



October 07, 2015

Apex Companies, LLC

Brad Keiding

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

**Project Name - UPRR 42 Pan Am V1 & Bluffs
White W5-1**

Project Number - 88864616

Attached are your analytical results for UPRR 42 Pan Am V1 & Bluffs White W5-1 received by Origins Laboratory, Inc. September 30, 2015. This project is associated with Origins project number X509397-01.

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

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS1	X509397-01	Soil	September 30, 2015 16:30	09/30/2015 18:24

Brad changed the project name and wo# to UPRR 42 Pan Am V1 and Bluffs White W5-1, WO# 88906129 on 10/01/15.

Origins Laboratory, Inc.



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Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

ORIGINS

LABORATORY, INC

www.originslaboratory.com

X509397

page | of |

Client: Apex

Project Manager: Brad Kieding

Address: 1746 Cole Blvd Bldg 2 #265 Bluffs White WI-1, WIS-2

Lakewood, CO 80401

Project Number: 8886466

Telephone Number: 720.501.5044

Samples Collected By: John Hickey

Email Address: Brad.Kieding@apexcos.com * Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summ #	Container #			
S51	9/30/15	1630	2	X					X			X X X 8260C WZ/OZ C 9050A 9045D SAR	Hold SAR	1
S52		1633	1	X					X				Hold	2
S53		1636	X	X					X				Hold	3
S54		1639	X	X					X				Hold	4
S55	✓	1642	✓	X					X				Hold	5
														6
														7
														8
														9
														10
Relinquished By: <u>John Hickey</u>	Date: <u>9/30/15</u>	Time: <u>1824</u>							Received By:	Date:	Time:	Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/>		
Relinquished By:	Date:	Time:							Received By:	Date:	Time:	Standard <input type="checkbox"/>		

Temp Received - 10/6

Date Results Needed

10/1 TAM

Origins Laboratory, Inc.

Jeff Pellipini

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4509397

Client: Apex

Client Project ID: Bluffs White W5-1, W5-2

Checklist Completed by: J. Pellegrini

Shipped Via: HL

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

Date/time completed: 9/30/15 1835

Airbill #: NA

Matrix(s) Received: (Check all that apply): 2 Soil/Solid Water Other:

(Describe)

Cooler Number/Temperature: 1 / 10.6 °C / °C / °C / °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>< 24 hours</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"/>			<u>PH</u>
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)

9/30/15
Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS1

9/30/2015 4:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X509397-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5130006	09/30/2015	10/01/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 91.3 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5130007	"	10/01/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 103 % 70-130 " " "
Surrogate: Toluene-d8 99.3 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.13		pH Units	1	5130010	09/30/2015	09/30/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0698		mmhos/cm	"	5130011	"	"
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5130007 - EPA 5030 (soil)

Blank (5130007-BLK1)

Prepared: 09/30/2015 Analyzed: 09/30/2015

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	67.2		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	62.6		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	65.7		"	62.5		105	70-130			

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Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5130007 - EPA 5030 (soil)										
LCS (5130007-BS1)					Prepared: 09/30/2015 Analyzed: 09/30/2015					
Benzene	0.105	0.002	mg/kg	0.100		105	77.1-124			
Toluene	0.107	0.002	"	0.100		107	74.5-128			
Ethylbenzene	0.114	0.002	"	0.100		114	66.4-127			
m,p-Xylene	0.226	0.004	"	0.200		113	76.6-124			
o-Xylene	0.112	0.002	"	0.100		112	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	63.9		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	61.7		"	62.5		98.7	70-130			
Surrogate: 4-Bromofluorobenzene	63.9		"	62.5		102	70-130			

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Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5130007 - EPA 5030 (soil)

Matrix Spike (5130007-MS1)		Source: X509373-04			Prepared: 09/30/2015 Analyzed: 10/01/2015					
Benzene	0.104	0.002	mg/kg	0.100	ND	104	71.8-126			
Toluene	0.105	0.002	"	0.100	0.002	103	65.1-130			
Ethylbenzene	0.116	0.002	"	0.100	ND	116	62.2-130			
m,p-Xylene	0.160	0.004	"	0.200	ND	79.8	46.5-137			
o-Xylene	0.117	0.002	"	0.100	0.004	113	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	57.2		ug/kg	62.5		91.6	70-130			
Surrogate: Toluene-d8	58.9		"	62.5		94.3	70-130			
Surrogate: 4-Bromofluorobenzene	61.4		"	62.5		98.2	70-130			

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Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5130007 - EPA 5030 (soil)

Matrix Spike Dup (5130007-MSD1)		Source: X509373-04			Prepared: 09/30/2015 Analyzed: 10/01/2015					
Benzene	0.107	0.002	mg/kg	0.100	ND	107	71.8-126	3.01	11.3	
Toluene	0.106	0.002	"	0.100	0.002	105	65.1-130	1.59	15.4	
Ethylbenzene	0.118	0.002	"	0.100	ND	118	62.2-130	0.974	19.6	
m,p-Xylene	0.154	0.004	"	0.200	ND	77.0	46.5-137	3.55	19.2	
o-Xylene	0.123	0.002	"	0.100	0.004	119	54.2-134	5.02	17.9	
Surrogate: 1,2-Dichloroethane-d4	59.4		ug/kg	62.5		95.1	70-130			
Surrogate: Toluene-d8	60.6		"	62.5		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	62.2		"	62.5		99.5	70-130			

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Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5I30006 - EPA 3580

Blank (5I30006-BLK1)

Prepared: 09/30/2015 Analyzed: 09/30/2015

Diesel (C10-C28) ND 50 mg/kg

Residual Range Organics (C28-C36) ND 200 "

Surrogate: o-Terphenyl 46 " 50.0 91.7 59-131

LCS (5I30006-BS1)

