



March 30, 2017

Mr. Mike Dinkel, REM, CSEM
Kerr-McGee Oil & Gas Onshore, LP
P.O. Box 173779
Denver, Colorado 80217-3779

Re: Quarterly Site Groundwater Monitoring Report – First Quarter 2017
DFMF #2 – Strear Farms
Facility Number: 437129
Weld County, Colorado

Dear Mr. Dinkel:

On behalf of Kerr-McGee Oil & Gas Onshore, LP (Kerr-McGee), Tasman Geosciences, Inc. (Tasman) has prepared this First Quarter 2017 Groundwater Monitoring Report (Report) to document groundwater monitoring activities at the above-referenced facility (Site – Figure 1). Tasman provided environmental services at the Site that included: groundwater level measurements at the five (5) Site groundwater monitoring wells; groundwater purging, sample collection, and analysis; documentation of field activities, and; analytical data review and evaluation, as described below.

Site Monitoring Activities

The monitoring activities described herein were performed with the purpose of assessing shallow aquifer conditions at the Site. The activities described in this Report were performed in accordance with the Form 27 – Site Investigation and Remediation Workplan (Form 27) submitted to the Colorado Oil and Gas Conservation Commission (COGCC) on August 30, 2016 (Remediation No. pending).

First Quarter 2017 monitoring activities were conducted at the Site on January 11, 2017. The activities conducted are described below:

Monitoring Well Gauging

The 5 on-Site groundwater monitoring wells (MW01R, MW02 - MW05) were gauged for the presence and depth of groundwater and/or free hydrocarbons (light non-aqueous phase liquid [LNAPL]) using an interface probe (IP). Fluid levels were measured on the north side of the well casing to the nearest 0.01-foot. Monitoring well total depths were also measured with the IP.

LNAPL was not detected in any of the 5 groundwater monitoring wells. Measured depths to groundwater were converted to elevation in feet above mean sea level (ft. AMSL) by subtracting the measured depth to groundwater from the surveyed top-of-casing elevation at each location. Measured depths to water and the corresponding groundwater elevations are presented in Table 1. Monitoring well locations and the First Quarter 2017 groundwater contour map are illustrated on Figure 2. Groundwater monitoring well boring and construction logs for MW01R – MW05 were presented in the Form 27.

Groundwater Purging, Sample Collection, and Analysis

Subsequent to groundwater gauging activities, a minimum of three casing volumes of groundwater (calculated by subtracting the measured depth to groundwater from the total depth of the well and multiplying the difference by the area of the well) were purged from each groundwater monitoring well using a new, disposable polyethylene bailer. Observations of groundwater color, odor, and turbidity were recorded after each casing volume was removed.

Subsequent to the completion of purging activities, groundwater samples were collected from each groundwater monitoring well. Monitoring wells were sampled using the dedicated bailer that was used to purge each specific well to limit the potential for cross-contamination between sampling points. Clean sample containers (hydrochloric acid [HCl]-preserved 40-milliliter [ml] volatile organic analysis [VOA] vials) supplied by the analytical laboratory were used to contain the groundwater samples for analysis.

VOA vials were overfilled and capped to reduce the potential for headspace and to prevent the loss of volatile analytes during transport to the laboratory. Subsequent to capping, VOA vials were inverted to confirm that no gas bubbles/void spaces were present within the sample container. Sample bottles were then labeled with the corresponding date, time of collection, and well identification information prior to placement into an ice-filled cooler, which maintained storage temperature at approximately four degrees Celsius (°C) for transportation to the laboratory.

The groundwater samples were packed using standard analytical laboratory protocols and transferred for analysis under chain-of-custody procedures to Origins Laboratory in Denver, CO. As specified in the Form 27, groundwater samples were submitted for analysis of the full volatile organic compound (VOC) suite (including benzene, toluene, ethylbenzene, and total xylenes [BTEX]) and total petroleum hydrocarbons (TPH) – gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260C, and TPH – diesel range organics (DRO) and oil range organics (ORO) by USEPA Method 8015C. A laboratory-prepared trip blank was included in the sample cooler for analysis of the full VOC suite to verify that cross-contamination of samples did not occur during sampling handling and transport.

Groundwater Monitoring Results

Groundwater sample laboratory analytical results are presented in Table 2. As presented in the table, all VOC results were below the laboratory reporting limits, and as such below the applicable COGCC Table 910-1 groundwater standards, with the following exception:

- Benzene was detected in MW01R at a concentration of 7.70 micrograms per liter ($\mu\text{g/L}$), above the COGCC Table 910-1 standard of 5 $\mu\text{g/L}$.

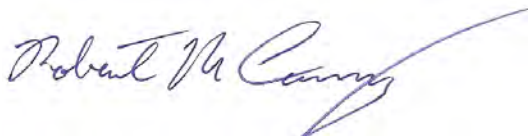
TPH-GRO, DRO, and ORO were not detected above the laboratory reporting limits in any of the samples. The First Quarter 2017 laboratory analytical data report is presented in Attachment A.

Conclusions

Based on the groundwater analytical data presented herein, benzene was detected in groundwater in MW01R above the COGCC Table 910-1 standard. All other constituents were below the applicable standards. Quarterly monitoring for VOCs and TPH will be continued, with the next event scheduled for April 2017. Should benzene concentrations remain above the COGCC Table 910-1 standard in MW01R, potential remedial measures will be evaluated.

Please contact me at (970) 927-0393 if you have any questions regarding this report or require additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Robert M. Cornez', with a long, sweeping horizontal line extending to the right.

Robert M. Cornez
Principal – Remediation

Attachments:

Figure 1 – Site Overview Map

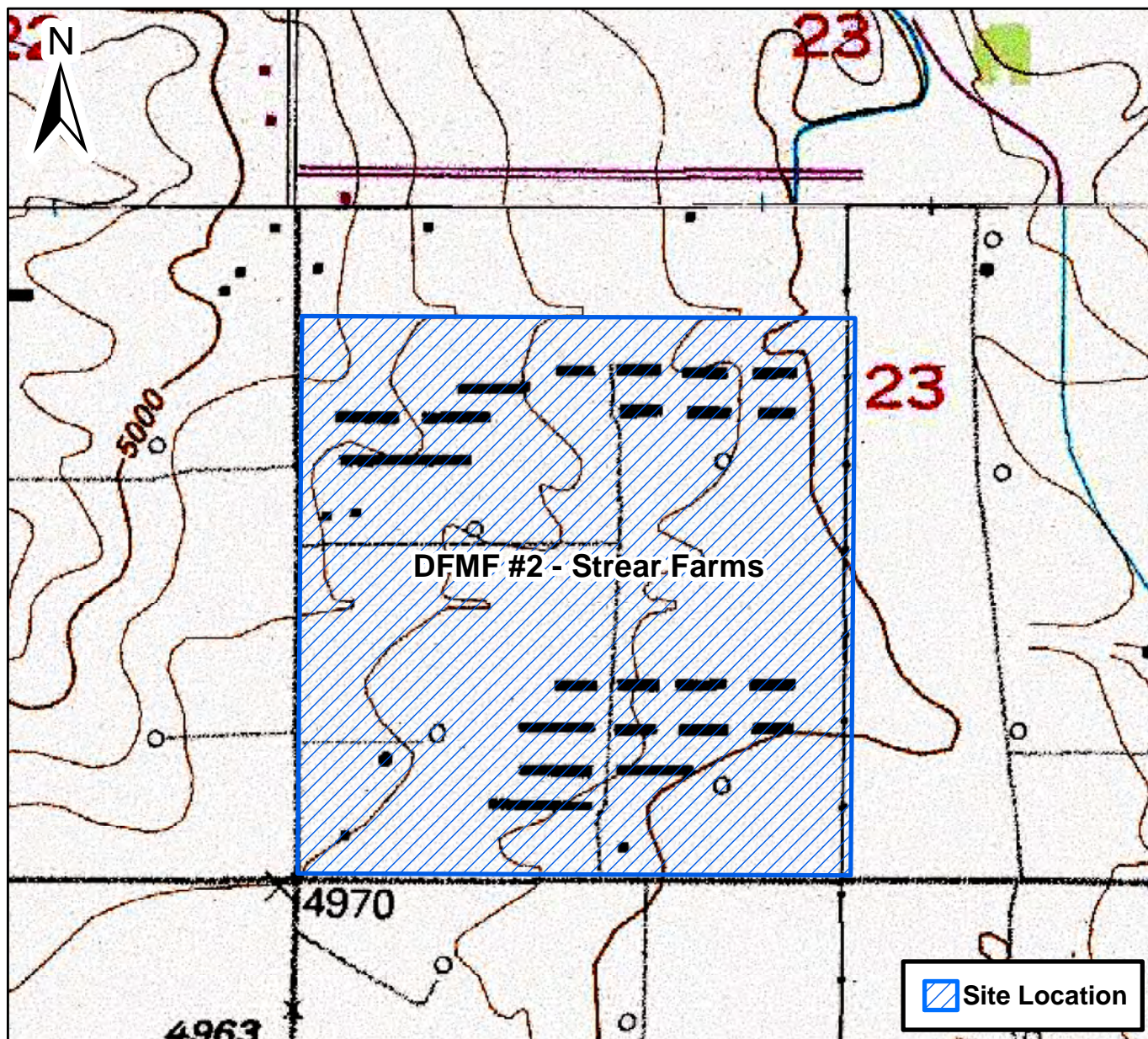
Figure 2 – Monitoring Well Location and Groundwater Elevation Contour Map (January 11, 2017)

