



December 30, 2014

Saga Petroleum

Admir Draganovic

600 17th st, Suite 1700 N

Denver

CO 80202

Received 01/02/15

REM 6744

Document 2313536

Project Name - Rush Willadel Soil Samples

Project Number - [none]

Attached are your analytical results for Rush Willadel Soil Samples received by Origins Laboratory, Inc. December 22, 2014. This project is associated with Origins project number X412291-01.

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

Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-1	X412291-01	Soil	December 22, 2014 13:20	12/22/2014 17:40
SS-2	X412291-02	Soil	December 22, 2014 13:30	12/22/2014 17:40
SS-3	X412291-03	Soil	December 22, 2014 13:40	12/22/2014 17:40
SS-4	X412291-04	Soil	December 22, 2014 13:50	12/22/2014 17:40
SS-5	X412291-05	Soil	December 22, 2014 14:00	12/22/2014 17:40

Origins Laboratory, Inc.



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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

www.originslaboratory.com

X112291

ORIGINS
LABORATORY, INC

page 1 of 1

Client: Saga Petroleum
Address: 600 17th st, suite 1700 N
Denver, CO 80202
Telephone Number: 720-771-7809
Email Address: adraganovic@sagapetroleum.com

Project Manager: Admir Draganovic
Project Name: Rush Willadel Soil Samples
Project Number: _____
Samples Collected By: Admir Draganovic

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative			Matrix			Analysis			Sample Instructions
				Unpreserved	HCl	HNO ₃	Groundwater	Soil	Air Summa Canister #	Other	GR0	DR0	
SS-1	12/22/14	1320	2	X			X					X	1
SS-2		1330										X	2
SS-3		1340										X	3
SS-4		1350										X	4
SS-5		1400										X	5
													6
													7
													8
													9
													10
Relinquished By: <u>Admir Draganovic</u>	Date: <u>12/22/14</u>	Time: <u>1740</u>	Received By: <u>[Signature]</u>	Date: <u>12/22/14</u>	Time: <u>1710</u>	Turnaround Time: <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input checked="" type="checkbox"/> Standard <u>12.4</u>							

Date Results Needed

Temp Received-

Origins Laboratory, Inc.

Jefe Pellegrini

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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X412291

Client: Saga Petroleum

Client Project ID: Rush Willadel Soil Sample

Checklist Completed by: Jeff Smith

Shipped Via: H/D

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

Date/time completed: 12/23/14

Airbill #: NA

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

Cooler Number/Temperature: 1 / 12.4 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: T003

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

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

Reviewed by (Project Manager) [Signature]

12-24-14
Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-1

12/22/2014 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X412291-01 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	54.8	50.0	mg/kg	1	4L23006	12/23/2014	12/23/2014
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Surrogate: o-Terphenyl	77.4 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4L23009	12/23/2014	12/23/2014
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	91.4 %	70-130			"	"	"
Surrogate: Toluene-d8	101 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"

PAH by SW846 3541/8270D SIM

Acenaphthene	ND	0.00784	mg/kg dry	1	1446059	12/28/2014	12/28/2014	U
Acenaphthylene	ND	0.00784	"	"	"	"	"	U
Anthracene	ND	0.00784	"	"	"	"	"	U
Benzo(a)anthracene	0.0122	0.00784	"	"	"	"	"	
Benzo(a)pyrene	0.00235	0.00784	"	"	"	"	"	J
Benzo(b)fluoranthene	0.00431	0.00784	"	"	"	"	"	J

Origins Laboratory, Inc.



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Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-1

12/22/2014 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC
X412291-01 (Soil)

PAH by SW846 3541/8270D SIM

Benzo(ghi)perylene	0.0051	0.00784	mg/kg dry	1	1446059	12/28/2014	12/28/2014	J
Benzo(k)fluoranthene	ND	0.00784	"	"	"	"	"	U
Chrysene	0.00627	0.00784	"	"	"	"	"	J
Dibenzo(a,h)anthracene	ND	0.00784	"	"	"	"	"	U
Fluoranthene	0.00392	0.00784	"	"	"	"	"	J
Fluorene	0.00588	0.00784	"	"	"	"	"	J
Indeno(1,2,3-cd)pyrene	ND	0.00784	"	"	"	"	"	U
Naphthalene	ND	0.00784	"	"	"	"	"	U
Phenanthrene	0.0165	0.00784	"	"	"	"	"	
Pyrene	0.00627	0.00784	"	"	"	"	"	J

Surrogate: 5-alpha-Androstane	74 %	28-119			"	"	"	
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Origins Laboratory, Inc.



