-01.

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



WSP USA  
4600 W. 60th Ave.  
Arvada CO 80003

Brian Sulzberger  
Project Number: TE105720050  
Project: KMG - Newby State 36N-4HZ Hot Oiler

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01@1.5'	Y103470-01	Soil	March 26, 2021 0:00	03/26/2021 17:25
B02@1.5'	Y103470-02	Soil	March 26, 2021 0:00	03/26/2021 17:25

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: TE105720050  
 Project: KMG - Newby State 36N-4HZ Hot Oiler

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

Sample Receipt Checklist

Origins Work Order: Y103470 Client: WSP  
 Client Project ID: KMG-Newby

Checklist Completed by: jm Shipped Via: HD  
 Date/time completed: 3-29-21 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: 1122

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

Cooler Number/Temperature: 1 5.0 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe) \_\_\_\_\_ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		X		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?		X		no sample times
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> -NaOH, ZnAc-NaOH)			X	
Additional Comments (if any):				

<sup>(1)</sup>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) jm

Date/Time Reviewed 3/30/21

Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: TE105720050  
 Project: KMG - Newby State 36N-4HZ Hot Oiler

**B01@1.5'**

**3/26/2021 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**AAL, Inc.**  
**Y103470-01 (Soil)**

**Metals (Saturated Paste Prep)**

Calcium	3.96			me/L	1	[none]	03/30/2021	04/01/2021	
Magnesium	2.70			"	"	"	"	"	
Sodium	3.96			"	"	"	"	"	

**SAR by 20B Saturated Paste**

SAR	2.17				1	[none]	"	04/01/2021	
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**Total Metals by 6020B**

Arsenic	3.8	0.0433	0.25	mg/Kg	5	L544975	04/01/2021	04/02/2021	
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Origins Laboratory, Inc.



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WSP USA  
4600 W. 60th Ave.  
Arvada CO 80003

Brian Sulzberger  
Project Number: TE105720050  
Project: KMG - Newby State 36N-4HZ Hot Oiler

**B02@1.5'**

**3/26/2021 12:00:00AM**

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Waypoint Analytical, LLC.**  
**Y103470-02 (Soil)**

**Total Metals by 6020B**

Arsenic	3.68	0.0433	0.25	mg/Kg	5	L544975	04/01/2021	04/02/2021	
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Origins Laboratory, Inc.



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WSP USA  
 4600 W. 60th Ave.  
 Arvada CO 80003

Brian Sulzberger  
 Project Number: TE105720050  
 Project: KMG - Newby State 36N-4HZ Hot Oiler

**Total Metals by 6020B - Quality Control**  
**Waypoint Analytical, LLC.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch L544975 - 3050B</b>										
<b>MSD (L 86192-MSD-L544975)</b>		<b>Source: 86192</b>			Prepared: 04/01/2021 Analyzed: 04/02/2021					
Arsenic	2.64	0.0433	mg/Kg	2.46	0.456	89	75-125	1.8	80	
<b>MS (L 86192-MS-L544975)</b>		<b>Source: 86192</b>			Prepared: 04/01/2021 Analyzed: 04/02/2021					
Arsenic	2.69	0.0433	mg/Kg	2.48	0.456	90	75-125			
<b>LCS (LCS-L544975)</b>		Prepared: 04/01/2021 Analyzed: 04/02/2021								
Arsenic	2.53	0.0433	mg/Kg	2.5		101	80-120			
<b>LRB (LRB-L544975)</b>		Prepared: 04/01/2021 Analyzed: 04/02/2021								
Arsenic	ND	0.25	mg/Kg							

Origins Laboratory, Inc.



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WSP USA  
4600 W. 60th Ave.  
Arvada CO 80003

Brian Sulzberger  
Project Number: TE105720050  
Project: KMG - Newby State 36N-4HZ Hot Oiler

---

**Notes and Definitions**

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported on a wet weight basis.

Origins Laboratory, Inc.



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