Prepared: 09/30/2015 Analyzed: 09/30/2015

Diesel (C10-C28) 800 50 mg/kg 1000 79.7 64-121

Residual Range Organics (C28-C36) 760 200 " 1000 76.1 58-124

Surrogate: o-Terphenyl 41 " 50.0 81.7 59-131

Matrix Spike (5I30006-MS1)

Source: X509373-04

Prepared: 09/30/2015 Analyzed: 09/30/2015

Diesel (C10-C28) 830 50 mg/kg 1000 ND 83.2 53-125

Residual Range Organics (C28-C36) 790 200 " 1000 14 77.3 47-133

Surrogate: o-Terphenyl 41 " 50.0 82.0 59-131

Matrix Spike Dup (5I30006-MSD1)

Source: X509373-04

Prepared: 09/30/2015 Analyzed: 09/30/2015

Diesel (C10-C28) 810 50 mg/kg 1000 ND 81.4 53-125 2.18 20

Residual Range Organics (C28-C36) 760 200 " 1000 14 74.9 47-133 3.11 20

Surrogate: o-Terphenyl 40 " 50.0 79.8 59-131

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5I30010 - NO PREP										
Duplicate (5I30010-DUP1)		Source: X509388-01			Prepared: 09/30/2015 Analyzed: 09/30/2015					
pH	8.59		pH Units		8.58			0.116	25	
Batch 5I30011 - NO PREP										
Blank (5I30011-BLK1)		Prepared: 09/30/2015 Analyzed: 09/30/2015								
Specific Conductance (EC)	0.00250		mmhos/cm							
Duplicate (5I30011-DUP1)		Source: X509388-01			Prepared: 09/30/2015 Analyzed: 09/30/2015					
Specific Conductance (EC)	0.850		mmhos/cm		0.815			4.20	25	

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88864616
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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October 06, 2015

Apex Companies, LLC

Brad Keiding

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

**Project Name - UPRR 42 Pan Am V1 & Bluffs
White W5-1**

Project Number - 88906129

Attached are your analytical results for UPRR 42 Pan Am V1 & Bluffs White W5-1 received by Origins Laboratory, Inc. October 05, 2015. This project is associated with Origins project number X510049-01.

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

Apex Companies, LLC

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

Brad Keiding

Project Number: 88906129

Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS1@15'	X510049-01	Soil	October 5, 2015 16:15	10/05/2015 17:55

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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page 1 of 1

ORIGINS
LABORATORY, INC

Client: Apex Companies
Address: 1746 Cole Blvd
Lakewood, CO 80401
Telephone Number: 303.487.1020
Email Address: Brad.Keiding@apexcos.com

Project Manager: Brad Keiding
Project Name: UPRR 42 Pan Am V1 and Bluffs White W5-1
Project Number: 88906129
Samples Collected By: John Hickey
* Bill to Andarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix			Analysis			Sample Instructions				
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summ #	Other	6BTEX	8260C	DR10K		8015C	ET	7050A	PH
SS1015	10.5.15	1415	2	X						X				X	X	X	X	X	1 Half SAR
																			2
																			3
																			4
																			5
																			6
																			7
																			8
																			9
																			10
Relinquished By: John Hickey	Date: 10.5.15	Time: 1755		Received By: g.m.h.	Date: 10.5.15	Time: 1755	Received By:							Date: 10.5.15	Time: 1755	Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard			
Relinquished By:	Date:	Time:		Received By:	Date:	Time:								Date:	Time:				

Temp Received: 5.3
Date Results Needed: 10.6.15 7am

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: XS10049

Client: Apex Companies

Client Project ID: UPRR 42 Pan Am V1 and Bluffs White W5-

Checklist Completed by: JK

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

Date/time completed: 10-5-15 1759

Airbill #: _____

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

Cooler Number/Temperature: 15.3 °C _____ °C _____ °C _____ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
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]

Date/Time Reviewed 10/6/15

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS1@15'
10/5/2015 4:15:00PM

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

Origins Laboratory, Inc.
X510049-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J05014	10/05/2015	10/05/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 89.6 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5J05016	"	10/05/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 106 % 70-130 " " "
Surrogate: Toluene-d8 92.2 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.4 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.47		pH Units	1	5J05018	"	10/05/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.113		mmhos/cm	"	5J05019	"	10/05/2015
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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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J05016 - EPA 5030 (soil)										
Blank (5J05016-BLK1)					Prepared: 10/05/2015 Analyzed: 10/05/2015					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	66.3		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	63.3		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63.3		"	62.5		101	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J05016 - EPA 5030 (soil)

LCS (5J05016-BS1)

Prepared: 10/05/2015 Analyzed: 10/05/2015

Benzene	0.096	0.002	mg/kg	0.100		95.9	77.1-124			
Toluene	0.098	0.002	"	0.100		97.6	74.5-128			
Ethylbenzene	0.103	0.002	"	0.100		103	66.4-127			
m,p-Xylene	0.211	0.004	"	0.200		106	76.6-124			
o-Xylene	0.106	0.002	"	0.100		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	60.9		ug/kg	62.5		97.4	70-130			
Surrogate: Toluene-d8	61.0		"	62.5		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	66.0		"	62.5		106	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J05016 - EPA 5030 (soil)

Matrix Spike (5J05016-MS1)		Source: X510022-01			Prepared: 10/05/2015 Analyzed: 10/05/2015					
Benzene	0.124	0.002	mg/kg	0.100	ND	124	71.8-126			
Toluene	0.125	0.002	"	0.100	ND	125	65.1-130			
Ethylbenzene	0.131	0.002	"	0.100	ND	131	62.2-130			QM-07
m,p-Xylene	0.265	0.004	"	0.200	ND	133	46.5-137			
o-Xylene	0.131	0.002	"	0.100	ND	131	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	62.1		ug/kg	62.5		99.3	70-130			
Surrogate: Toluene-d8	63.1		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	66.3		"	62.5		106	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
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Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J05016 - EPA 5030 (soil)