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600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-2

12/22/2014 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X412291-02 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4L23006	12/23/2014	12/23/2014
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Surrogate: o-Terphenyl	80.6 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4L23009	12/23/2014	12/23/2014
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	94.6 %	70-130			"	"	"
Surrogate: Toluene-d8	102 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"

PAH by SW846 3541/8270D SIM

Acenaphthene	ND	0.00804	mg/kg dry	1	1446059	12/28/2014	12/28/2014	U
Acenaphthylene	ND	0.00804	"	"	"	"	"	U
Anthracene	ND	0.00804	"	"	"	"	"	U
Benzo(a)anthracene	ND	0.00804	"	"	"	"	"	U
Benzo(a)pyrene	ND	0.00804	"	"	"	"	"	U

Origins Laboratory, Inc.



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Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-2

12/22/2014 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC
X412291-02 (Soil)

PAH by SW846 3541/8270D SIM

Benzo(b)fluoranthene	ND	0.00804	mg/kg dry	1	1446059	12/28/2014	12/28/2014	U
Benzo(ghi)perylene	ND	0.00804	"	"	"	"	"	U
Benzo(k)fluoranthene	ND	0.00804	"	"	"	"	"	U
Chrysene	ND	0.00804	"	"	"	"	"	U
Dibenzo(a,h)anthracene	ND	0.00804	"	"	"	"	"	U
Fluoranthene	ND	0.00804	"	"	"	"	"	U
Fluorene	ND	0.00804	"	"	"	"	"	U
Indeno(1,2,3-cd)pyrene	ND	0.00804	"	"	"	"	"	U
Naphthalene	ND	0.00804	"	"	"	"	"	U
Phenanthrene	ND	0.00804	"	"	"	"	"	U
Pyrene	ND	0.00804	"	"	"	"	"	U

Surrogate: 5-alpha-Androstane	75 %	28-119			"	"	"
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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-3

12/22/2014 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X412291-03 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4L23006	12/23/2014	12/23/2014
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Surrogate: o-Terphenyl	84.5 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4L23009	12/23/2014	12/23/2014
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	93.2 %	70-130			"	"	"
Surrogate: Toluene-d8	98.9 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"

PAH by SW846 3541/8270D SIM

Acenaphthene	ND	0.00723	mg/kg dry	1	1446059	12/28/2014	12/28/2014	U
Acenaphthylene	ND	0.00723	"	"	"	"	"	U
Anthracene	ND	0.00723	"	"	"	"	"	U
Benzo(a)anthracene	ND	0.00723	"	"	"	"	"	U
Benzo(a)pyrene	ND	0.00723	"	"	"	"	"	U

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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-3

12/22/2014 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC
X412291-03 (Soil)

PAH by SW846 3541/8270D SIM

Benzo(b)fluoranthene	ND	0.00723	mg/kg dry	1	1446059	12/28/2014	12/28/2014	U
Benzo(ghi)perylene	ND	0.00723	"	"	"	"	"	U
Benzo(k)fluoranthene	ND	0.00723	"	"	"	"	"	U
Chrysene	ND	0.00723	"	"	"	"	"	U
Dibenzo(a,h)anthracene	ND	0.00723	"	"	"	"	"	U
Fluoranthene	ND	0.00723	"	"	"	"	"	U
Fluorene	ND	0.00723	"	"	"	"	"	U
Indeno(1,2,3-cd)pyrene	ND	0.00723	"	"	"	"	"	U
Naphthalene	ND	0.00723	"	"	"	"	"	U
Phenanthrene	ND	0.00723	"	"	"	"	"	U
Pyrene	ND	0.00723	"	"	"	"	"	U

Surrogate: 5-alpha-Androstane	59 %	28-119			"	"	"
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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-4