Table 1 – Groundwater Gauging Results Summary Table

Table 2 – Groundwater Sample Results Summary Table

Attachment A – Laboratory Analytical Reports

FIGURES



0 750 1,500 Feet

Figure 1

Site Overview Map
DFMF #2 - Strear Farms
SW Sec.23-T2N-R67W
Weld County, Colorado





DATE: January 30, 2017

DESIGNED BY: M. Jahn

DRAWN BY: D. Arnold



Kerr-McGee Oil and Gas Onshore, LP
DFMF #2 - Strear Farms
SW Sec.23-T2N-R67W
Weld County, Colorado

Monitoring Well Location and
Groundwater Elevation Contour Map
(January 11, 2017)

FIGURE
2

TABLES

TABLE 1
GROUNDWATER GAUGING RESULTS SUMMARY TABLE
DFMF #2 - STREAR FARMS
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Temporary Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation (ft. AMSL)
MW01R	5/12/2016	4969.90	27.00	12.79	ND	ND	4957.11
	6/30/2016	4969.90	27.02	11.94	ND	ND	4957.96
	7/28/2016	4969.90	22.06	11.87	ND	ND	4958.03
	10/13/2016	4969.90	26.87	12.89	ND	ND	4957.01
	1/11/2017	4969.90	26.85	13.37	ND	ND	4956.53
MW02	5/12/2016	4969.30	27.85	12.85	ND	ND	4956.45
	6/30/2016	4969.30	27.85	11.91	ND	ND	4957.39
	7/28/2016	4969.30	27.57	11.79	ND	ND	4957.51
	10/13/2016	4969.30	27.64	12.29	ND	ND	4957.01
	1/11/2017	4969.30	27.67	12.62	ND	ND	4956.68
MW03	5/12/2016	4983.20	NM	NM	ND	ND	NA
	7/28/2016	4983.20	21.28	13.31	ND	ND	4969.89
	10/13/2016	4983.20	21.28	14.19	ND	ND	4969.01
	1/11/2017	4983.20	21.29	14.95	ND	ND	4968.25
MW04	5/12/2016	4959.60	27.00	10.37	ND	ND	4949.23
	6/30/2016	4959.60	27.00	9.74	ND	ND	4949.86
	7/28/2016	4959.60	27.34	16.26	ND	ND	4943.34
	10/13/2016	4959.60	27.41	11.75	ND	ND	4947.85
	1/11/2017	4959.60	27.37	11.09	ND	ND	4948.51
MW05	5/12/2016	4960.90	26.81	9.68	ND	ND	4951.22
	6/30/2016	4960.90	26.81	9.31	ND	ND	4951.59
	7/28/2016	4960.90	26.64	9.99	ND	ND	4950.91
	10/13/2016	4960.90	26.34	11.01	ND	ND	4949.89
	1/11/2017	4960.90	26.30	10.67	ND	ND	4950.23

Notes:

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

NA = Non-applicable

TABLE 2
DFMF #2 - STREAR FARMS
GROUNDWATER SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Gasoline Range Hydrocarbons (µg/L)	Diesel Range Hydrocarbons (mg/L)	Residual Range Organics (mg/L)	Acetone (µg/L)	2-Butanone (µg/L)	Depth To Water (ft. BTOC)
COGCC Standards for groundwater (µg/L) ⁽¹⁾		5	560	700	1,400	-	-	-	-	-	-
MW01R	05/12/16	<1.0	<1.0	<1.0	<1.0	<100	<5.0	<10	NS	NS	12.79
MW01R	06/30/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<20.0	11.0	<5.00	11.94
MW01R	07/28/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	11.87
MW01R	10/13/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	12.89
MW01R	01/11/17	7.70	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	13.37
MW02	05/12/16	<1.0	<1.0	<1.0	<1.0	<100	22	<10	NS	NS	12.85
MW02	06/30/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<20.0	<8.00	<5.00	11.91
MW02	07/28/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	11.79
MW02	10/13/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	12.29
MW02	01/11/17	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	12.62
MW03	05/12/16	<1.0	<1.0	<1.0	<1.0	<100	<5.0	<10	NS	NS	NM
MW03	06/30/16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NM
MW03	07/28/16	<1.00	<1.00	<1.00	<2.00	<100	15.1	<10.0	<8.00	5.65	13.31
MW03	10/13/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	14.19
MW03	01/11/17	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	14.95
MW04	05/12/16	<4.0	<4.0	<4.0	<4.0	<400	9.8	<10	NS	NS	10.37
MW04	06/30/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<20.0	11.0	<5.00	9.74
MW04	07/28/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	10.26
MW04	10/13/16	<1.00	<1.00	<1.00	<2.00	<100	10.5	<10.0	<8.00	<5.00	11.75
MW04	01/11/17	<1.00	<1.00	<1.00	<2.00	<100	10.5	<10.0	<8.00	<5.00	11.09
MW05	05/12/16	<1.0	<1.0	<1.0	<1.0	102	<5.0	<10	NS	NS	9.68
MW05	06/30/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<20.0	8.34	<5.00	9.31
MW05	07/28/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	9.99
MW05	10/13/16	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	11.01
MW05	01/11/17	<1.00	<1.00	<1.00	<2.00	<100	<5.00	<10.0	<8.00	<5.00	10.67
Trip Blank	10/13/16	<1.00	<1.00	<1.00	<2.00	NS	NS	NS	<8.00	<5.00	NA
Trip Blank	01/11/17	<1.00	<1.00	<1.00	<2.00	NS	NS	NS	<8.00	<5.00	NA

TABLE 2
DFMF #2 - STREAR FARMS
GROUNDWATER SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Gasoline Range Hydrocarbons (µg/L)	Diesel Range Hydrocarbons (mg/L)	Residual Range Organics (mg/L)	Acetone (µg/L)	2-Butanone (µg/L)	Depth To Water (ft. BTOC)
COGCC Standards for groundwater (µg/L) ⁽¹⁾		5	560	700	1,400	-	-	-	-	-	-

Notes:

1. Standards for groundwater are taken from 2 CCR 404-1, Table 910-1, effective January 30, 2015.

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

µg/L = Micrograms per liter.

mg/L = Milligrams per liter.

ft. BTOC = Feet below top of casing.