Matrix Spike Dup (5J05016-MSD1)		Source: X510022-01			Prepared: 10/05/2015 Analyzed: 10/05/2015					
Benzene	0.115	0.002	mg/kg	0.100	ND	115	71.8-126	7.13	11.3	
Toluene	0.111	0.002	"	0.100	ND	111	65.1-130	11.9	15.4	
Ethylbenzene	0.104	0.002	"	0.100	ND	104	62.2-130	22.3	19.6	QR-03
m,p-Xylene	0.205	0.004	"	0.200	ND	103	46.5-137	25.6	19.2	QR-02
o-Xylene	0.107	0.002	"	0.100	ND	107	54.2-134	19.9	17.9	QR-02
Surrogate: 1,2-Dichloroethane-d4	61.9		ug/kg	62.5		99.1	70-130			
Surrogate: Toluene-d8	62.2		"	62.5		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	62.0		"	62.5		99.1	70-130			

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J05014 - EPA 3580

Blank (5J05014-BLK1)

Prepared: 10/05/2015 Analyzed: 10/05/2015

Diesel (C10-C28) ND 50 mg/kg

Residual Range Organics (C28-C36) ND 200 "

Surrogate: o-Terphenyl 38 " 50.0 75.5 59-131

LCS (5J05014-BS1)

Prepared: 10/05/2015 Analyzed: 10/05/2015

Diesel (C10-C28) 980 50 mg/kg 1000 98.3 64-121

Residual Range Organics (C28-C36) 980 200 " 1000 98.3 58-124

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

Matrix Spike (5J05014-MS1)

Source: X510022-01

Prepared: 10/05/2015 Analyzed: 10/05/2015

Diesel (C10-C28) 940 50 mg/kg 1000 ND 94.2 53-125

Residual Range Organics (C28-C36) 960 200 " 1000 15 94.6 47-133

Surrogate: o-Terphenyl 49 " 50.0 98.1 59-131

Matrix Spike Dup (5J05014-MSD1)

Source: X510022-01

Prepared: 10/05/2015 Analyzed: 10/05/2015

Diesel (C10-C28) 760 50 mg/kg 1000 ND 75.9 53-125 21.6 20 QR-02

Residual Range Organics (C28-C36) 730 200 " 1000 15 71.5 47-133 27.3 20 QR-02

Surrogate: o-Terphenyl 42 " 50.0 83.9 59-131

Origins Laboratory, Inc.

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5J05018 - NO PREP										
Duplicate (5J05018-DUP1)		Source: X510042-01			Prepared: 10/05/2015 Analyzed: 10/05/2015					
pH	8.33		pH Units		8.36			0.359	25	
Batch 5J05019 - NO PREP										
Blank (5J05019-BLK1)		Prepared: 10/05/2015 Analyzed: 10/05/2015								
Specific Conductance (EC)	0.00270		mmhos/cm							
Duplicate (5J05019-DUP1)		Source: X510042-01			Prepared: 10/05/2015 Analyzed: 10/05/2015					
Specific Conductance (EC)	0.215		mmhos/cm		0.236			9.31	25	

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

Notes and Definitions

- QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
- QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



October 08, 2015

Apex Companies, LLC

Brad Keiding

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

**Project Name - UPRR 42 Pan Am V1 & Bluffs
White W5-1**

Project Number - 88906129

Attached are your analytical results for UPRR 42 Pan Am V1 & Bluffs White W5-1 received by Origins Laboratory, Inc. October 07, 2015. This project is associated with Origins project number X510078-01.

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

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS1 @ 12'	X510078-01	Soil	October 7, 2015 14:55	10/07/2015 17:45
SS2 @ 12'	X510078-02	Soil	October 7, 2015 14:59	10/07/2015 17:45
SS3 @ 12'	X510078-03	Soil	October 7, 2015 15:05	10/07/2015 17:45
SS4 @ 6'	X510078-04	Soil	October 7, 2015 15:20	10/07/2015 17:45

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

www.originslaboratory.com

page 1 of 1

XS10078

ORIGINS
LABORATORY, INC

Client: Apex Companies
Address: 1746 Cole Blvd. Bldg 21 #265
Lakewood, CO 80461
Telephone Number: 720.501.5041
Email Address: Brad.Keiding@apexco.com

Project Manager: Brad Keiding
Project Name: UPRR 42 Pan Am V1 and Bluffs White W5-1
Project Number: 88906129
Samples Collected By: John Hickey
* Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions		
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summation	Other	GAEX	DR/CR	GC		MS/MS	SAR
551 @ 12'	10-7-15	1455	2	X						X			X	X	X	H	1
552 @ 12'	10-7-15	1459	2	X						X			X	X	X	O	2
553 @ 12'	10-7-15	1505	2	X						X			X	X	X	L	3
554 @ 6'	10-7-15	1520	2	X						X			X	X	X	D	4
																	5
																	6
																	7
																	8
																	9
																	10
Relinquished By: <u>[Signature]</u>	Date: <u>10-7-15</u>	Time: <u>1745</u>															Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>
Relinquished By: <u>[Signature]</u>	Date: <u>10-7-15</u>	Time: <u>1745</u>															

Temp Received: 5.7 Date Results Needed: 10-8-15 7AM

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

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 2
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: XS10078

Client: Apex

Client Project ID: UPRR 42 PAN AM V1

Checklist Completed by: Jeff Smith

Shipped Via: H&D
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10/7/15

Airbill #: NA

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

Cooler Number/Temperature: 1 / 9.7 °C 1 / _____ °C 1 / _____ °C 1 / _____ °C

Thermometer ID: T203

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

Date/Time Reviewed

Origins Laboratory, Inc.

