

# ORIGINS LABORATORY

**Absaroka**

**December 16, 2025**

**Max Dahlgren**

**112 High St.**

**Buffalo**

**WY**

**82834**

**Project Name - KMG - Ludwig H 06-31 Wellhead**

**Project Number - 42401**

Attached are your analytical results for KMG - Ludwig H 06-31 Wellhead received by Origins Laboratory November 24, 2025. This project is associated with Origins project number E5K0658-01.

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.

The laboratory is TNI accredited by the Utah DHHS ELAP under certificate number CO010822024.

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  
303.433.1322  
projectmanager@originslab.com





Absaroka  
112 High St.  
Buffalo WY 82834

Max Dahlgren  
Project Number: 42401  
Project: KMG - Ludwig H 06-31 Wellhead

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-B01@6'	E5K0658-01	Soil	November 24, 2025 13:00	11/24/2025 17:13
WH-BG01@3"	E5K0658-02	Soil	November 24, 2025 13:25	11/24/2025 17:13
WH-BG01@3'	E5K0658-03	Soil	November 24, 2025 13:30	11/24/2025 17:13
WH-BG01@6'	E5K0658-04	Soil	November 24, 2025 13:35	11/24/2025 17:13
WH-BG02@3"	E5K0658-05	Soil	November 24, 2025 13:40	11/24/2025 17:13
WH-BG02@3'	E5K0658-06	Soil	November 24, 2025 13:45	11/24/2025 17:13
WH-BG02@6'	E5K0658-07	Soil	November 24, 2025 13:50	11/24/2025 17:13
WH-BG03@3"	E5K0658-08	Soil	November 24, 2025 13:55	11/24/2025 17:13
WH-BG03@3'	E5K0658-09	Soil	November 24, 2025 14:00	11/24/2025 17:13
WH-BG03@6'	E5K0658-10	Soil	November 24, 2025 14:05	11/24/2025 17:13

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Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: ESK0658

Client: ABSAROKA

Client Project ID: Ludwig H 06-310 WH

Checklist Completed by: NKM/NKM

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

Date/time completed: 11/26/25

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 4.7 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C (Describe) / \_\_\_\_\_ °C

Thermometer ID: T-004

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> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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.

Jack H  
Reviewed by (Project Manager)

12/1/25  
Date/Time Reviewed



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 112 High St.  
 Buffalo WY 82834

Max Dahlgren  
 Project Number: 42401  
 Project: KMG - Ludwig H 06-31 Wellhead

**WH-B01@6'**

**11/24/2025 1:00:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-01 (Soil)  
 Enthalpy Orange**

**Total Metals by 7199**

Hexavalent Chromium	ND	0.17	0.31	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
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**Origins Laboratory**

**Boron (DTPA Sorbitol)**

(DTPA Sorbitol) Boron	ND		0.105	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
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**DRO/ORO by EPA 8015D**

Diesel (C10-C28)	ND		26.5	mg/kg dry	1	5K26029	11/26/2025	11/26/2025	U
Residual Range Organics (C28-C36)	ND		106	"	"	"	"	"	U

Surrogate: o-Terphenyl	76.6 %				50-150	"	"	"	
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**GBTEX+TMBs by 8260D**

1,2,4-Trimethylbenzene	ND		0.002	mg/kg dry	1	5K26050	11/26/2025	11/30/2025	U
1,3,5-Trimethylbenzene	ND		0.002	"	"	"	"	"	U
Benzene	ND		0.002	"	"	"	"	"	U
Ethylbenzene	ND		0.002	"	"	"	"	"	U
Toluene	ND		0.002	"	"	"	"	"	U
Xylenes, total	ND		0.002	"	"	"	"	"	U

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**WH-B01@6'**  
**11/24/2025 1:00:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-01 (Soil)**  
**Origins Laboratory**

**GBTEX+TMBs by 8260D**

Gasoline Range Hydrocarbons	ND		0.206	mg/kg dry	1	5K26050	11/26/2025	11/30/2025	HDSP, U
Surrogate: 1,2-Dichloroethane-d4	110 %			70-130		"	"	11/30/2025	
Surrogate: Toluene-d8	102 %			70-130		"	"	"	
Surrogate: 4-Bromofluorobenzene	96.7 %			70-130		"	"	"	

**Metals by Saturated Paste by EPA 6010**

Calcium	0.617		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	1.62		0.435	"	"	"	"	"	

**PAH by EPA 8270E extracted via 3580A**

1-Methylnaphthalene	ND		0.002	mg/kg dry	1	5K26059	11/26/2025	11/27/2025	U
2-Methylnaphthalene	ND		0.002	"	"	"	"	"	U
Acenaphthene	ND		0.021	"	"	"	"	"	U
Anthracene	ND		0.021	"	"	"	"	"	U
Benzo (a) anthracene	ND		0.005	"	"	"	"	"	U
Benzo (a) pyrene	ND		0.021	"	"	"	"	"	U
Benzo (b) fluoranthene	ND		0.021	"	"	"	"	"	U
Benzo (k) fluoranthene	ND		0.021	"	"	"	"	"	U

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**WH-B01@6'**

**11/24/2025 1:00:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-01 (Soil)  
 Origins Laboratory**

**PAH by EPA 8270E extracted via 3580A**

Chrysene	ND		0.021	mg/kg dry	1	5K26059	11/26/2025	11/27/2025	U
Dibenz (a,h) anthracene	ND		0.021	"	"	"	"	"	U
Fluoranthene	ND		0.021	"	"	"	"	"	U
Fluorene	ND		0.021	"	"	"	"	"	U
Indeno (1,2,3-cd) pyrene	ND		0.021	"	"	"	"	"	U
Naphthalene	ND		0.002	"	"	"	"	"	U
Pyrene	ND		0.021	"	"	"	"	"	U