NM = Not measured.

NS = Not sampled.

NA = Non-applicable

BOLD = Analytical result is in exceedance of COGCC Table 910-1 groundwater standards.

Beginning in June 2016, groundwater samples analyzed for full 8260 VOC suite; results presented for detected VOC analytes only.

ATTACHMENTS



January 18, 2017

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - DFMF #2

Project Number - AFE.2107112.CON

Attached are your analytical results for KMG - DFMF #2 received by Origins Laboratory, Inc. January 11, 2017. This project is associated with Origins project number X701112-01.

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



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: AFE.2107112.CON

Project: KMG - DFMF #2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW01R - 1/11/17	X701112-01	Water	January 11, 2017 12:50	01/11/2017 15:15
MW02 - 1/11/17	X701112-02	Water	January 11, 2017 12:20	01/11/2017 15:15
MW03 - 1/11/17	X701112-03	Water	January 11, 2017 11:45	01/11/2017 15:15
MW04 - 1/11/17	X701112-04	Water	January 11, 2017 13:15	01/11/2017 15:15
MW05 - 1/11/17	X701112-05	Water	January 11, 2017 13:57	01/11/2017 15:15
Trip Blank	X701112-06	Water	January 11, 2017 12:00	01/11/2017 15:15

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.

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

ORIGINS

LABORATORY, INC

www.originslaboratory.com

X701112

page 1 of 1

Client: Anadarko / Tasman

Project Manager: Bob Corneez

Address: 6899 Peccas St, Unit C

Project Name: DFW #2 Spreadfield

Denver, CO 80221

Project Number: APE 2107112.CAN

Telephone Number: _____

Samples Collected By: Mitch Weller, Max Corneez

Email Address: RCorneez@tasman-gro.com

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis		Sample Instructions
				Unpreserved	HCl	HNO ₃	Groundwater	Soil	Air Summa Canister #	Other	TPH	VOCs	
MW01R-1/11/17	1-11-17	1250	6	X	X		X				X		1 Trip Bank added
MW02 -1/11/17		1220	1	X									2 per the phone call
MW03-1/11/17		1145		X									3 with mitch on
MW04-1/11/17		1315		X									4 o/p/12/17. GP
MW05-1/11/17		1357		X									5
Trip Bank	1/11/17	1200	1	X							X		6
													7
													8
													9
													10
Relinquished By: <u>Mitch Weller</u>	Date: <u>1-11-17</u>	Time: <u>1515</u>	Time: _____	Received By: _____				Date: <u>1-11-17</u>		Time: <u>1515</u>	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input checked="" type="checkbox"/> Standard		
Relinquished By: _____	Date: _____	Time: _____	Time: _____	Received By: <u>[Signature]</u>				Date: <u>1-11-17</u>		Time: <u>1515</u>			

Temp Received: 56

Date Results Needed

Origins Laboratory, Inc.

Jeff Pellgrini

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.

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X701112

Client: Tasman

Client Project ID: DFMF #2

Checklist Completed by: Jose Smith

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 1-13-17

Airbill #: NA

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

Cooler Number/Temperature: 1 / 5.6 °C / °C / °C (Describe) / °C

Thermometer ID: TOCB

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

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

Reviewed by (Project Manager) Jose Smith

Date/Time Reviewed 1-13-17

Origins Laboratory, Inc.

Jefe Pellegrini

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.

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW01R - 1/11/17
1/11/2017 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-01 (Water)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	5.00	mg/L	1	B7A1308	01/13/2017	01/17/2017	U
Residual Range Organics (C28-C40)	ND	10.0	"	"	"	"	"	U

Surrogate: o-Terphenyl 86.3 % 54-117 " " "

GRO/TVPH by EPA 8260C

Gasoline Range Hydrocarbons	ND	100	ug/L	1	B7A1302	01/13/2017	01/14/2017	U
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VOC by EPA 8260C

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B7A1302	"	01/14/2017	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	U

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.

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW01R - 1/11/17

1/11/2017 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-01 (Water)

VOC by EPA 8260C

1,2-Dibromo-3-chloropropane	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/14/2017	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
2-Butanone	ND	5.00	"	"	"	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	"	"	U
2-Hexanone	ND	5.00	"	"	"	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	U
Acetone	ND	8.00	"	"	"	"	"	U
Benzene	7.70	1.00	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFME #2

MW01R - 1/11/17

1/11/2017 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-01 (Water)

VOC by EPA 8260C

Bromochloromethane	ND	1.00	ug/L	1	B7A1302	01/13/2017	01/14/2017	U
Bromodichloromethane	ND	1.00	"	"	"	"	"	U
Bromoform	ND	1.00	"	"	"	"	"	U
Bromomethane	ND	1.00	"	"	"	"	"	U
Carbon disulfide	ND	5.00	"	"	"	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	"	"	U
Chlorobenzene	ND	1.00	"	"	"	"	"	U
Chloroethane	ND	1.00	"	"	"	"	"	U
Chloroform	ND	1.00	"	"	"	"	"	U
Chloromethane	ND	1.00	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	"	"	U
Dibromomethane	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	"	"	U
Iodomethane	ND	10.0	"	"	"	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	"	"	U
m,p-Xylene	ND	2.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW01R - 1/11/17

1/11/2017 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-01 (Water)

VOC by EPA 8260C

Methylene Chloride	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/14/2017	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	"	"	U
Naphthalene	ND	4.00	"	"	"	"	"	U
n-Butylbenzene	ND	1.00	"	"	"	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	"	"	U
o-Xylene	ND	1.00	"	"	"	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	"	"	U
Styrene	ND	1.00	"	"	"	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	"	"	U
Toluene	ND	1.00	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Trichloroethene	ND	1.00	"	"	"	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	U
Vinyl chloride	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4
Surrogate: Toluene-d8
Surrogate: 4-Bromofluorobenzene

94.7 %
99.9 %
102 %

84-121
85-115
84-114

"
"
"

"
"
"

"
"
"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW02 - 1/11/17
1/11/2017 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-02 (Water)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	5.00	mg/L	1	B7A1308	01/13/2017	01/17/2017	U
Residual Range Organics (C28-C40)	ND	10.0	"	"	"	"	"	U

Surrogate: o-Terphenyl 75.2 % 54-117 " " "

GRO/TVPH by EPA 8260C

Gasoline Range Hydrocarbons	ND	100	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
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VOC by EPA 8260C

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B7A1302	"	01/15/2017	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW02 - 1/11/17

1/11/2017 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-02 (Water)

VOC by EPA 8260C

1,2-Dibromo-3-chloropropane	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
2-Butanone	ND	5.00	"	"	"	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	"	"	U
2-Hexanone	ND	5.00	"	"	"	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	U
Acetone	ND	8.00	"	"	"	"	"	U
Benzene	ND	1.00	"	"	"	"	"	U
Bromobenzene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW02 - 1/11/17

1/11/2017 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-02 (Water)