Jen 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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS1 @ 12'
10/7/2015 2:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510078-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J07008	10/07/2015	10/07/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 97.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5J07007	"	10/07/2015
Benzene	0.032	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "
Surrogate: Toluene-d8 95.6 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 100 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.86		pH Units	1	5J07014	10/07/2015	10/07/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.423		mmhos/cm	"	5J07015	10/07/2015	"
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS2 @ 12'
10/7/2015 2:59:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510078-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J07008	10/07/2015	10/07/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	83.9 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.942	0.200	mg/kg	1	5J07007	"	10/07/2015
Benzene	0.005	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	0.002	0.002	"	"	"	"	"
Xylenes, total	0.036	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	104 %	70-130			"	"	"
Surrogate: Toluene-d8	88.2 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	7.86		pH Units	1	5J07014	10/07/2015	10/07/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.300		mmhos/cm	"	5J07015	10/07/2015	"
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS3 @ 12'
10/7/2015 3:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510078-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J07008	10/07/2015	10/07/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	62.1 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5J07007	"	10/07/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	0.021	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	104 %	70-130			"	"	"
Surrogate: Toluene-d8	94.7 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.38		pH Units	1	5J07014	10/07/2015	10/07/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.158		mmhos/cm	"	5J07015	10/07/2015	"
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS4 @ 6'
10/7/2015 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510078-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J07008	10/07/2015	10/07/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 87.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	4.35	0.200	mg/kg	1	5J07007	"	10/07/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "
Surrogate: Toluene-d8 92.0 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 109 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.15		pH Units	1	5J07014	10/07/2015	10/07/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.127		mmhos/cm	"	5J07015	10/07/2015	"
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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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J07007 - EPA 5030 (soil)

Blank (5J07007-BLK1)

Prepared: 10/07/2015 Analyzed: 10/07/2015

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	62.7		ug/kg	62.5		100	70-130			
Surrogate: Toluene-d8	59.1		"	62.5		94.6	70-130			
Surrogate: 4-Bromofluorobenzene	61.0		"	62.5		97.5	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J07007 - EPA 5030 (soil)										
LCS (5J07007-BS1)					Prepared: 10/07/2015 Analyzed: 10/07/2015					
Benzene	0.104	0.002	mg/kg	0.100		104	77.1-124			
Toluene	0.106	0.002	"	0.100		106	74.5-128			
Ethylbenzene	0.116	0.002	"	0.100		116	66.4-127			
m,p-Xylene	0.235	0.004	"	0.200		117	76.6-124			
o-Xylene	0.114	0.002	"	0.100		114	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	59.2		ug/kg	62.5		94.8	70-130			
Surrogate: Toluene-d8	57.5		"	62.5		92.0	70-130			
Surrogate: 4-Bromofluorobenzene	61.4		"	62.5		98.2	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J07007 - EPA 5030 (soil)

Matrix Spike (5J07007-MS1)		Source: X510066-02			Prepared: 10/07/2015 Analyzed: 10/07/2015					
Benzene	0.091	0.002	mg/kg	0.100	ND	91.0	71.8-126			
Toluene	0.092	0.002	"	0.100	ND	91.7	65.1-130			
Ethylbenzene	0.098	0.002	"	0.100	ND	97.8	62.2-130			
m,p-Xylene	0.192	0.004	"	0.200	ND	95.8	46.5-137			
o-Xylene	0.097	0.002	"	0.100	ND	97.4	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	61.2		ug/kg	62.5		97.9	70-130			
Surrogate: Toluene-d8	58.2		"	62.5		93.2	70-130			
Surrogate: 4-Bromofluorobenzene	60.6		"	62.5		96.9	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J07007 - EPA 5030 (soil)

Matrix Spike Dup (5J07007-MSD1)		Source: X510066-02			Prepared: 10/07/2015 Analyzed: 10/07/2015					
Benzene	0.100	0.002	mg/kg	0.100	ND	100	71.8-126	9.52	11.3	
Toluene	0.100	0.002	"	0.100	ND	100	65.1-130	8.90	15.4	
Ethylbenzene	0.107	0.002	"	0.100	ND	107	62.2-130	9.02	19.6	
m,p-Xylene	0.211	0.004	"	0.200	ND	105	46.5-137	9.50	19.2	
o-Xylene	0.109	0.002	"	0.100	ND	109	54.2-134	10.9	17.9	
Surrogate: 1,2-Dichloroethane-d4	61.1		ug/kg	62.5		97.8	70-130			
Surrogate: Toluene-d8	58.7		"	62.5		94.0	70-130			
Surrogate: 4-Bromofluorobenzene	61.0		"	62.5		97.6	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J07008 - EPA 3580

Blank (5J07008-BLK1)

Prepared: 10/07/2015 Analyzed: 10/07/2015

Diesel (C10-C28) ND 50 mg/kg

Residual Range Organics (C28-C36) ND 200 "

Surrogate: o-Terphenyl 46 " 50.0 91.9 59-131

LCS (5J07008-BS1)

Prepared: 10/07/2015 Analyzed: 10/07/2015

Diesel (C10-C28) 1000 50 mg/kg 64-121

Residual Range Organics (C28-C36) 980 200 " 1000 97.7 58-124

Surrogate: o-Terphenyl 51 " 50.0 102 59-131

Matrix Spike (5J07008-MS1)