12/22/2014 1:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X412291-04 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	186	50.0	mg/kg	1	4L23006	12/23/2014	12/23/2014
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Surrogate: o-Terphenyl	81.7 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4L23009	12/23/2014	12/23/2014
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	77.1 %	70-130			"	"	"
Surrogate: Toluene-d8	108 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	110 %	70-130			"	"	"

PAH by SW846 3541/8270D SIM

Acenaphthene	ND	0.00753	mg/kg dry	1	1446059	12/28/2014	12/28/2014	U
Acenaphthylene	ND	0.00753	"	"	"	"	"	U
Anthracene	ND	0.00753	"	"	"	"	"	U
Benzo(a)anthracene	ND	0.00753	"	"	"	"	"	U
Benzo(a)pyrene	ND	0.00753	"	"	"	"	"	U
Benzo(b)fluoranthene	0.00489	0.00753	"	"	"	"	"	J

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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-4

12/22/2014 1:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC
X412291-04 (Soil)

PAH by SW846 3541/8270D SIM

Benzo(ghi)perylene	0.0598	0.00753	mg/kg dry	1	1446059	12/28/2014	12/28/2014	
Benzo(k)fluoranthene	0.00226	0.00753	"	"	"	"	"	J
Chrysene	ND	0.00753	"	"	"	"	"	U
Dibenzo(a,h)anthracene	0.00376	0.00753	"	"	"	"	"	J
Fluoranthene	0.00188	0.00753	"	"	"	"	"	J
Fluorene	ND	0.00753	"	"	"	"	"	U
Indeno(1,2,3-cd)pyrene	0.00452	0.00753	"	"	"	"	"	J
Naphthalene	0.00226	0.00753	"	"	"	"	"	J
Phenanthrene	0.0105	0.00753	"	"	"	"	"	
Pyrene	0.00301	0.00753	"	"	"	"	"	J
Surrogate: 5-alpha-Androstane	32 %	28-119			"	"	"	

Origins Laboratory, Inc.



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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-5

12/22/2014 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X412291-05 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	92.0	50.0	mg/kg	1	4L23006	12/23/2014	12/23/2014
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Surrogate: o-Terphenyl	98.2 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4L23009	12/23/2014	12/23/2014
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	91.0 %	70-130			"	"	"
Surrogate: Toluene-d8	100 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"

PAH by SW846 3541/8270D SIM

Acenaphthene	ND	0.00788	mg/kg dry	1	1446059	12/28/2014	12/28/2014	U
Acenaphthylene	ND	0.00788	"	"	"	"	"	U
Anthracene	0.00394	0.00788	"	"	"	"	"	J
Benzo(a)anthracene	ND	0.00788	"	"	"	"	"	U
Benzo(a)pyrene	0.00237	0.00788	"	"	"	"	"	J
Benzo(b)fluoranthene	0.00473	0.00788	"	"	"	"	"	J

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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

SS-5

12/22/2014 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC
X412291-05 (Soil)

PAH by SW846 3541/8270D SIM

Benzo(ghi)perylene	0.00946	0.00788	mg/kg dry	1	1446059	12/28/2014	12/28/2014	
Benzo(k)fluoranthene	ND	0.00788	"	"	"	"	"	U
Chrysene	ND	0.00788	"	"	"	"	"	U
Dibenzo(a,h)anthracene	ND	0.00788	"	"	"	"	"	U
Fluoranthene	0.00315	0.00788	"	"	"	"	"	J
Fluorene	0.00907	0.00788	"	"	"	"	"	
Indeno(1,2,3-cd)pyrene	0.00276	0.00788	"	"	"	"	"	J
Naphthalene	0.00276	0.00788	"	"	"	"	"	J
Phenanthrene	0.0221	0.00788	"	"	"	"	"	
Pyrene	0.0067	0.00788	"	"	"	"	"	J
Surrogate: 5-alpha-Androstane	65 %	28-119			"	"	"	

Origins Laboratory, Inc.