VOC by EPA 8260C

Bromochloromethane	ND	1.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
Bromodichloromethane	ND	1.00	"	"	"	"	"	U
Bromoform	ND	1.00	"	"	"	"	"	U
Bromomethane	ND	1.00	"	"	"	"	"	U
Carbon disulfide	ND	5.00	"	"	"	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	"	"	U
Chlorobenzene	ND	1.00	"	"	"	"	"	U
Chloroethane	ND	1.00	"	"	"	"	"	U
Chloroform	ND	1.00	"	"	"	"	"	U
Chloromethane	ND	1.00	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	"	"	U
Dibromomethane	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	"	"	U
Iodomethane	ND	10.0	"	"	"	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	"	"	U
m,p-Xylene	ND	2.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW02 - 1/11/17

1/11/2017 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-02 (Water)

VOC by EPA 8260C

Methylene Chloride	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	"	"	U
Naphthalene	ND	4.00	"	"	"	"	"	U
n-Butylbenzene	ND	1.00	"	"	"	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	"	"	U
o-Xylene	ND	1.00	"	"	"	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	"	"	U
Styrene	ND	1.00	"	"	"	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	"	"	U
Toluene	ND	1.00	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Trichloroethene	ND	1.00	"	"	"	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	U
Vinyl chloride	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	96.0 %	84-121	"	"	"
Surrogate: Toluene-d8	96.3 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.0 %	84-114	"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFME #2

MW03 - 1/11/17
1/11/2017 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-03 (Water)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	5.00	mg/L	1	B7A1308	01/13/2017	01/17/2017	U
Residual Range Organics (C28-C40)	ND	10.0	"	"	"	"	"	U

Surrogate: o-Terphenyl 83.0 % 54-117 " " "

GRO/TVPH by EPA 8260C

Gasoline Range Hydrocarbons	ND	100	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
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VOC by EPA 8260C

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B7A1302	"	01/15/2017	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW03 - 1/11/17

1/11/2017 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-03 (Water)

VOC by EPA 8260C

1,2-Dibromo-3-chloropropane	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
2-Butanone	ND	5.00	"	"	"	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	"	"	U
2-Hexanone	ND	5.00	"	"	"	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	U
Acetone	ND	8.00	"	"	"	"	"	U
Benzene	ND	1.00	"	"	"	"	"	U
Bromobenzene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW03 - 1/11/17

1/11/2017 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-03 (Water)

VOC by EPA 8260C

Bromochloromethane	ND	1.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
Bromodichloromethane	ND	1.00	"	"	"	"	"	U
Bromoform	ND	1.00	"	"	"	"	"	U
Bromomethane	ND	1.00	"	"	"	"	"	U
Carbon disulfide	ND	5.00	"	"	"	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	"	"	U
Chlorobenzene	ND	1.00	"	"	"	"	"	U
Chloroethane	ND	1.00	"	"	"	"	"	U
Chloroform	ND	1.00	"	"	"	"	"	U
Chloromethane	ND	1.00	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	"	"	U
Dibromomethane	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	"	"	U
Iodomethane	ND	10.0	"	"	"	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	"	"	U
m,p-Xylene	ND	2.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW03 - 1/11/17
1/11/2017 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-03 (Water)

VOC by EPA 8260C

Methylene Chloride	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	"	"	U
Naphthalene	ND	4.00	"	"	"	"	"	U
n-Butylbenzene	ND	1.00	"	"	"	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	"	"	U
o-Xylene	ND	1.00	"	"	"	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	"	"	U
Styrene	ND	1.00	"	"	"	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	"	"	U
Toluene	ND	1.00	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Trichloroethene	ND	1.00	"	"	"	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	U
Vinyl chloride	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	94.8 %	84-121	"	"	"
Surrogate: Toluene-d8	98.4 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	84-114	"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW04 - 1/11/17
1/11/2017 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-04 (Water)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	5.00	mg/L	1	B7A1308	01/13/2017	01/17/2017	U
Residual Range Organics (C28-C40)	ND	10.0	"	"	"	"	"	U

Surrogate: o-Terphenyl 55.2 % 54-117 " " "

GRO/TVPH by EPA 8260C

Gasoline Range Hydrocarbons	ND	100	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
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VOC by EPA 8260C

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B7A1302	"	01/15/2017	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW04 - 1/11/17
1/11/2017 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-04 (Water)

VOC by EPA 8260C

1,2-Dibromo-3-chloropropane	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
2-Butanone	ND	5.00	"	"	"	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	"	"	U
2-Hexanone	ND	5.00	"	"	"	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	U
Acetone	ND	8.00	"	"	"	"	"	U
Benzene	ND	1.00	"	"	"	"	"	U
Bromobenzene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFME #2

MW04 - 1/11/17
1/11/2017 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-04 (Water)

VOC by EPA 8260C

Bromochloromethane	ND	1.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
Bromodichloromethane	ND	1.00	"	"	"	"	"	U
Bromoform	ND	1.00	"	"	"	"	"	U
Bromomethane	ND	1.00	"	"	"	"	"	U
Carbon disulfide	ND	5.00	"	"	"	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	"	"	U
Chlorobenzene	ND	1.00	"	"	"	"	"	U
Chloroethane	ND	1.00	"	"	"	"	"	U
Chloroform	ND	1.00	"	"	"	"	"	U
Chloromethane	ND	1.00	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	"	"	U
Dibromomethane	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	"	"	U
Iodomethane	ND	10.0	"	"	"	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	"	"	U
m,p-Xylene	ND	2.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW04 - 1/11/17
1/11/2017 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-04 (Water)

VOC by EPA 8260C

Methylene Chloride	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	"	"	U
Naphthalene	ND	4.00	"	"	"	"	"	U
n-Butylbenzene	ND	1.00	"	"	"	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	"	"	U
o-Xylene	ND	1.00	"	"	"	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	"	"	U
Styrene	ND	1.00	"	"	"	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	"	"	U
Toluene	ND	1.00	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Trichloroethene	ND	1.00	"	"	"	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	U
Vinyl chloride	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4
Surrogate: Toluene-d8
Surrogate: 4-Bromofluorobenzene

99.4 %
97.2 %
102 %

84-121
85-115
84-114

"
"
"

"
"
"

"
"
"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW05 - 1/11/17
1/11/2017 1:57:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-05 (Water)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	5.00	mg/L	1	B7A1308	01/13/2017	01/17/2017	U
Residual Range Organics (C28-C40)	ND	10.0	"	"	"	"	"	U

Surrogate: o-Terphenyl 81.2 % 54-117 " " "

GRO/TVPH by EPA 8260C

Gasoline Range Hydrocarbons	ND	100	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
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VOC by EPA 8260C

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B7A1302	"	01/15/2017	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW05 - 1/11/17
1/11/2017 1:57:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-05 (Water)

VOC by EPA 8260C

1,2-Dibromo-3-chloropropane	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
2-Butanone	ND	5.00	"	"	"	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	"	"	U
2-Hexanone	ND	5.00	"	"	"	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	U
Acetone	ND	8.00	"	"	"	"	"	U
Benzene	ND	1.00	"	"	"	"	"	U
Bromobenzene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFME #2

MW05 - 1/11/17
1/11/2017 1:57:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-05 (Water)

VOC by EPA 8260C

Bromochloromethane	ND	1.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
Bromodichloromethane	ND	1.00	"	"	"	"	"	U
Bromoform	ND	1.00	"	"	"	"	"	U
Bromomethane	ND	1.00	"	"	"	"	"	U
Carbon disulfide	ND	5.00	"	"	"	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	"	"	U
Chlorobenzene	ND	1.00	"	"	"	"	"	U
Chloroethane	ND	1.00	"	"	"	"	"	U
Chloroform	ND	1.00	"	"	"	"	"	U
Chloromethane	ND	1.00	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	"	"	U
Dibromomethane	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	"	"	U
Iodomethane	ND	10.0	"	"	"	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	"	"	U
m,p-Xylene	ND	2.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