Surrogate: Fluorene-d10	101 %			60-130		"	"	"	
Surrogate: Anthracene-d10	90.8 %			60-130		"	"	"	
Surrogate: Pyrene-d10	94.6 %			60-130		"	"	"	
Surrogate: Benzo (a) pyrene-d12	102 %			60-130		"	"	"	

**Percent Solids**

Total Solids, Percent	95.1			mass percent	1	5K26075	11/26/2025	11/26/2025	
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**pH in Soil by 9045D**

pH	8.51			pH Units	1	5K26045	11/26/2025	12/03/2025	
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**SAR by 20B Saturated Paste**

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**WH-B01@6'**

**11/24/2025 1:00:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-01 (Soil)</b>									
<b>Origins Laboratory</b>									
<b>SAR by 20B Saturated Paste</b>									
SAR	2.53		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	
<b>Specific Conductance Mod. 9050A</b>									
Specific Conductance (EC)	0.308		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
<b>Table 915 metals by EPA 6020B</b>									
Arsenic	1.48		0.209	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	216		59.0	"	"	"	"	"	
Cadmium	ND		0.274	"	"	"	"	"	U
Copper	ND		33.1	"	"	"	"	"	U
Lead	ND		10.1	"	"	"	"	"	U
Nickel	ND		18.7	"	"	"	"	"	U
Selenium	ND		0.177	"	"	"	"	"	U
Silver	ND		0.576	"	"	"	"	"	U
Zinc	ND		266	"	"	"	"	"	U

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WH-BG01@3"

11/24/2025 1:25:00PM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-02 (Soil)</b>									
<b>Enthalpy Orange</b>									
<b>Total Metals by 7199</b>									
Hexavalent Chromium	ND	0.16	0.30	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
<b>Origins Laboratory</b>									
<b>Boron (DTPA Sorbitol)</b>									
(DTPA Sorbitol) Boron	ND		0.104	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
<b>Metals by Saturated Paste by EPA 6010</b>									
Calcium	0.863		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	
Sodium	ND		0.435	"	"	"	"	"	
<b>Percent Solids</b>									
Total Solids, Percent	97.4			mass percent	1	5K26075	11/26/2025	11/26/2025	
<b>pH in Soil by 9045D</b>									
pH	6.77			pH Units	1	5K26045	11/26/2025	12/03/2025	
<b>SAR by 20B Saturated Paste</b>									
SAR	0.0577		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	

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WH-BG01@3"

11/24/2025 1:25:00PM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-02 (Soil)**  
**Origins Laboratory**

**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.305		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
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**Table 915 metals by EPA 6020B**

Arsenic	1.06		0.206	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	ND		58.1	"	"	"	"	"	U
Cadmium	ND		0.269	"	"	"	"	"	U
Copper	ND		32.6	"	"	"	"	"	U
Lead	ND		9.91	"	"	"	"	"	U
Nickel	ND		18.4	"	"	"	"	"	U
Selenium	ND		0.174	"	"	"	"	"	U
Silver	ND		0.566	"	"	"	"	"	U
Zinc	ND		262	"	"	"	"	"	U

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**WH-BG01@3'**

**11/24/2025 1:30:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-03 (Soil)  
 Enthalpy Orange**

**Total Metals by 7199**

Hexavalent Chromium	ND	0.17	0.32	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
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**Origins Laboratory**

**Boron (DTPA Sorbitol)**

(DTPA Sorbitol) Boron	ND		0.110	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
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**Metals by Saturated Paste by EPA 6010**

Calcium	ND		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	"
Sodium	ND		0.435	"	"	"	"	"	"

**Percent Solids**

Total Solids, Percent	92.4			mass percent	1	5K26075	11/26/2025	11/26/2025	
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**pH in Soil by 9045D**

pH	7.71			pH Units	1	5K26045	11/26/2025	12/03/2025	
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**SAR by 20B Saturated Paste**

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Max Dahlgren  
Project Number: 42401  
Project: KMG - Ludwig H 06-31 Wellhead

**WH-BG01@3'**  
**11/24/2025 1:30:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-03 (Soil)**  
**Origins Laboratory**

**SAR by 20B Saturated Paste**

SAR	0.239		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.0866		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
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**Table 915 metals by EPA 6020B**

Arsenic	3.46		0.209	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	139		58.9	"	"	"	"	"	
Cadmium	ND		0.273	"	"	"	"	"	U
Copper	ND		33.0	"	"	"	"	"	U
Lead	10.7		10.1	"	"	"	"	"	
Nickel	ND		18.7	"	"	"	"	"	U
Selenium	ND		0.177	"	"	"	"	"	U
Silver	ND		0.575	"	"	"	"	"	U
Zinc	ND		266	"	"	"	"	"	U

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**WH-BG01@6'**  
**11/24/2025 1:35:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-04 (Soil)</b>									
<b>Enthalpy Orange</b>									
<b>Total Metals by 7199</b>									
Hexavalent Chromium	ND	0.17	0.33	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
<b>Origins Laboratory</b>									
<b>Boron (DTPA Sorbitol)</b>									
(DTPA Sorbitol) Boron	ND		0.112	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
<b>Metals by Saturated Paste by EPA 6010</b>									
Calcium	0.900		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	"
Sodium	ND		0.435	"	"	"	"	"	"
<b>Percent Solids</b>									
Total Solids, Percent	90.5			mass percent	1	5K26075	11/26/2025	11/26/2025	
<b>pH in Soil by 9045D</b>									
pH	8.33			pH Units	1	5K26045	11/26/2025	12/03/2025	
<b>SAR by 20B Saturated Paste</b>									
SAR	0.475		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	