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Saga Petroleum
600 17th st, Suite 1700 N
Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

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 4L23009 - EPA 5030 (soil)

Matrix Spike (4L23009-MS1)		Source: X412291-01			Prepared: 12/23/2014 Analyzed: 12/24/2014					
Benzene	0.092	0.002	mg/kg	0.100	ND	92.5	71.8-126			
Toluene	0.093	0.002	"	0.100	ND	93.5	65.1-130			
Ethylbenzene	0.089	0.002	"	0.100	ND	89.3	62.2-130			
m,p-Xylene	0.171	0.004	"	0.200	0.003	83.7	46.5-137			
o-Xylene	0.090	0.002	"	0.100	ND	90.2	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	56.3		ug/kg	62.5		90.1	70-130			
Surrogate: Toluene-d8	64.6		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	61.4		"	62.5		98.3	70-130			

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Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

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 4L23009 - EPA 5030 (soil)										
Matrix Spike Dup (4L23009-MSD1)		Source: X412291-01			Prepared: 12/23/2014 Analyzed: 12/23/2014					
Benzene	0.081	0.002	mg/kg	0.100	ND	80.6	71.8-126	13.7	11.3	
Toluene	0.082	0.002	"	0.100	ND	81.9	65.1-130	13.2	15.4	
Ethylbenzene	0.080	0.002	"	0.100	ND	79.7	62.2-130	11.3	19.6	
m,p-Xylene	0.151	0.004	"	0.200	0.003	73.8	46.5-137	12.3	19.2	
o-Xylene	0.080	0.002	"	0.100	ND	80.4	54.2-134	11.4	17.9	
Surrogate: 1,2-Dichloroethane-d4	58.7		ug/kg	62.5		93.9	70-130			
Surrogate: Toluene-d8	63.3		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	60.9		"	62.5		97.5	70-130			

Origins Laboratory, Inc.



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Saga Petroleum
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Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

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 8015M - 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 4L23006 - EPA 3580

Blank (4L23006-BLK1)

Prepared: 12/23/2014 Analyzed: 12/23/2014

Diesel (C10-C28) ND 50.0 mg/kg

Surrogate: o-Terphenyl 55 g 50.0 110 59-131

LCS (4L23006-BS1)

Prepared: 12/23/2014 Analyzed: 12/23/2014

Diesel (C10-C28) 1080 50.0 mg/kg 1000 108 64-121

Surrogate: o-Terphenyl 52 g 50.0 103 59-131

Matrix Spike (4L23006-MS1)

Source: X412280-01

Prepared: 12/23/2014 Analyzed: 12/23/2014

Diesel (C10-C28) 3680 50.0 mg/kg 1000 2410 127 53-125 QM-07

Surrogate: o-Terphenyl 41 g 50.0 82.3 59-131

Matrix Spike Dup (4L23006-MSD1)

Source: X412280-01

Prepared: 12/23/2014 Analyzed: 12/23/2014

Diesel (C10-C28) 2640 50.0 mg/kg 1000 2410 22.6 53-125 33.0 20 QM-07

Surrogate: o-Terphenyl 29 g 50.0 59.0 59-131

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Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

PAH by SW846 3541/8270D SIM - Quality Control
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1446059 - SW846 3541

BLANK (1203234723-BLK)

Prepared: 12/28/2014 Analyzed: 12/28/2014

Acenaphthene	ND	0.00666	mg/kg				-			U
Fluoranthene	ND	0.00666	"				-			U
Dibenzo(a,h)anthracene	ND	0.00666	"				-			U
Chrysene	ND	0.00666	"				-			U
Benzo(k)fluoranthene	ND	0.00666	"				-			U
Benzo(ghi)perylene	ND	0.00666	"				-			U
Benzo(b)fluoranthene	ND	0.00666	"				-			U
Benzo(a)pyrene	ND	0.00666	"				-			U
Benzo(a)anthracene	ND	0.00666	"				-			U
Acenaphthylene	ND	0.00666	"				-			U
Naphthalene	ND	0.00666	"				-			U
Anthracene	ND	0.00666	"				-			U
Fluorene	ND	0.00666	"				-			U
Phenanthrene	ND	0.00666	"				-			U
Pyrene	ND	0.00666	"				-			U
Indeno(1,2,3-cd)pyrene	ND	0.00666	"				-			U

Surrogate: 5-alpha-Androstane

0.126

"

0.166

75.6

28-119

LCS (1203234724-BKS)