MW05 - 1/11/17
1/11/2017 1:57:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-05 (Water)

VOC by EPA 8260C

Methylene Chloride	ND	5.00	ug/L	1	B7A1302	01/13/2017	01/15/2017	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	"	"	U
Naphthalene	ND	4.00	"	"	"	"	"	U
n-Butylbenzene	ND	1.00	"	"	"	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	"	"	U
o-Xylene	ND	1.00	"	"	"	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	"	"	U
Styrene	ND	1.00	"	"	"	"	"	U
tert-Butylbenzene	ND	1.00	"	"	"	"	"	U
Tetrachloroethene	ND	1.00	"	"	"	"	"	U
Toluene	ND	1.00	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Trichloroethene	ND	1.00	"	"	"	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	U
Vinyl chloride	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.0 %	84-121	"	"	"
Surrogate: Toluene-d8	97.9 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.9 %	84-114	"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Trip Blank

1/11/2017 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X701112-06 (Water)

VOC by EPA 8260C

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B7A1302	01/13/2017	01/17/2017	U
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	U
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	U
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	U
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,3-Trichloropropane	ND	5.00	"	"	"	"	"	U
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	"	"	U
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	U
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	U
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	"	"	U
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	U
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	U
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Trip Blank

1/11/2017 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X701112-06 (Water)

VOC by EPA 8260C

1,4-Dichlorobenzene	ND	1.00	ug/L	1	B7A1302	01/13/2017	01/17/2017	U
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	U
2-Butanone	ND	5.00	"	"	"	"	"	U
2-Chlorotoluene	ND	1.00	"	"	"	"	"	U
2-Hexanone	ND	5.00	"	"	"	"	"	U
4-Chlorotoluene	ND	1.00	"	"	"	"	"	U
4-Isopropyltoluene	ND	1.00	"	"	"	"	"	U
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	U
Acetone	ND	8.00	"	"	"	"	"	U
Benzene	ND	1.00	"	"	"	"	"	U
Bromobenzene	ND	1.00	"	"	"	"	"	U
Bromochloromethane	ND	1.00	"	"	"	"	"	U
Bromodichloromethane	ND	1.00	"	"	"	"	"	U
Bromoform	ND	1.00	"	"	"	"	"	U
Bromomethane	ND	1.00	"	"	"	"	"	U
Carbon disulfide	ND	5.00	"	"	"	"	"	U
Carbon tetrachloride	ND	1.00	"	"	"	"	"	U
Chlorobenzene	ND	1.00	"	"	"	"	"	U
Chloroethane	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Trip Blank

1/11/2017 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X701112-06 (Water)

VOC by EPA 8260C

Chloroform	ND	1.00	ug/L	1	B7A1302	01/13/2017	01/17/2017	U
Chloromethane	ND	1.00	"	"	"	"	"	U
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Dibromochloromethane	ND	1.00	"	"	"	"	"	U
Dibromomethane	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Hexachlorobutadiene	ND	5.00	"	"	"	"	"	U
Iodomethane	ND	10.0	"	"	"	"	"	U
Isopropylbenzene	ND	1.00	"	"	"	"	"	U
m,p-Xylene	ND	2.00	"	"	"	"	"	U
Methylene Chloride	ND	5.00	"	"	"	"	"	U
Methyl tert-Butyl Ether	ND	1.00	"	"	"	"	"	U
Naphthalene	ND	4.00	"	"	"	"	"	U
n-Butylbenzene	ND	1.00	"	"	"	"	"	U
n-Propylbenzene	ND	1.00	"	"	"	"	"	U
o-Xylene	ND	1.00	"	"	"	"	"	U
sec-Butylbenzene	ND	1.00	"	"	"	"	"	U
Styrene	ND	1.00	"	"	"	"	"	U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Trip Blank
1/11/2017 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X701112-06 (Water)

VOC by EPA 8260C

tert-Butylbenzene	ND	1.00	ug/L	1	B7A1302	01/13/2017	01/17/2017	U
Tetrachloroethene	ND	1.00	"	"	"	"	"	U
Toluene	ND	1.00	"	"	"	"	"	U
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	U
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	U
Trichloroethene	ND	1.00	"	"	"	"	"	U
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	U
Vinyl chloride	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	85.2 %	84-121			"	"	01/16/2017	
Surrogate: Toluene-d8	91.1 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	110 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Volatile Organic Compounds by GC/MS SW846 8260C - 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 B7A1302 - EPA 5030B (Water)

Blank (B7A1302-BLK1)

Prepared: 01/13/2017 Analyzed: 01/13/2017

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L							U
1,1,1-Trichloroethane	ND	1.00	"							U
1,1,2,2-Tetrachloroethane	ND	1.00	"							U
1,1,2-Trichloroethane	ND	1.00	"							U
1,1-Dichloroethane	ND	1.00	"							U
1,1-Dichloroethene	ND	1.00	"							U
1,1-Dichloropropene	ND	1.00	"							U
1,2,3-Trichlorobenzene	ND	5.00	"							U
1,2,3-Trichloropropane	ND	5.00	"							U
1,2,4-Trichlorobenzene	ND	5.00	"							U
1,2,4-Trimethylbenzene	ND	1.00	"							U
1,2-Dibromo-3-chloropropane	ND	5.00	"							U
1,2-Dibromoethane (EDB)	ND	1.00	"							U
1,2-Dichlorobenzene	ND	1.00	"							U
1,2-Dichloroethane	ND	1.00	"							U
1,2-Dichloropropane	ND	1.00	"							U
1,3,5-Trimethylbenzene	ND	1.00	"							U
1,3-Dichlorobenzene	ND	1.00	"							U
1,3-Dichloropropane	ND	1.00	"							U
1,4-Dichlorobenzene	ND	1.00	"							U
2,2-Dichloropropane	ND	1.00	"							U
2-Butanone	ND	5.00	"							U
2-Chlorotoluene	ND	1.00	"							U
2-Hexanone	ND	5.00	"							U
4-Chlorotoluene	ND	1.00	"							U
4-Isopropyltoluene	ND	1.00	"							U

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A1302 - EPA 5030B (Water)										
Blank (B7A1302-BLK1)					Prepared: 01/13/2017 Analyzed: 01/13/2017					
4-Methyl-2-pentanone	ND	5.00	ug/L							U
Acetone	ND	8.00	"							U
Benzene	ND	1.00	"							U
Bromobenzene	ND	1.00	"							U
Bromochloromethane	ND	1.00	"							U
Bromodichloromethane	ND	1.00	"							U
Bromoform	ND	1.00	"							U
Bromomethane	ND	1.00	"							U
Carbon disulfide	ND	5.00	"							U
Carbon tetrachloride	ND	1.00	"							U
Chlorobenzene	ND	1.00	"							U
Chloroethane	ND	1.00	"							U
Chloroform	ND	1.00	"							U
Chloromethane	ND	1.00	"							U
cis-1,2-Dichloroethene	ND	1.00	"							U
cis-1,3-Dichloropropene	ND	1.00	"							U
Dibromochloromethane	ND	1.00	"							U
Dibromomethane	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Hexachlorobutadiene	ND	5.00	"							U
Iodomethane	ND	10.0	"							U
Isopropylbenzene	ND	1.00	"							U
m,p-Xylene	ND	2.00	"							U
Methylene Chloride	ND	5.00	"							U
Methyl tert-Butyl Ether	ND	1.00	"							U
Naphthalene	ND	4.00	"							U

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Volatile Organic Compounds by GC/MS SW846 8260C - 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 B7A1302 - EPA 5030B (Water)

Blank (B7A1302-BLK1)