Source: X510066-02

Prepared: 10/07/2015 Analyzed: 10/07/2015

Diesel (C10-C28) 1100 50 mg/kg ND 53-125

Residual Range Organics (C28-C36) 1200 200 " 1000 13 115 47-133

Surrogate: o-Terphenyl 57 " 50.0 115 59-131

Matrix Spike Dup (5J07008-MSD1)

Source: X510066-02

Prepared: 10/07/2015 Analyzed: 10/07/2015

Diesel (C10-C28) 1300 50 mg/kg ND 53-125 14.3 20

Residual Range Organics (C28-C36) 1300 200 " 1000 13 127 47-133 10.2 20

Surrogate: o-Terphenyl 65 " 50.0 131 59-131

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

Classical Chemistry Parameters - 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 5J07014 - NO PREP

Duplicate (5J07014-DUP1)		Source: X510078-01			Prepared: 10/07/2015 Analyzed: 10/07/2015					
pH	7.88		pH Units		7.86			0.254	25	

Batch 5J07015 - NO PREP

Blank (5J07015-BLK1)		Prepared: 10/07/2015 Analyzed: 10/07/2015								
Specific Conductance (EC)	0.00220		mmhos/cm							
Duplicate (5J07015-DUP1)		Source: X510078-01			Prepared: 10/07/2015 Analyzed: 10/07/2015					
Specific Conductance (EC)	0.446		mmhos/cm		0.423			5.29	25	

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

October 09, 2015

Apex Companies, LLC

Brad Keiding

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

**Project Name - UPRR 42 Pan Am V1 & Bluffs
White W5-1**

Project Number - 88906129

Attached are your analytical results for UPRR 42 Pan Am V1 & Bluffs White W5-1 received by Origins Laboratory, Inc. October 08, 2015. This project is associated with Origins project number X510093-01.

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



Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-5@8'	X510093-01	Soil	October 8, 2015 12:25	10/08/2015 15:25
SS-6@8'	X510093-02	Soil	October 8, 2015 12:30	10/08/2015 15:25
SS-7@8'	X510093-03	Soil	October 8, 2015 12:35	10/08/2015 15:25

Origins Laboratory, Inc.



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

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

ORIGINS

LABORATORY, INC

X510093

www.originslaboratory.com

page | of |

Client: Apex Companies

Project Manager: Brad Kieding

Address: 1746 Cole Boulevard Suite 265

Project Name: UPRR 42 Pan Am and Bluffs white WS-1

Lakewood CO 80401

Project Number: WD : 88906129

Telephone Number: 970-260-5457

Samples Collected By: David Polchik

Email Address: brad.kieding@apexcos.com

* Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa Canister #	Other	DRCORE 8260	DRCORE 8215	C 9050A	
SS-5 @ 8'	10/8/15	1225	2	X					X			X	X	WAD	Hold STD
SS-4 @ 8'	↓	1230	2	↓					↑			X	X	↓	
SS-7 @ 8'	↓	1235	2	↓								X	X	↓	
												X	X		
															1
															2
															3
															4
															5
															6
															7
															8
															9
															10
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:								Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/>	
Relinquished By:	Date:	Time:	Received By:	Date:	Time:									48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>	

Temp Received: 23°

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X510093

Client: Apex Companies

Client Project ID: UPRR 42 Pan Am & Bluffs White

Checklist Completed by: Jef Pellegri

Shipped Via: HD

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

Date/time completed: 10/8/15 1527

Airbill #: NA

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

Cooler Number/Temperature: 1 / 2.3 °C 1 / _____ °C 1 / _____ °C 1 / _____ °C

Thermometer ID: T003

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

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

Reviewed by (Project Manager)

Date/Time Reviewed 10/8/15

Origins Laboratory, Inc.

Jef Pellegri

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS-5@8'

10/8/2015 12:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510093-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J08007	10/08/2015	10/08/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 68.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	20.8	5.00	mg/kg	25	5J08010	10/08/2015	10/08/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	ND	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 96.4 % 70-130 " " "
Surrogate: Toluene-d8 95.6 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 97.1 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.87		pH Units	1	5J08011	10/08/2015	10/08/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.160		mmhos/cm	"	5J08012	"	10/08/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS-6@8'

10/8/2015 12:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510093-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	310	50	mg/kg	1	5J08007	10/08/2015	10/08/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	69.3 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	137	5.00	mg/kg	25	5J08010	10/08/2015	10/08/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	ND	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	94.9 %	70-130			"	"	"
Surrogate: Toluene-d8	92.5 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	130 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.92		pH Units	1	5J08011	10/08/2015	10/08/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.140		mmhos/cm	"	5J08012	"	10/08/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS-7@8'

10/8/2015 12:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510093-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	140	50	mg/kg	1	5J08007	10/08/2015	10/08/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	82.5 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	109	5.00	mg/kg	25	5J08010	10/08/2015	10/08/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	ND	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	95.1 %	70-130			"	"	"
Surrogate: Toluene-d8	93.9 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	109 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	9.72		pH Units	1	5J08011	10/08/2015	10/08/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.209		mmhos/cm	"	5J08012	"	10/08/2015
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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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J08010 - EPA 5030 (soil)										
Blank (5J08010-BLK1)					Prepared: 10/08/2015 Analyzed: 10/08/2015					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	63.1		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	56.8		"	62.5		91.0	70-130			
Surrogate: 4-Bromofluorobenzene	62.8		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J08010 - EPA 5030 (soil)										
LCS (5J08010-BS1)					Prepared: 10/08/2015 Analyzed: 10/08/2015					
Benzene	0.089	0.002	mg/kg	0.100		88.8	77.1-124			
Toluene	0.086	0.002	"	0.100		86.3	74.5-128			
Ethylbenzene	0.098	0.002	"	0.100		98.2	66.4-127			
m,p-Xylene	0.197	0.004	"	0.200		98.6	76.6-124			
o-Xylene	0.096	0.002	"	0.100		95.9	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	59.3		ug/kg	62.5		94.9	70-130			
Surrogate: Toluene-d8	59.1		"	62.5		94.6	70-130			
Surrogate: 4-Bromofluorobenzene	62.6		"	62.5		100	70-130			