Prepared: 12/28/2014 Analyzed: 12/28/2014

Naphthalene	0.227	0.00666	mg/kg	0.333	68.2	34-103
Phenanthrene	0.215	0.00666	"	0.333	64.6	38-100
Indeno(1,2,3-cd)pyrene	0.282	0.00666	"	0.333	84.8	34-129
Fluorene	0.222	0.00666	"	0.333	66.7	34-104
Fluoranthene	0.247	0.00666	"	0.333	74.2	38-107
Dibenzo(a,h)anthracene	0.255	0.00666	"	0.333	76.7	34-130
Chrysene	0.243	0.00666	"	0.333	73	40-107
Benzo(k)fluoranthene	0.250	0.00666	"	0.333	75	38-119

Origins Laboratory, Inc.



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Denver CO 80202

Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

PAH by SW846 3541/8270D SIM - Quality Control
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1446059 - SW846 3541

LCS (1203234724-BKS)

Prepared: 12/28/2014 Analyzed: 12/28/2014

Benzo(b)fluoranthene	0.247	0.00666	mg/kg	0.333		74	41-122			
Benzo(a)pyrene	0.249	0.00666	"	0.333		74.8	39-121			
Benzo(a)anthracene	0.227	0.00666	"	0.333		68.1	41-103			
Anthracene	0.232	0.00666	"	0.333		69.5	34-105			
Acenaphthylene	0.233	0.00666	"	0.333		69.8	34-109			
Acenaphthene	0.214	0.00666	"	0.333		64.3	36-100			
Pyrene	0.231	0.00666	"	0.333		69.2	29-116			
Benzo(ghi)perylene	0.255	0.00666	"	0.333		76.7	34-122			

Surrogate: 5-alpha-Androstane

0.114

"

0.167

68.4

28-119

LCSD (1203234725-BKSD)

Prepared: 12/28/2014 Analyzed: 12/28/2014

Dibenzo(a,h)anthracene	0.335	0.00666	mg/kg	0.333		101	34-130		30	
Fluoranthene	0.275	0.00666	"	0.333		82.5	38-107		30	
Fluorene	0.231	0.00666	"	0.333		69.4	34-104		30	
Indeno(1,2,3-cd)pyrene	0.334	0.00666	"	0.333		100	34-129		30	
Chrysene	0.261	0.00666	"	0.333		78.3	40-107		30	
Phenanthrene	0.238	0.00666	"	0.333		71.4	38-100		30	
Anthracene	0.249	0.00666	"	0.333		74.8	34-105		30	
Naphthalene	0.245	0.00666	"	0.333		73.7	34-103		30	
Benzo(k)fluoranthene	0.263	0.00666	"	0.333		78.9	38-119		30	
Benzo(ghi)perylene	0.340	0.00666	"	0.333		102	34-122		30	
Benzo(b)fluoranthene	0.262	0.00666	"	0.333		78.7	41-122		30	
Benzo(a)anthracene	0.247	0.00666	"	0.333		74.3	41-103		30	
Acenaphthylene	0.248	0.00666	"	0.333		74.5	34-109		30	
Acenaphthene	0.241	0.00666	"	0.333		72.4	36-100		30	
Pyrene	0.201	0.00666	"	0.333		60.4	29-116		30	
Benzo(a)pyrene	0.287	0.00666	"	0.333		86.1	39-121		30	

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Admir Draganovic
Project Number: [none]
Project: Rush Willadel Soil Samples

PAH by SW846 3541/8270D SIM - Quality Control
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1446059 - SW846 3541

LCSD (1203234725-BKSD)

Prepared: 12/28/2014 Analyzed: 12/28/2014

Surrogate: 5-alpha-Androstane	0.139		mg/kg	0.166		83.6	28-119			
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Jen Pellegrini For Noelle Doyle Mathis, President

Saga Petroleum

600 17th st, Suite 1700 N

Denver CO 80202

Admir Draganovic

Project Number: [none]

Project: Rush Willadel Soil Samples

Notes and Definitions

U Result not detected above the detection limit

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

J Greater than the detection limit but less than the reporting limit

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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Jen Pellegrini For Noelle Doyle Mathis, President