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Max Dahlgren  
 Project Number: 42401  
 Project: KMG - Ludwig H 06-31 Wellhead

WH-BG01@6'

11/24/2025 1:35:00PM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-04 (Soil)</b>									
<b>Origins Laboratory</b>									
<b>Specific Conductance Mod. 9050A</b>									
Specific Conductance (EC)	0.180		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
<b>Table 915 metals by EPA 6020B</b>									
Arsenic	3.08		0.226	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	133		63.9	"	"	"	"	"	
Cadmium	ND		0.296	"	"	"	"	"	U
Copper	ND		35.8	"	"	"	"	"	U
Lead	ND		10.9	"	"	"	"	"	U
Nickel	ND		20.3	"	"	"	"	"	U
Selenium	ND		0.192	"	"	"	"	"	U
Silver	ND		0.623	"	"	"	"	"	U
Zinc	ND		288	"	"	"	"	"	U

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**WH-BG02@3"**

**11/24/2025 1:40:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-05 (Soil)  
 Enthalpy Orange**

**Total Metals by 7199**

Hexavalent Chromium	ND	0.16	0.30	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
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**Origins Laboratory**

**Boron (DTPA Sorbitol)**

(DTPA Sorbitol) Boron	ND		0.104	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
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**Metals by Saturated Paste by EPA 6010**

Calcium	ND		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	"
Sodium	ND		0.435	"	"	"	"	"	"

**Percent Solids**

Total Solids, Percent	96.7			mass percent	1	5K26075	11/26/2025	11/26/2025	
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**pH in Soil by 9045D**

pH	7.29			pH Units	1	5K26045	11/26/2025	12/03/2025	
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**SAR by 20B Saturated Paste**

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Max Dahlgren  
 Project Number: 42401  
 Project: KMG - Ludwig H 06-31 Wellhead

**WH-BG02@3"**

**11/24/2025 1:40:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-05 (Soil)  
 Origins Laboratory**

**SAR by 20B Saturated Paste**

SAR	0.0268		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	
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**Specific Conductance Mod. 9050A**

Specific Conductance (EC)	0.222		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
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**Table 915 metals by EPA 6020B**

Arsenic	0.998		0.202	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	ND		56.9	"	"	"	"	"	U
Cadmium	ND		0.264	"	"	"	"	"	U
Copper	ND		31.9	"	"	"	"	"	U
Lead	ND		9.72	"	"	"	"	"	U
Nickel	ND		18.1	"	"	"	"	"	U
Selenium	ND		0.171	"	"	"	"	"	U
Silver	ND		0.556	"	"	"	"	"	U
Zinc	ND		257	"	"	"	"	"	U

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WH-BG02@3'

11/24/2025 1:45:00PM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-06 (Soil)</b>									
<b>Enthalpy Orange</b>									
<b>Total Metals by 7199</b>									
Hexavalent Chromium	ND	0.17	0.32	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
<b>Origins Laboratory</b>									
<b>Boron (DTPA Sorbitol)</b>									
(DTPA Sorbitol) Boron	ND		0.107	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
<b>Metals by Saturated Paste by EPA 6010</b>									
Calcium	ND		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	"
Sodium	0.570		0.435	"	"	"	"	"	"
<b>Percent Solids</b>									
Total Solids, Percent	93.9			mass percent	1	5K26075	11/26/2025	11/26/2025	
<b>pH in Soil by 9045D</b>									
pH	7.93			pH Units	1	5K26045	11/26/2025	12/03/2025	
<b>SAR by 20B Saturated Paste</b>									
SAR	0.988		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	

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WH-BG02@3'

11/24/2025 1:45:00PM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-06 (Soil)</b>									
<b>Origins Laboratory</b>									
<b>Specific Conductance Mod. 9050A</b>									
Specific Conductance (EC)	0.128		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
<b>Table 915 metals by EPA 6020B</b>									
Arsenic	2.00		0.218	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	84.7		61.6	"	"	"	"	"	
Cadmium	ND		0.285	"	"	"	"	"	U
Copper	ND		34.5	"	"	"	"	"	U
Lead	ND		10.5	"	"	"	"	"	U
Nickel	ND		19.5	"	"	"	"	"	U
Selenium	ND		0.185	"	"	"	"	"	U
Silver	ND		0.601	"	"	"	"	"	U
Zinc	ND		278	"	"	"	"	"	U

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**WH-BG02@6'**

**11/24/2025 1:50:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-07 (Soil)  
 Enthalpy Orange**

**Total Metals by 7199**

Hexavalent Chromium	ND	0.19	0.36	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
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**Origins Laboratory**

**Boron (DTPA Sorbitol)**

(DTPA Sorbitol) Boron	ND		0.120	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
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**Metals by Saturated Paste by EPA 6010**

Calcium	1.32		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	"
Sodium	1.17		0.435	"	"	"	"	"	"

**Percent Solids**

Total Solids, Percent	82.9			mass percent	1	5K26075	11/26/2025	11/26/2025	
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**pH in Soil by 9045D**

pH	8.31			pH Units	1	5K26045	11/26/2025	12/03/2025	
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**SAR by 20B Saturated Paste**

SAR	1.23		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	
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 Project Number: 42401  
 Project: KMG - Ludwig H 06-31 Wellhead

WH-BG02@6'