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J08010 - EPA 5030 (soil)

LCS Dup (5J08010-BSD1)

Prepared: 10/08/2015 Analyzed: 10/08/2015

Benzene	0.095	0.002	mg/kg	0.100		95.4	77.1-124	7.19	20	
Toluene	0.096	0.002	"	0.100		96.0	74.5-128	10.6	20	
Ethylbenzene	0.104	0.002	"	0.100		104	66.4-127	6.10	20	
m,p-Xylene	0.212	0.004	"	0.200		106	76.6-124	7.34	20	
o-Xylene	0.103	0.002	"	0.100		103	76.6-124	6.85	20	
Surrogate: 1,2-Dichloroethane-d4	60.3		ug/kg	62.5		96.4	70-130			
Surrogate: Toluene-d8	58.3		"	62.5		93.2	70-130			
Surrogate: 4-Bromofluorobenzene	62.3		"	62.5		99.6	70-130			

Origins Laboratory, Inc.



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Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J08007 - EPA 3580

Blank (5J08007-BLK1)

Prepared: 10/08/2015 Analyzed: 10/08/2015

Diesel (C10-C28)	ND	50	mg/kg							
Residual Range Organics (C28-C36)	ND	200	"							
Surrogate: o-Terphenyl	35		"	50.0		69.7	59-131			

LCS (5J08007-BS1)

Prepared: 10/08/2015 Analyzed: 10/08/2015

Diesel (C10-C28)	900	50	mg/kg	1000		90.2	64-121			
Residual Range Organics (C28-C36)	880	200	"	1000		88.2	58-124			
Surrogate: o-Terphenyl	49		"	50.0		97.9	59-131			

Matrix Spike (5J08007-MS1)

Source: X510083-01

Prepared: 10/08/2015 Analyzed: 10/08/2015

Diesel (C10-C28)	780	50	mg/kg	1000	ND	78.1	53-125			
Residual Range Organics (C28-C36)	700	200	"	1000	14	68.4	47-133			
Surrogate: o-Terphenyl	42		"	50.0		84.5	59-131			

Matrix Spike Dup (5J08007-MSD1)

Source: X510083-01

Prepared: 10/08/2015 Analyzed: 10/08/2015

QM-07

Diesel (C10-C28)	1000	50	mg/kg	1000	ND	101	53-125	25.7	20	
Residual Range Organics (C28-C36)	980	200	"	1000	14	96.7	47-133	33.7	20	
Surrogate: o-Terphenyl	51		"	50.0		102	59-131			

Origins Laboratory, Inc.



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Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5J08011 - NO PREP										
Duplicate (5J08011-DUP1)		Source: X510093-01			Prepared: 10/08/2015 Analyzed: 10/08/2015					
pH	8.85		pH Units		8.87			0.226	25	
Batch 5J08012 - NO PREP										
Blank (5J08012-BLK1)		Prepared: 10/08/2015 Analyzed: 10/08/2015								
Specific Conductance (EC)	0.00320		mmhos/cm							
Duplicate (5J08012-DUP1)		Source: X510093-01			Prepared: 10/08/2015 Analyzed: 10/08/2015					
Specific Conductance (EC)	0.166		mmhos/cm		0.160			3.50	25	

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

Notes and Definitions

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President



October 12, 2015

Apex Companies, LLC

Brad Keiding

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

**Project Name - UPRR 42 Pan Am V1 & Bluffs
White W5-1**

Project Number - 88906129

Attached are your analytical results for UPRR 42 Pan Am V1 & Bluffs White W5-1 received by Origins Laboratory, Inc. October 09, 2015. This project is associated with Origins project number X510106-01.

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

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-8 @ 8'	X510106-01	Soil	October 9, 2015 14:10	10/09/2015 16:40
SS-9 @ 8'	X510106-02	Soil	October 9, 2015 14:15	10/09/2015 16:40
SS-10 @ 10'	X510106-03	Soil	October 9, 2015 14:20	10/09/2015 16:40

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

www.originslaboratory.com

page 1 of 1

ORIGINS LABORATORY, INC

Client: Apex Companies
Address: 1744 Cole Boulevard Suite 265
Lakewood CO 80401
Telephone Number: 720-501-5041
Email Address: Brad.Keiding@apexcos.com
970-903-1260 jake.nildebrand@apexcos.com

Project Manager: Brad Keiding
Project Name: UPRR 42 Pan Am V1 and Bluffs White W5-1
Project Number: WD-88906129
Samples Collected By: David Puchnik
* Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summ. #	Other	GC/MS	GC/MS	GC/MS	
SS-8 @ 8'	10/9/15	1410	2	X										X	1
SS-9 @ 8'	↓	1415	2	↓										X	2
SS-10 @ 10'	↓	1420	2	↓										X	3
															4
															5
															6
															7
															8
															9
															10
Relinquished By: <i>David M.</i>	Date: 10/9/2015	Time: 1640													
Relinquished By:	Date:	Time:													

Turnaround Time: Same Day ☒ 24 Hr ☐ 48 Hr ☐ 72 Hr ☐ Standard ☐

Temp Received: 7.2

Date Results Needed

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: XS10106

Client: Apex

Client Project ID: KMG-UPRR 42-Pan Am V1

Checklist Completed by: Jen Pellegrini

Shipped Via: 41D

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

Date/time completed: 10/9/15

Airbill #: 214

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

(Describe)

Cooler Number/Temperature: 1 / 7.2 °C 1 / _____ °C 1 / _____ °C 1 / _____ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>sampled same day</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"/>	<u>10/9/15</u>		<u>PH</u>
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<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.