Prepared: 01/13/2017 Analyzed: 01/13/2017

n-Butylbenzene	ND	1.00	ug/L							U
n-Propylbenzene	ND	1.00	"							U
o-Xylene	ND	1.00	"							U
sec-Butylbenzene	ND	1.00	"							U
Styrene	ND	1.00	"							U
tert-Butylbenzene	ND	1.00	"							U
Tetrachloroethene	ND	1.00	"							U
Toluene	ND	1.00	"							U
trans-1,2-Dichloroethene	ND	1.00	"							U
trans-1,3-Dichloropropene	ND	1.00	"							U
Trichloroethene	ND	1.00	"							U
Trichlorofluoromethane	ND	1.00	"							U
Vinyl chloride	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.8	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.2	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	84-114			

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Project: KMG - DFMF #2

Volatile Organic Compounds by GC/MS SW846 8260C - 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 B7A1302 - EPA 5030B (Water)

LCS (B7A1302-BS1)

Prepared: 01/13/2017 Analyzed: 01/13/2017

1,1,1,2-Tetrachloroethane	55.6	1.00	ug/L	50.0		111	78.8-128			
1,1,1-Trichloroethane	54.4	1.00	"	50.0		109	82.3-118			
1,1,2,2-Tetrachloroethane	53.9	1.00	"	50.0		108	67.9-119			
1,1,2-Trichloroethane	52.9	1.00	"	50.0		106	75.4-116			
1,1-Dichloroethane	54.1	1.00	"	50.0		108	80-120			
1,1-Dichloroethene	56.3	1.00	"	50.0		113	79.4-118			
1,1-Dichloropropene	54.4	1.00	"	50.0		109	78-120			
1,2,3-Trichlorobenzene	50.2	5.00	"	50.0		100	63.8-134			
1,2,3-Trichloropropane	51.9	5.00	"	50.0		104	63.3-121			
1,2,4-Trichlorobenzene	51.7	5.00	"	50.0		103	70.4-125			
1,2,4-Trimethylbenzene	55.7	1.00	"	50.0		111	73.3-123			
1,2-Dibromo-3-chloropropane	49.2	5.00	"	50.0		98.4	80-120			
1,2-Dibromoethane (EDB)	54.7	1.00	"	50.0		109	74.7-127			
1,2-Dichlorobenzene	53.7	1.00	"	50.0		107	81.3-116			
1,2-Dichloroethane	52.7	1.00	"	50.0		105	71.1-120			
1,2-Dichloropropane	54.5	1.00	"	50.0		109	80-120			
1,3,5-Trimethylbenzene	55.4	1.00	"	50.0		111	71.9-128			
1,3-Dichlorobenzene	53.8	1.00	"	50.0		108	82.1-117			
1,3-Dichloropropane	54.3	1.00	"	50.0		109	75.1-123			
1,4-Dichlorobenzene	53.1	1.00	"	50.0		106	76.8-119			
2,2-Dichloropropane	52.8	1.00	"	50.0		106	84-120			
2-Butanone	262	5.00	"	250		105	64.9-123			
2-Chlorotoluene	54.7	1.00	"	50.0		109	66-133			
2-Hexanone	256	5.00	"	250		103	80-120			
4-Chlorotoluene	54.3	1.00	"	50.0		109	73.2-119			
4-Isopropyltoluene	54.9	1.00	"	50.0		110	79.8-120			

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Project: KMG - DFMF #2

Volatile Organic Compounds by GC/MS SW846 8260C - 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 B7A1302 - EPA 5030B (Water)

LCS (B7A1302-BS1)

Prepared: 01/13/2017 Analyzed: 01/13/2017

4-Methyl-2-pentanone	250	5.00	ug/L	250		100	58.5-122			
Acetone	260	8.00	"	250		104	65.4-125			
Benzene	53.8	1.00	"	50.0		108	75.5-116			
Bromobenzene	53.4	1.00	"	50.0		107	70-130			
Bromochloromethane	54.1	1.00	"	50.0		108	80-120			
Bromodichloromethane	55.4	1.00	"	50.0		111	73-123			
Bromoform	57.0	1.00	"	50.0		114	75-128			
Bromomethane	53.6	1.00	"	50.0		107	72-138			
Carbon disulfide	54.3	5.00	"	50.0		109	69-129			
Carbon tetrachloride	54.2	1.00	"	50.0		108	80-124			
Chlorobenzene	54.6	1.00	"	50.0		109	78-121			
Chloroethane	52.8	1.00	"	50.0		106	77-138			
Chloroform	48.6	1.00	"	50.0		97.2	75-117			
Chloromethane	52.8	1.00	"	50.0		106	72-130			
cis-1,2-Dichloroethene	53.7	1.00	"	50.0		107	78-118			
cis-1,3-Dichloropropene	56.0	1.00	"	50.0		112	73-122			
Dibromochloromethane	57.1	1.00	"	50.0		114	78-119			
Dibromomethane	54.4	1.00	"	50.0		109	79-116			
Ethylbenzene	55.0	1.00	"	50.0		110	78-130			
Hexachlorobutadiene	54.9	5.00	"	50.0		110	72-129			
Iodomethane	52.6	10.0	"	50.0		105	74-121			
Isopropylbenzene	55.4	1.00	"	50.0		111	75-128			
m,p-Xylene	110	2.00	"	100		110	75-134			
Methylene Chloride	50.9	5.00	"	50.0		102	80-122			
Methyl tert-Butyl Ether	54.1	1.00	"	50.0		108	72-125			
Naphthalene	52.7	4.00	"	50.0		105	65-128			

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A1302 - EPA 5030B (Water)										
LCS (B7A1302-BS1)					Prepared: 01/13/2017 Analyzed: 01/13/2017					
n-Butylbenzene	55.5	1.00	ug/L	50.0		111	69-134			
n-Propylbenzene	55.1	1.00	"	50.0		110	74-132			
o-Xylene	55.0	1.00	"	50.0		110	76-129			
sec-Butylbenzene	56.0	1.00	"	50.0		112	74-128			
Styrene	53.0	1.00	"	50.0		106	74-126			
tert-Butylbenzene	55.6	1.00	"	50.0		111	72-123			
Tetrachloroethene	55.3	1.00	"	50.0		111	78-132			
Toluene	54.1	1.00	"	50.0		108	76-128			
trans-1,2-Dichloroethene	54.6	1.00	"	50.0		109	79-120			
trans-1,3-Dichloropropene	56.1	1.00	"	50.0		112	74-122			
Trichloroethene	53.8	1.00	"	50.0		108	76-125			
Trichlorofluoromethane	55.8	1.00	"	50.0		112	66-149			
Vinyl chloride	53.8	1.00	"	50.0		108	70-137			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.6	84-114			

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Volatile Organic Compounds by GC/MS SW846 8260C - 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 B7A1302 - EPA 5030B (Water)