11/24/2025 1:50:00PM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-07 (Soil)</b>									
<b>Origins Laboratory</b>									
<b>Specific Conductance Mod. 9050A</b>									
Specific Conductance (EC)	0.333		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
<b>Table 915 metals by EPA 6020B</b>									
Arsenic	4.93		0.250	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	199		70.4	"	"	"	"	"	
Cadmium	ND		0.326	"	"	"	"	"	U
Copper	ND		39.5	"	"	"	"	"	U
Lead	15.7		12.0	"	"	"	"	"	
Nickel	ND		22.3	"	"	"	"	"	U
Selenium	ND		0.211	"	"	"	"	"	U
Silver	ND		0.687	"	"	"	"	"	U
Zinc	ND		318	"	"	"	"	"	U

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**WH-BG03@3"**

**11/24/2025 1:55:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**E5K0658-08 (Soil)  
 Enthalpy Orange**

**Total Metals by 7199**

Hexavalent Chromium	ND	0.16	0.31	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
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**Origins Laboratory**

**Boron (DTPA Sorbitol)**

(DTPA Sorbitol) Boron	ND		0.104	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
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**Metals by Saturated Paste by EPA 6010**

Calcium	ND		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	"
Sodium	ND		0.435	"	"	"	"	"	"

**Percent Solids**

Total Solids, Percent	96.1			mass percent	1	5K26075	11/26/2025	11/26/2025	
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**pH in Soil by 9045D**

pH	7.24			pH Units	1	5K26045	11/26/2025	12/03/2025	
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**SAR by 20B Saturated Paste**

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**WH-BG03@3"**

**11/24/2025 1:55:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-08 (Soil)</b>									
<b>Origins Laboratory</b>									
<b>SAR by 20B Saturated Paste</b>									
SAR	0.0362		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	
<b>Specific Conductance Mod. 9050A</b>									
Specific Conductance (EC)	0.192		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
<b>Table 915 metals by EPA 6020B</b>									
Arsenic	1.14		0.205	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	ND		57.9	"	"	"	"	"	U
Cadmium	ND		0.268	"	"	"	"	"	U
Copper	ND		32.5	"	"	"	"	"	U
Lead	ND		9.89	"	"	"	"	"	U
Nickel	ND		18.4	"	"	"	"	"	U
Selenium	ND		0.174	"	"	"	"	"	U
Silver	ND		0.565	"	"	"	"	"	U
Zinc	ND		261	"	"	"	"	"	U

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**WH-BG03@3'**  
**11/24/2025 2:00:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-09 (Soil)</b>									
<b>Enthalpy Orange</b>									
<b>Total Metals by 7199</b>									
Hexavalent Chromium	ND	0.16	0.30	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
<b>Origins Laboratory</b>									
<b>Boron (DTPA Sorbitol)</b>									
(DTPA Sorbitol) Boron	ND		0.100	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
<b>Metals by Saturated Paste by EPA 6010</b>									
Calcium	ND		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	"
Sodium	ND		0.435	"	"	"	"	"	"
<b>Percent Solids</b>									
Total Solids, Percent	98.3			mass percent	1	5K26075	11/26/2025	11/26/2025	
<b>pH in Soil by 9045D</b>									
pH	7.25			pH Units	1	5K26045	11/26/2025	12/03/2025	
<b>SAR by 20B Saturated Paste</b>									

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**WH-BG03@3'**  
**11/24/2025 2:00:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-09 (Soil)</b>									
<b>Origins Laboratory</b>									
<b>SAR by 20B Saturated Paste</b>									
SAR	0.535		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	
<b>Specific Conductance Mod. 9050A</b>									
Specific Conductance (EC)	0.0665		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
<b>Table 915 metals by EPA 6020B</b>									
Arsenic	0.803		0.201	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	58.0		56.6	"	"	"	"	"	
Cadmium	ND		0.262	"	"	"	"	"	U
Copper	ND		31.7	"	"	"	"	"	U
Lead	ND		9.66	"	"	"	"	"	U
Nickel	ND		17.9	"	"	"	"	"	U
Selenium	ND		0.170	"	"	"	"	"	U
Silver	ND		0.552	"	"	"	"	"	U
Zinc	ND		255	"	"	"	"	"	U

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**WH-BG03@6'**  
**11/24/2025 2:05:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-10 (Soil)</b>									
<b>Enthalpy Orange</b>									
<b>Total Metals by 7199</b>									
Hexavalent Chromium	ND	0.16	0.30	mg/Kg dry	1	389825	12/11/2025	12/12/2025	ND
<b>Origins Laboratory</b>									
<b>Boron (DTPA Sorbitol)</b>									
(DTPA Sorbitol) Boron	ND		0.102	mg/L dry	1	5K26033	11/26/2025	12/02/2025	U
<b>Metals by Saturated Paste by EPA 6010</b>									
Calcium	ND		0.499	meq/L	10	[CALC]	11/26/2025	12/03/2025	
Magnesium	ND		0.823	"	"	"	"	"	"
Sodium	ND		0.435	"	"	"	"	"	"
<b>Percent Solids</b>									
Total Solids, Percent	97.1			mass percent	1	5K26075	11/26/2025	11/26/2025	
<b>pH in Soil by 9045D</b>									
pH	7.15			pH Units	1	5K26045	11/26/2025	12/03/2025	
<b>SAR by 20B Saturated Paste</b>									