Jen Pellegrini
Reviewed by (Project Manager)

10/9/15
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS-8 @ 8'
10/9/2015 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510106-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	87	50	mg/kg	1	5J09007	10/09/2015	10/09/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	74.3 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	105	5.00	mg/kg	25	5J09008	10/09/2015	10/09/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	0.376	0.050	"	"	"	"	"
Xylenes, total	4.79	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	89.7 %	70-130			"	"	"
Surrogate: Toluene-d8	91.5 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.11		pH Units	1	5J09009	10/09/2015	10/09/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.427		mmhos/cm	"	5J09010	10/09/2015	"
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS-9 @ 8'
10/9/2015 2:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510106-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	130	50	mg/kg	1	5J09007	10/09/2015	10/09/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	74.7 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	106	5.00	mg/kg	25	5J09008	10/09/2015	10/10/2015
Benzene	0.108	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	0.581	0.050	"	"	"	"	"
Xylenes, total	9.27	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	90.3 %	70-130			"	"	"
Surrogate: Toluene-d8	95.0 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.24		pH Units	1	5J09009	10/09/2015	10/09/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.449		mmhos/cm	"	5J09010	10/09/2015	"
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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS-10 @ 10'
10/9/2015 2:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510106-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	210	50	mg/kg	1	5J09007	10/09/2015	10/09/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	82.1 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	87.5	5.00	mg/kg	25	5J09008	10/09/2015	10/10/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	0.204	0.050	"	"	"	"	"
Xylenes, total	3.55	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	93.6 %	70-130			"	"	"
Surrogate: Toluene-d8	98.5 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.57		pH Units	1	5J09009	10/09/2015	10/09/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.396		mmhos/cm	"	5J09010	10/09/2015	"
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3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J09008 - EPA 5030 (soil)										
Blank (5J09008-BLK1)					Prepared: 10/09/2015 Analyzed: 10/09/2015					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	60.6		ug/kg	62.5		97.0	70-130			
Surrogate: Toluene-d8	60.0		"	62.5		95.9	70-130			
Surrogate: 4-Bromofluorobenzene	62.3		"	62.5		99.7	70-130			

Origins Laboratory, Inc.



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Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J09008 - EPA 5030 (soil)

Blank (5J09008-BLK2)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	57.2		ug/kg	62.5		91.6	70-130			
Surrogate: Toluene-d8	57.3		"	62.5		91.7	70-130			
Surrogate: 4-Bromofluorobenzene	59.6		"	62.5		95.3	70-130			

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Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J09008 - EPA 5030 (soil)

Blank (5J09008-BLK3)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	59.4		ug/kg	62.5		95.0	70-130			
Surrogate: Toluene-d8	57.0		"	62.5		91.2	70-130			
Surrogate: 4-Bromofluorobenzene	60.8		"	62.5		97.2	70-130			

Origins Laboratory, Inc.



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Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J09008 - EPA 5030 (soil)

LCS (5J09008-BS1)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Benzene	0.101	0.002	mg/kg	0.100		101	77.1-124			
Toluene	0.105	0.002	"	0.100		105	74.5-128			
Ethylbenzene	0.114	0.002	"	0.100		114	66.4-127			
m,p-Xylene	0.235	0.004	"	0.200		118	76.6-124			
o-Xylene	0.114	0.002	"	0.100		114	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	59.9		ug/kg	62.5		95.8	70-130			
Surrogate: Toluene-d8	59.4		"	62.5		95.1	70-130			
Surrogate: 4-Bromofluorobenzene	63.6		"	62.5		102	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J09008 - EPA 5030 (soil)

LCS (5J09008-BS2)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Benzene	0.101	0.002	mg/kg	0.100		101	77.1-124			
Toluene	0.101	0.002	"	0.100		101	74.5-128			
Ethylbenzene	0.115	0.002	"	0.100		115	66.4-127			
m,p-Xylene	0.227	0.004	"	0.200		114	76.6-124			
o-Xylene	0.118	0.002	"	0.100		118	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	57.6		ug/kg	62.5		92.2	70-130			
Surrogate: Toluene-d8	57.8		"	62.5		92.5	70-130			
Surrogate: 4-Bromofluorobenzene	60.4		"	62.5		96.7	70-130			

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Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J09008 - EPA 5030 (soil)

LCS (5J09008-BS3)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Benzene	0.094	0.002	mg/kg	0.100		93.7	77.1-124			
Toluene	0.098	0.002	"	0.100		97.6	74.5-128			
Ethylbenzene	0.107	0.002	"	0.100		107	66.4-127			
m,p-Xylene	0.217	0.004	"	0.200		109	76.6-124			
o-Xylene	0.109	0.002	"	0.100		109	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	62.0		ug/kg	62.5		99.2	70-130			
Surrogate: Toluene-d8	60.1		"	62.5		96.1	70-130			
Surrogate: 4-Bromofluorobenzene	62.6		"	62.5		100	70-130			

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Brad Keiding
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Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J09008 - EPA 5030 (soil)

Matrix Spike (5J09008-MS1)		Source: X510098-01			Prepared: 10/09/2015 Analyzed: 10/09/2015					
Benzene	0.099	0.002	mg/kg	0.100	0.002	97.0	71.8-126			
Toluene	0.102	0.002	"	0.100	0.006	96.6	65.1-130			
Ethylbenzene	0.107	0.002	"	0.100	ND	107	62.2-130			
m,p-Xylene	0.221	0.004	"	0.200	0.003	109	46.5-137			
o-Xylene	0.107	0.002	"	0.100	0.001	106	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	61.0		ug/kg	62.5		97.6	70-130			
Surrogate: Toluene-d8	58.7		"	62.5		93.9	70-130			
Surrogate: 4-Bromofluorobenzene	62.4		"	62.5		99.8	70-130			