Matrix Spike (B7A1302-MS1)		Source: X701112-06			Prepared: 01/13/2017 Analyzed: 01/13/2017					
1,1,1,2-Tetrachloroethane	55.7	1.00	ug/L	50.0	ND	111	82-130			
1,1,1-Trichloroethane	55.1	1.00	"	50.0	ND	110	81-125			
1,1,2,2-Tetrachloroethane	54.0	1.00	"	50.0	ND	108	74-120			
1,1,2-Trichloroethane	51.7	1.00	"	50.0	ND	103	80-118			
1,1-Dichloroethane	54.5	1.00	"	50.0	ND	109	79-120			
1,1-Dichloroethene	56.2	1.00	"	50.0	ND	112	73-130			
1,1-Dichloropropene	54.7	1.00	"	50.0	ND	109	77-124			
1,2,3-Trichlorobenzene	50.9	5.00	"	50.0	ND	102	55-144			
1,2,3-Trichloropropane	52.2	5.00	"	50.0	ND	104	67-126			
1,2,4-Trichlorobenzene	53.7	5.00	"	50.0	ND	107	56-141			
1,2,4-Trimethylbenzene	56.5	1.00	"	50.0	ND	113	62-132			
1,2-Dibromo-3-chloropropane	49.0	5.00	"	50.0	ND	98.0	56-142			
1,2-Dibromoethane (EDB)	54.1	1.00	"	50.0	ND	108	84-124			
1,2-Dichlorobenzene	54.8	1.00	"	50.0	ND	110	74-124			
1,2-Dichloroethane	52.9	1.00	"	50.0	ND	106	76-120			
1,2-Dichloropropane	55.0	1.00	"	50.0	ND	110	78-117			
1,3,5-Trimethylbenzene	55.6	1.00	"	50.0	ND	111	64-138			
1,3-Dichlorobenzene	55.6	1.00	"	50.0	ND	111	73-126			
1,3-Dichloropropane	53.8	1.00	"	50.0	ND	108	83-120			
1,4-Dichlorobenzene	51.6	1.00	"	50.0	ND	103	64-130			
2,2-Dichloropropane	54.8	1.00	"	50.0	ND	110	77-129			
2-Butanone	259	5.00	"	250	ND	104	66-128			
2-Chlorotoluene	55.1	1.00	"	50.0	ND	110	71-130			
2-Hexanone	252	5.00	"	250	ND	101	74-123			
4-Chlorotoluene	54.6	1.00	"	50.0	ND	109	66-128			
4-Isopropyltoluene	55.9	1.00	"	50.0	ND	112	60-140			

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Volatile Organic Compounds by GC/MS SW846 8260C - 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 B7A1302 - EPA 5030B (Water)

Matrix Spike (B7A1302-MS1)		Source: X701112-06			Prepared: 01/13/2017 Analyzed: 01/13/2017					
4-Methyl-2-pentanone	244	5.00	ug/L	250	1.57	97.1	65-125			
Acetone	251	8.00	"	250	1.76	99.5	63-134			
Benzene	54.4	1.00	"	50.0	ND	109	74-130			
Bromobenzene	54.4	1.00	"	50.0	ND	109	70-130			
Bromochloromethane	54.8	1.00	"	50.0	ND	110	80-118			
Bromodichloromethane	52.5	1.00	"	50.0	ND	105	76-122			
Bromoform	49.6	1.00	"	50.0	ND	99.3	80-128			
Bromomethane	45.9	1.00	"	50.0	ND	91.7	69-144			
Carbon disulfide	55.0	5.00	"	50.0	ND	110	70-131			
Carbon tetrachloride	54.1	1.00	"	50.0	ND	108	81-130			
Chlorobenzene	54.2	1.00	"	50.0	ND	108	72-128			
Chloroethane	49.1	1.00	"	50.0	ND	98.2	79-140			
Chloroform	49.1	1.00	"	50.0	ND	98.1	76-118			
Chloromethane	49.4	1.00	"	50.0	ND	98.8	72-128			
cis-1,2-Dichloroethene	54.6	1.00	"	50.0	ND	109	78-120			
cis-1,3-Dichloropropene	56.0	1.00	"	50.0	ND	112	79-120			
Dibromochloromethane	56.6	1.00	"	50.0	ND	113	81-121			
Dibromomethane	54.6	1.00	"	50.0	ND	109	84-115			
Ethylbenzene	54.4	1.00	"	50.0	ND	109	76-132			
Hexachlorobutadiene	55.8	5.00	"	50.0	ND	112	70-130			
Iodomethane	53.7	10.0	"	50.0	ND	107	72-127			
Isopropylbenzene	55.4	1.00	"	50.0	ND	111	66-135			
m,p-Xylene	108	2.00	"	100	ND	108	69-139			
Methylene Chloride	51.9	5.00	"	50.0	ND	104	87-118			
Methyl tert-Butyl Ether	53.6	1.00	"	50.0	ND	107	62-138			
Naphthalene	51.8	4.00	"	50.0	0.530	103	59-148			

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Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Volatile Organic Compounds by GC/MS SW846 8260C - 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 B7A1302 - EPA 5030B (Water)

Matrix Spike (B7A1302-MS1)		Source: X701112-06			Prepared: 01/13/2017 Analyzed: 01/13/2017					
n-Butylbenzene	56.2	1.00	ug/L	50.0	ND	112	52-146			
n-Propylbenzene	55.2	1.00	"	50.0	ND	110	66-141			
o-Xylene	54.8	1.00	"	50.0	ND	110	74-131			
sec-Butylbenzene	55.8	1.00	"	50.0	ND	112	63-138			
Styrene	53.5	1.00	"	50.0	ND	107	72-128			
tert-Butylbenzene	55.4	1.00	"	50.0	ND	111	67-129			
Tetrachloroethene	55.0	1.00	"	50.0	ND	110	76-134			
Toluene	54.0	1.00	"	50.0	ND	108	73-131			
trans-1,2-Dichloroethene	54.6	1.00	"	50.0	ND	109	78-123			
trans-1,3-Dichloropropene	55.9	1.00	"	50.0	ND	112	75-125			
Trichloroethene	54.0	1.00	"	50.0	ND	108	73-131			
Trichlorofluoromethane	52.9	1.00	"	50.0	ND	106	83-141			
Vinyl chloride	51.0	1.00	"	50.0	ND	102	73-139			
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		103	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.5	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	84-114			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A1302 - EPA 5030B (Water)										
Matrix Spike Dup (B7A1302-MSD1)		Source: X701112-06			Prepared: 01/13/2017 Analyzed: 01/13/2017					
1,1,1,2-Tetrachloroethane	56.8	1.00	ug/L	50.0	ND	114	82-130	1.97	20	
1,1,1-Trichloroethane	57.2	1.00	"	50.0	ND	114	81-125	3.71	20	
1,1,2,2-Tetrachloroethane	56.6	1.00	"	50.0	ND	113	74-120	4.74	20	
1,1,2-Trichloroethane	53.6	1.00	"	50.0	ND	107	80-118	3.55	20	
1,1-Dichloroethane	56.6	1.00	"	50.0	ND	113	79-120	3.78	20	
1,1-Dichloroethene	58.2	1.00	"	50.0	ND	116	73-130	3.48	20	
1,1-Dichloropropene	57.4	1.00	"	50.0	ND	115	77-124	4.84	20	
1,2,3-Trichlorobenzene	54.4	5.00	"	50.0	ND	109	55-144	6.55	20	
1,2,3-Trichloropropane	51.7	5.00	"	50.0	ND	103	67-126	0.847	20	
1,2,4-Trichlorobenzene	55.8	5.00	"	50.0	ND	112	56-141	3.76	20	
1,2,4-Trimethylbenzene	57.7	1.00	"	50.0	ND	115	62-132	2.12	20	
1,2-Dibromo-3-chloropropane	52.5	5.00	"	50.0	ND	105	56-142	6.94	20	
1,2-Dibromoethane (EDB)	55.3	1.00	"	50.0	ND	111	84-124	2.16	20	
1,2-Dichlorobenzene	56.6	1.00	"	50.0	ND	113	74-124	3.30	20	
1,2-Dichloroethane	54.0	1.00	"	50.0	ND	108	76-120	2.10	20	
1,2-Dichloropropane	57.3	1.00	"	50.0	ND	115	78-117	4.10	20	
1,3,5-Trimethylbenzene	56.7	1.00	"	50.0	ND	113	64-138	1.92	20	
1,3-Dichlorobenzene	56.6	1.00	"	50.0	ND	113	73-126	1.80	20	
1,3-Dichloropropane	55.8	1.00	"	50.0	ND	112	83-120	3.58	20	
1,4-Dichlorobenzene	56.2	1.00	"	50.0	ND	112	64-130	8.59	20	
2,2-Dichloropropane	57.0	1.00	"	50.0	ND	114	77-129	3.81	20	
2-Butanone	265	5.00	"	250	ND	106	66-128	2.24	20	
2-Chlorotoluene	56.1	1.00	"	50.0	ND	112	71-130	1.76	20	
2-Hexanone	269	5.00	"	250	ND	107	74-123	6.49	20	
4-Chlorotoluene	55.8	1.00	"	50.0	ND	112	66-128	2.30	20	
4-Isopropyltoluene	57.5	1.00	"	50.0	ND	115	60-140	2.75	20	