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**WH-BG03@6'**  
**11/24/2025 2:05:00PM**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
<b>E5K0658-10 (Soil)</b>									
<b>Origins Laboratory</b>									
<b>SAR by 20B Saturated Paste</b>									
SAR	0.376		0.0100	SAR	1	5K26039	11/26/2025	12/03/2025	
<b>Specific Conductance Mod. 9050A</b>									
Specific Conductance (EC)	0.125		0.00500	mmhos/cm	1	5K26045	11/26/2025	12/03/2025	
<b>Table 915 metals by EPA 6020B</b>									
Arsenic	1.49		0.201	mg/kg dry	10	5K26054	11/26/2025	12/01/2025	
Barium	67.3		56.7	"	"	"	"	"	
Cadmium	ND		0.263	"	"	"	"	"	U
Copper	ND		31.8	"	"	"	"	"	U
Lead	ND		9.69	"	"	"	"	"	U
Nickel	ND		18.0	"	"	"	"	"	U
Selenium	ND		0.170	"	"	"	"	"	U
Silver	ND		0.554	"	"	"	"	"	U
Zinc	ND		256	"	"	"	"	"	U

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Project: KMG - Ludwig H 06-31 Wellhead

\*\*\* DEFAULT GENERAL METHOD \*\*\* - Quality Control

Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5K26075 - % Solids

Duplicate (5K26075-DUP1)

Source: E5K0658-01

Prepared: 11/26/2025 Analyzed: 11/26/2025

Total Solids, Percent	95.1		mass percent		95.1			0.00769	20	
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Duplicate (5K26075-DUP2)

Source: E5K0658-02

Prepared: 11/26/2025 Analyzed: 11/26/2025

Total Solids, Percent	97.5		mass percent		97.4			0.0804	20	
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Project Number: 42401  
Project: KMG - Ludwig H 06-31 Wellhead

**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 5K26033 - DTPA Sorbitol Preparation**

**Blank (5K26033-BLK1)**

Prepared: 11/26/2025 Analyzed: 12/02/2025

(DTPA Sorbitol) Boron ND 0.100 mg/L wet U

**Duplicate (5K26033-DUP1)**

**Source: E5K0656-03**

Prepared: 11/26/2025 Analyzed: 12/02/2025

(DTPA Sorbitol) Boron ND 0.119 mg/L dry 0.0309 50 U

**Batch 5K26039 - Saturated Paste Metals**

**Blank (5K26039-BLK1)**

Prepared: 11/26/2025 Analyzed: 12/03/2025

Calcium PPM ND 10.0 mg/L U

SAR ND 0.0100 SAR U

Magnesium PPM ND 10.0 mg/L U

Sodium PPM ND 10.0 " U

**Duplicate (5K26039-DUP1)**

**Source: E5K0656-03**

Prepared: 11/26/2025 Analyzed: 12/03/2025

SAR ND 0.0100 SAR 2.82 200 U

Calcium PPM 65.0 10.0 mg/L 65.1 0.246 50

Magnesium PPM 13.1 10.0 " 13.3 1.74 50

Sodium PPM 95.8 10.0 " 95.7 0.104 50

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Project: KMG - Ludwig H 06-31 Wellhead

**EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 5K26059 - EPA 3580**

**Blank (5K26059-BLK1)**

Prepared: 11/26/2025 Analyzed: 11/27/2025

1-Methylnaphthalene	ND	0.002	mg/kg wet							U
2-Methylnaphthalene	ND	0.002	"							U
Acenaphthene	ND	0.020	"							U
Anthracene	ND	0.020	"							U
Benzo (a) anthracene	ND	0.005	"							U
Benzo (a) pyrene	ND	0.020	"							U
Benzo (b) fluoranthene	ND	0.020	"							U
Benzo (k) fluoranthene	ND	0.020	"							U
Chrysene	ND	0.020	"							U
Dibenz (a,h) anthracene	ND	0.020	"							U
Fluoranthene	ND	0.020	"							U
Fluorene	ND	0.020	"							U
Indeno (1,2,3-cd) pyrene	ND	0.020	"							U
Naphthalene	ND	0.002	"							U
Pyrene	ND	0.020	"							U

Surrogate: Fluorene-d10	200		ug/kg	200		99.4	60-130			
Surrogate: Anthracene-d10	190		"	200		92.7	60-130			
Surrogate: Pyrene-d10	190		"	200		95.2	60-130			
Surrogate: Benzo (a) pyrene-d12	210		"	200		106	60-130			

**LCS (5K26059-BS1)**

Prepared: 11/26/2025 Analyzed: 11/27/2025

1-Methylnaphthalene	0.219	0.002	mg/kg wet	0.202		108	70-130			
2-Methylnaphthalene	0.219	0.002	"	0.202		108	70-130			
Acenaphthene	0.217	0.020	"	0.202		107	70-130			
Anthracene	0.196	0.020	"	0.202		96.7	70-130			
Benzo (a) anthracene	0.207	0.005	"	0.202		102	70-130			
Benzo (a) pyrene	0.207	0.020	"	0.202		102	70-130			

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Max Dahlgren  
Project Number: 42401  
Project: KMG - Ludwig H 06-31 Wellhead

**EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5K26059 - EPA 3580

**LCS (5K26059-BS1)**

Prepared: 11/26/2025 Analyzed: 11/27/2025

Benzo (b) fluoranthene	0.223	0.020	mg/kg wet	0.202		110	70-130			
Benzo (g,h,i) perylene	0.219	0.020	"	0.202		108	70-130			
Benzo (k) fluoranthene	0.232	0.020	"	0.202		115	70-130			
Chrysene	0.203	0.020	"	0.202		100	70-130			
Dibenz (a,h) anthracene	0.213	0.020	"	0.202		105	70-130			
Fluoranthene	0.208	0.020	"	0.202		103	70-130			
Fluorene	0.221	0.020	"	0.202		109	70-130			
Indeno (1,2,3-cd) pyrene	0.214	0.020	"	0.202		106	70-130			
Naphthalene	0.219	0.002	"	0.202		108	70-130			
Phenanthrene	0.207	0.020	"	0.202		102	70-130			
Pyrene	0.199	0.020	"	0.202		98.6	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		99.8	60-130			
Surrogate: Anthracene-d10	180		"	200		91.7	60-130			
Surrogate: Pyrene-d10	190		"	200		95.4	60-130			
Surrogate: Benzo (a) pyrene-d12	200		"	200		102	60-130			

**Matrix Spike (5K26059-MS1)**

Source: E5K0631-01

Prepared: 11/26/2025 Analyzed: 11/27/2025

1-Methylnaphthalene	0.219	0.002	mg/kg dry	0.214	ND	103	70-130			
2-Methylnaphthalene	0.217	0.002	"	0.214	ND	102	70-130			
Acenaphthene	0.218	0.021	"	0.214	ND	102	70-130			
Anthracene	0.197	0.021	"	0.214	0.0006	91.9	70-130			
Benzo (a) anthracene	0.200	0.005	"	0.214	0.001	93.1	70-130			
Benzo (a) pyrene	0.220	0.021	"	0.214	0.002	102	70-130			
Benzo (b) fluoranthene	0.235	0.021	"	0.214	0.002	109	70-130			
Benzo (g,h,i) perylene	0.226	0.021	"	0.214	0.003	104	70-130			
Benzo (k) fluoranthene	0.233	0.021	"	0.214	0.002	108	70-130			
Chrysene	0.208	0.021	"	0.214	0.001	96.7	70-130			

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 Buffalo WY 82834

Max Dahlgren  
 Project Number: 42401  
 Project: KMG - Ludwig H 06-31 Wellhead

**EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5K26059 - EPA 3580

**Matrix Spike (5K26059-MS1)**

Source: E5K0631-01

Prepared: 11/26/2025 Analyzed: 11/27/2025

Dibenz (a,h) anthracene	0.222	0.021	mg/kg dry	0.214	0.004	102	70-130			
Fluoranthene	0.208	0.021	"	0.214	0.0006	96.9	70-130			
Fluorene	0.219	0.021	"	0.214	0.0002	103	70-130			
Indeno (1,2,3-cd) pyrene	0.222	0.021	"	0.214	0.004	102	70-130			
Naphthalene	0.220	0.002	"	0.214	ND	103	70-130			
Phenanthrene	0.203	0.021	"	0.214	ND	94.9	70-130			
Pyrene	0.196	0.021	"	0.214	ND	92.0	70-130			
Surrogate: Fluorene-d10	200		ug/kg	200		100	60-130			
Surrogate: Anthracene-d10	190		"	200		93.6	60-130			
Surrogate: Pyrene-d10	190		"	200		95.5	60-130			
Surrogate: Benzo (a) pyrene-d12	210		"	200		105	60-130			

**Matrix Spike Dup (5K26059-MSD1)**

Source: E5K0631-01

Prepared: 11/26/2025 Analyzed: 11/27/2025

1-Methylnaphthalene	0.213	0.002	mg/kg dry	0.207	ND	103	70-130	2.68	20	
2-Methylnaphthalene	0.213	0.002	"	0.207	ND	103	70-130	1.84	20	
Acenaphthene	0.213	0.021	"	0.207	ND	103	70-130	2.33	20	
Anthracene	0.193	0.021	"	0.207	0.0006	92.8	70-130	2.01	20	
Benzo (a) anthracene	0.203	0.005	"	0.207	0.001	97.6	70-130	1.72	20	
Benzo (a) pyrene	0.217	0.021	"	0.207	0.002	104	70-130	1.62	20	
Benzo (b) fluoranthene	0.234	0.021	"	0.207	0.002	112	70-130	0.268	20	
Benzo (g,h,i) perylene	0.225	0.021	"	0.207	0.003	107	70-130	0.481	20	
Benzo (k) fluoranthene	0.238	0.021	"	0.207	0.002	114	70-130	2.13	20	
Chrysene	0.206	0.021	"	0.207	0.001	98.7	70-130	0.969	20	
Dibenz (a,h) anthracene	0.227	0.021	"	0.207	0.004	108	70-130	2.45	20	
Fluoranthene	0.202	0.021	"	0.207	0.0006	97.3	70-130	2.63	20	
Fluorene	0.216	0.021	"	0.207	0.0002	104	70-130	1.75	20	
Indeno (1,2,3-cd) pyrene	0.228	0.021	"	0.207	0.004	108	70-130	2.91	20	

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**EPA 8270E (SW846) - Semivolatile Organic Compounds - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5K26059 - EPA 3580

Matrix Spike Dup (5K26059-MSD1)

Source: E5K0631-01

Prepared: 11/26/2025 Analyzed: 11/27/2025

Naphthalene	0.216	0.002	mg/kg dry	0.207	ND	104	70-130	2.11	20	
Phenanthrene	0.199	0.021	"	0.207	ND	96.0	70-130	1.85	20	
Pyrene	0.197	0.021	"	0.207	ND	94.9	70-130	0.126	20	
Surrogate: Fluorene-d10	200		ug/kg	200		99.8	60-130			
Surrogate: Anthracene-d10	190		"	200		93.4	60-130			
Surrogate: Pyrene-d10	190		"	200		95.5	60-130			
Surrogate: Benzo (a) pyrene-d12	210		"	200		105	60-130			