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A1302 - EPA 5030B (Water)										
Matrix Spike Dup (B7A1302-MSD1)		Source: X701112-06			Prepared: 01/13/2017 Analyzed: 01/13/2017					
4-Methyl-2-pentanone	249	5.00	ug/L	250	1.57	99.1	65-125	2.02	20	
Acetone	258	8.00	"	250	1.76	102	63-134	2.79	20	
Benzene	56.2	1.00	"	50.0	ND	112	74-130	3.31	20	
Bromobenzene	56.5	1.00	"	50.0	ND	113	70-130	3.68	20	
Bromochloromethane	55.8	1.00	"	50.0	ND	112	80-118	1.77	20	
Bromodichloromethane	53.8	1.00	"	50.0	ND	108	76-122	2.39	20	
Bromoform	50.9	1.00	"	50.0	ND	102	80-128	2.55	20	
Bromomethane	46.0	1.00	"	50.0	ND	92.0	69-144	0.348	20	
Carbon disulfide	57.3	5.00	"	50.0	ND	115	70-131	3.97	20	
Carbon tetrachloride	57.0	1.00	"	50.0	ND	114	81-130	5.11	20	
Chlorobenzene	56.5	1.00	"	50.0	ND	113	72-128	4.14	20	
Chloroethane	49.4	1.00	"	50.0	ND	98.9	79-140	0.670	20	
Chloroform	50.4	1.00	"	50.0	ND	101	76-118	2.63	20	
Chloromethane	49.7	1.00	"	50.0	ND	99.4	72-128	0.525	20	
cis-1,2-Dichloroethene	56.2	1.00	"	50.0	ND	112	78-120	3.02	20	
cis-1,3-Dichloropropene	58.3	1.00	"	50.0	ND	117	79-120	4.02	20	
Dibromochloromethane	58.6	1.00	"	50.0	ND	117	81-121	3.30	20	
Dibromomethane	56.3	1.00	"	50.0	ND	113	84-115	2.97	20	
Ethylbenzene	55.9	1.00	"	50.0	ND	112	76-132	2.81	20	
Hexachlorobutadiene	57.8	5.00	"	50.0	ND	116	70-130	3.63	20	
Iodomethane	55.1	10.0	"	50.0	ND	110	72-127	2.54	20	
Isopropylbenzene	57.1	1.00	"	50.0	ND	114	66-135	2.99	20	
m,p-Xylene	113	2.00	"	100	ND	113	69-139	4.12	20	
Methylene Chloride	53.6	5.00	"	50.0	ND	107	87-118	3.37	20	
Methyl tert-Butyl Ether	54.7	1.00	"	50.0	ND	109	62-138	2.05	20	
Naphthalene	56.0	4.00	"	50.0	0.530	111	59-148	7.70	20	

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A1302 - EPA 5030B (Water)										
Matrix Spike Dup (B7A1302-MSD1)			Source: X701112-06		Prepared: 01/13/2017 Analyzed: 01/13/2017					
n-Butylbenzene	57.3	1.00	ug/L	50.0	ND	115	52-146	2.01	20	
n-Propylbenzene	57.0	1.00	"	50.0	ND	114	66-141	3.15	20	
o-Xylene	56.5	1.00	"	50.0	ND	113	74-131	2.96	20	
sec-Butylbenzene	57.3	1.00	"	50.0	ND	115	63-138	2.62	20	
Styrene	54.5	1.00	"	50.0	ND	109	72-128	1.83	20	
tert-Butylbenzene	56.6	1.00	"	50.0	ND	113	67-129	2.04	20	
Tetrachloroethene	57.7	1.00	"	50.0	ND	115	76-134	4.74	20	
Toluene	56.1	1.00	"	50.0	ND	112	73-131	3.85	20	
trans-1,2-Dichloroethene	56.3	1.00	"	50.0	ND	113	78-123	3.07	20	
trans-1,3-Dichloropropene	58.0	1.00	"	50.0	ND	116	75-125	3.74	20	
Trichloroethene	56.1	1.00	"	50.0	ND	112	73-131	3.71	20	
Trichlorofluoromethane	52.6	1.00	"	50.0	ND	105	83-141	0.626	20	
Vinyl chloride	50.4	1.00	"	50.0	ND	101	73-139	1.10	20	
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.5	84-114			

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Volatile Organic Compounds by GC/MS SW846 8260C - 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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Extractable Petroleum Hydrocarbons by 8015C - 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 B7A1308 - EPA 3511 Mod.

Blank (B7A1308-BLK1)

Prepared: 01/13/2017 Analyzed: 01/17/2017

Diesel (C10-C28)	ND	5.00	mg/L							U
Residual Range Organics (C28-C40)	ND	10.0	"							U
Surrogate: o-Terphenyl	4.5		"	5.00		90.9	54-117			

LCS (B7A1308-BS1)

Prepared: 01/13/2017 Analyzed: 01/17/2017

Diesel (C10-C28)	77.8	5.00	mg/L	100		77.8	61-120			
Residual Range Organics (C28-C40)	71.9	10.0	"	100		71.9	66-113			
Surrogate: o-Terphenyl	3.8		"	5.00		75.1	54-117			

Matrix Spike (B7A1308-MS1)

Source: X701112-01

Prepared: 01/13/2017 Analyzed: 01/17/2017

Diesel (C10-C28)	86.9	5.00	mg/L	100	1.08	85.8	54-126			
Residual Range Organics (C28-C40)	91.0	10.0	"	100	ND	91.0	50-128			
Surrogate: o-Terphenyl	4.0		"	5.00		80.0	54-117			

Matrix Spike Dup (B7A1308-MSD1)

Source: X701112-01

Prepared: 01/13/2017 Analyzed: 01/17/2017

Diesel (C10-C28)	86.7	5.00	mg/L	100	1.08	85.6	54-126	0.202	20	
Residual Range Organics (C28-C40)	94.6	10.0	"	100	ND	94.6	50-128	3.86	20	
Surrogate: o-Terphenyl	3.1		"	5.00		62.9	54-117			

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6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: AFE.2107112.CON
Project: KMG - DFMF #2

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7A1302 - EPA 5030B (Water)										
Blank (B7A1302-BLK1)					Prepared: 01/13/2017 Analyzed: 01/13/2017					
Gasoline Range Hydrocarbons	ND	100	ug/L							U
LCS (B7A1302-BS1)					Prepared: 01/13/2017 Analyzed: 01/13/2017					
Gasoline Range Hydrocarbons	2230	100	ug/L	2000		112	80-120			
LCS Dup (B7A1302-BSD1)					Prepared: 01/13/2017 Analyzed: 01/13/2017					
Gasoline Range Hydrocarbons	2100	100	ug/L	2000		105	80-120	6.22	20	

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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: AFE.2107112.CON

Project: KMG - DFMF #2

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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Jen Pellegrini For Noelle Doyle Mathis, President