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Project: KMG - Ludwig H 06-31 Wellhead

**Extractable Petroleum Hydrocarbons by 8015D - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 5K26029 - EPA 3550B**

**Blank (5K26029-BLK1)**

Prepared: 11/26/2025 Analyzed: 11/26/2025

Diesel (C10-C28)	ND	24.9	mg/kg wet							U
Residual Range Organics (C28-C36)	ND	99.6	"							U
Surrogate: o-Terphenyl	21		"	24.8		84.1	50-150			

**LCS (5K26029-BS1)**

Prepared: 11/26/2025 Analyzed: 11/26/2025

Diesel (C10-C28)	852	50.0	mg/kg wet	1000		85.2	70-130			
Residual Range Organics (C28-C36)	884	200	"	1000		88.4	70-130			
Surrogate: o-Terphenyl	40		"	49.8		80.7	50-150			

**Matrix Spike (5K26029-MS1)**

**Source: E5K0643-01**

Prepared: 11/26/2025 Analyzed: 11/26/2025

Diesel (C10-C28)	800	50.0	mg/kg wet	1000	ND	80.0	70-130			
Residual Range Organics (C28-C36)	843	200	"	1000	ND	84.3	70-130			
Surrogate: o-Terphenyl	36		"	49.8		73.0	50-150			

**Matrix Spike Dup (5K26029-MSD1)**

**Source: E5K0643-01**

Prepared: 11/26/2025 Analyzed: 11/26/2025

Diesel (C10-C28)	827	50.8	mg/kg wet	1020	ND	81.4	70-130	3.33	35	
Residual Range Organics (C28-C36)	872	203	"	1020	ND	85.8	70-130	3.41	35	
Surrogate: o-Terphenyl	38		"	50.6		74.4	50-150			

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**Metals by EPA 6000/7000 Series Methods - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 5K26054 - EPA 3050B**

**Blank (5K26054-BLK1)**

Prepared: 11/26/2025 Analyzed: 12/01/2025

Arsenic	ND	0.218	mg/kg wet							U
Barium	ND	61.5	"							U
Cadmium	ND	0.285	"							U
Copper	ND	34.5	"							U
Lead	ND	10.5	"							U
Nickel	ND	19.5	"							U
Selenium	ND	0.184	"							U
Silver	ND	0.600	"							U
Zinc	ND	278	"							U

**LCS (5K26054-BS1)**

Prepared: 11/26/2025 Analyzed: 12/01/2025

Arsenic	5.64	0.218	mg/kg wet	5.00		113	80-120			
Barium	576	61.5	"	500		115	80-120			
Cadmium	5.79	0.285	"	5.00		116	80-120			
Copper	58.6	34.5	"	50.0		117	80-120			
Lead	5.71	10.5	"	5.00		114	80-120			U
Nickel	5.69	19.5	"	5.00		114	80-120			U
Selenium	5.62	0.184	"	5.00		112	80-120			
Silver	5.61	0.600	"	5.00		112	80-120			
Zinc	56.9	278	"	50.0		114	80-120			U

**Matrix Spike (5K26054-MS1)**

**Source: E5K0653-01**

Prepared: 11/26/2025 Analyzed: 12/01/2025

Arsenic	9.64	0.222	mg/kg dry	5.09	4.55	100	75-125			
Barium	567	62.6	"	509	79.9	95.8	75-125			
Cadmium	4.97	0.290	"	5.09	0.0958	95.8	75-125			
Copper	59.2	35.1	"	50.9	9.74	97.2	75-125			
Lead	13.3	10.7	"	5.09	7.67	111	75-125			

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 Project: KMG - Ludwig H 06-31 Wellhead

**Metals by EPA 6000/7000 Series Methods - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5K26054 - EPA 3050B

**Matrix Spike (5K26054-MS1)**

Source: E5K0653-01

Prepared: 11/26/2025 Analyzed: 12/01/2025

Nickel	17.2	19.8	mg/kg dry	5.09	10.6	131	75-125			QM-07, U
Selenium	4.52	0.188	"	5.09	0.128	86.3	75-125			
Silver	4.77	0.610	"	5.09	0.0200	93.5	75-125			
Zinc	86.9	282	"	50.9	38.9	94.2	75-125			U

**Matrix Spike Dup (5K26054-MSD1)**

Source: E5K0653-01

Prepared: 11/26/2025 Analyzed: 12/01/2025

Arsenic	9.81	0.224	mg/kg dry	5.14	4.55	102	75-125	1.70	20	
Barium	620	63.2	"	514	79.9	105	75-125	8.82	20	
Cadmium	5.85	0.293	"	5.14	0.0958	112	75-125	16.3	20	
Copper	66.4	35.4	"	51.4	9.74	110	75-125	11.5	20	
Lead	12.4	10.8	"	5.14	7.67	93.2	75-125	6.64	20	
Nickel	19.2	20.0	"	5.14	10.6	169	75-125	11.1	20	QM-07, U
Selenium	5.27	0.190	"	5.14	0.128	100	75-125	15.4	20	
Silver	5.50	0.616	"	5.14	0.0200	107	75-125	14.2	20	
Zinc	88.3	285	"	51.4	38.9	96.1	75-125	1.63	20	U

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**Saturated Paste - Quality Control**  
**Origins Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 5K26045 - Saturated Paste pH/EC**

**Blank (5K26045-BLK1)**

Prepared: 11/26/2025 Analyzed: 12/03/2025

Specific Conductance (EC) ND 0.00500 mmhos/cm U

**Duplicate (5K26045-DUP1)**

**Source: E5K0656-03**

Prepared: 11/26/2025 Analyzed: 12/03/2025

pH 8.19 pH Units 8.16 0.367 25

Specific Conductance (EC) 0.948 0.00500 mmhos/cm 0.932 1.71 25

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Project: KMG - Ludwig H 06-31 Wellhead

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 5K26050 - EPA 5030 (soil)**

Prepared: 11/26/2025 Analyzed: 11/29/2025

**Blank (5K26050-BLK1)**

1,2,4-Trimethylbenzene	ND	0.002	mg/kg wet							U
1,3,5-Trimethylbenzene	ND	0.002	"							U
Benzene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Gasoline Range Hydrocarbons	ND	0.200	"							U

Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		100	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

**LCS (5K26050-BS1)**

Prepared: 11/26/2025 Analyzed: 11/29/2025

1,2,4-Trimethylbenzene	0.109	0.002	mg/kg wet	0.100		109	70-130			
1,3,5-Trimethylbenzene	0.110	0.002	"	0.100		110	70-130			
Benzene	0.105	0.002	"	0.100		105	70-130			
Ethylbenzene	0.107	0.002	"	0.100		107	70-130			
Naphthalene	0.101	0.004	"	0.100		101	70-130			
Toluene	0.107	0.002	"	0.100		107	70-130			
o-Xylene	0.103	0.002	"	0.100		103	70-130			
m,p-Xylene	0.238	0.004	"	0.200		119	70-130			

Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		93.1	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.0	70-130			

**Matrix Spike (5K26050-MS1)**

Source: E5K0624-01

Prepared: 11/26/2025 Analyzed: 11/30/2025

1,2,4-Trimethylbenzene	0.106	0.002	mg/kg dry	0.110	ND	96.4	70-130			
1,3,5-Trimethylbenzene	0.109	0.002	"	0.110	ND	99.1	70-130			

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Project Number: 42401  
Project: KMG - Ludwig H 06-31 Wellhead

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5K26050 - EPA 5030 (soil)

**Matrix Spike (5K26050-MS1)**

Source: E5K0624-01

Prepared: 11/26/2025 Analyzed: 11/30/2025

Benzene	0.114	0.002	mg/kg dry	0.110	ND	103	70-130			
Ethylbenzene	0.105	0.002	"	0.110	ND	95.4	70-130			
Naphthalene	0.102	0.004	"	0.110	0.002	91.1	70-130			
Toluene	0.118	0.002	"	0.110	ND	107	70-130			
o-Xylene	0.109	0.002	"	0.110	ND	98.7	70-130			
m,p-Xylene	0.235	0.004	"	0.221	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.14		"	0.138		97.9	70-130			
Surrogate: Toluene-d8	0.14		"	0.138		105	70-130			
Surrogate: 4-Bromofluorobenzene	0.14		"	0.138		100	70-130			

**Matrix Spike Dup (5K26050-MSD1)**

Source: E5K0624-01

Prepared: 11/26/2025 Analyzed: 11/30/2025

1,2,4-Trimethylbenzene	0.105	0.002	mg/kg dry	0.110	ND	94.9	70-130	1.81	20	
1,3,5-Trimethylbenzene	0.107	0.002	"	0.110	ND	96.7	70-130	2.73	20	
Benzene	0.108	0.002	"	0.110	ND	98.2	70-130	5.39	20	
Ethylbenzene	0.105	0.002	"	0.110	ND	95.1	70-130	0.470	20	
Naphthalene	0.097	0.004	"	0.110	0.002	85.9	70-130	5.96	20	
Toluene	0.110	0.002	"	0.110	ND	99.4	70-130	7.22	20	
o-Xylene	0.107	0.002	"	0.110	ND	96.8	70-130	2.20	20	
m,p-Xylene	0.234	0.004	"	0.220	ND	106	70-130	0.310	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.138		96.7	70-130			
Surrogate: Toluene-d8	0.14		"	0.138		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.14		"	0.138		104	70-130			

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Max Dahlgren  
 Project Number: 42401  
 Project: KMG - Ludwig H 06-31 Wellhead

**Total Metals by 7199 - Quality Control  
 Enthalpy Orange**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 389825 - EPA 3060A</b>										
<b>BLANK (QC1321563)</b>										
					Prepared: 12/11/2025 Analyzed: 12/11/2025					
Hexavalent Chromium	ND	0.30	mg/Kg				-			ND
<b>LCS (QC1321564)</b>										
					Prepared: 12/11/2025 Analyzed: 12/11/2025					
Hexavalent Chromium	38.69	0.5976	mg/Kg	39.84		97	80-120			
<b>Duplicate (QC1321566)</b>										
					Prepared: 12/11/2025 Analyzed: 12/11/2025					
					<b>Source: 548064-001</b>					
Hexavalent Chromium	ND	0.3367	mg/Kg dry		0		-		30	ND
<b>Matrix Spike (QC1321567)</b>										
					Prepared: 12/11/2025 Analyzed: 12/11/2025					
					<b>Source: 548064-001</b>					
Hexavalent Chromium	35.81	0.6897	mg/Kg dry	45.98	0	78	70-130			

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Absaroka

112 High St.

Buffalo WY 82834

Max Dahlgren

Project Number: 42401

Project: KMG - Ludwig H 06-31 Wellhead

### Notes and Definitions

- U Sample is Non-Detect.
- 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 Not Detected
- HDSP Sample aliquot taken from a container with headspace (VOA air bubble greater than 6 mm diameter or soil jar opened after primary sampling).
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference

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