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Brad Keiding
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Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J09008 - EPA 5030 (soil)

Matrix Spike (5J09008-MS2)		Source: X510098-02			Prepared: 10/09/2015 Analyzed: 10/09/2015					
Benzene	0.097	0.002	mg/kg	0.100	ND	96.9	71.8-126			
Toluene	0.097	0.002	"	0.100	ND	97.2	65.1-130			
Ethylbenzene	0.109	0.002	"	0.100	ND	109	62.2-130			
m,p-Xylene	0.209	0.004	"	0.200	ND	105	46.5-137			
o-Xylene	0.107	0.002	"	0.100	ND	107	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	61.6		ug/kg	62.5		98.6	70-130			
Surrogate: Toluene-d8	59.3		"	62.5		94.9	70-130			
Surrogate: 4-Bromofluorobenzene	62.2		"	62.5		99.6	70-130			

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Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J09008 - EPA 5030 (soil)

Matrix Spike (5J09008-MS3)		Source: X510098-03			Prepared: 10/09/2015 Analyzed: 10/09/2015					
Benzene	0.095	0.002	mg/kg	0.100	0.002	93.4	71.8-126			
Toluene	0.096	0.002	"	0.100	ND	95.7	65.1-130			
Ethylbenzene	0.104	0.002	"	0.100	ND	104	62.2-130			
m,p-Xylene	0.198	0.004	"	0.200	ND	99.1	46.5-137			
o-Xylene	0.100	0.002	"	0.100	ND	99.8	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	62.3		ug/kg	62.5		99.7	70-130			
Surrogate: Toluene-d8	58.9		"	62.5		94.3	70-130			
Surrogate: 4-Bromofluorobenzene	62.1		"	62.5		99.3	70-130			

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Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J09008 - EPA 5030 (soil)

Matrix Spike Dup (5J09008-MSD1)		Source: X510098-01			Prepared: 10/09/2015 Analyzed: 10/09/2015					
Benzene	0.102	0.002	mg/kg	0.100	0.002	99.9	71.8-126	2.92	11.3	
Toluene	0.104	0.002	"	0.100	0.006	98.0	65.1-130	1.40	15.4	
Ethylbenzene	0.113	0.002	"	0.100	ND	113	62.2-130	4.83	19.6	
m,p-Xylene	0.217	0.004	"	0.200	0.003	107	46.5-137	1.67	19.2	
o-Xylene	0.109	0.002	"	0.100	0.001	108	54.2-134	1.66	17.9	
Surrogate: 1,2-Dichloroethane-d4	60.8		ug/kg	62.5		97.2	70-130			
Surrogate: Toluene-d8	58.0		"	62.5		92.7	70-130			
Surrogate: 4-Bromofluorobenzene	62.1		"	62.5		99.4	70-130			

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Brad Keiding
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Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J09008 - EPA 5030 (soil)

Matrix Spike Dup (5J09008-MSD2)		Source: X510098-02			Prepared: 10/09/2015 Analyzed: 10/09/2015					
Benzene	0.094	0.002	mg/kg	0.100	ND	94.3	71.8-126	2.78	11.3	
Toluene	0.096	0.002	"	0.100	ND	95.7	65.1-130	1.47	15.4	
Ethylbenzene	0.103	0.002	"	0.100	ND	103	62.2-130	5.54	19.6	
m,p-Xylene	0.203	0.004	"	0.200	ND	101	46.5-137	3.15	19.2	
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134	5.65	17.9	
Surrogate: 1,2-Dichloroethane-d4	63.3		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	58.9		"	62.5		94.2	70-130			
Surrogate: 4-Bromofluorobenzene	60.4		"	62.5		96.7	70-130			

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Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J09008 - EPA 5030 (soil)

Matrix Spike Dup (5J09008-MSD3)		Source: X510098-03			Prepared: 10/09/2015 Analyzed: 10/09/2015					
Benzene	0.094	0.002	mg/kg	0.100	0.002	92.5	71.8-126	0.992	11.3	
Toluene	0.093	0.002	"	0.100	ND	92.6	65.1-130	3.27	15.4	
Ethylbenzene	0.106	0.002	"	0.100	ND	106	62.2-130	1.93	19.6	
m,p-Xylene	0.206	0.004	"	0.200	ND	103	46.5-137	3.75	19.2	
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134	1.53	17.9	
Surrogate: 1,2-Dichloroethane-d4	60.2		ug/kg	62.5		96.3	70-130			
Surrogate: Toluene-d8	56.7		"	62.5		90.7	70-130			
Surrogate: 4-Bromofluorobenzene	60.8		"	62.5		97.3	70-130			

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Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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 5J09007 - EPA 3580

Blank (5J09007-BLK1)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Diesel (C10-C28) ND 50 mg/kg

Residual Range Organics (C28-C36) ND 200 "

Surrogate: o-Terphenyl 45 " 50.0 89.2 59-131

Blank (5J09007-BLK2)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Diesel (C10-C28) ND 50 mg/kg

Residual Range Organics (C28-C36) ND 200 "

Surrogate: o-Terphenyl 35 " 50.0 70.7 59-131

Blank (5J09007-BLK3)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Diesel (C10-C28) ND 50 mg/kg

Residual Range Organics (C28-C36) ND 200 "

Surrogate: o-Terphenyl 35 " 50.0 70.3 59-131

LCS (5J09007-BS1)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Diesel (C10-C28) 1000 50 mg/kg 1000 104 64-121

Residual Range Organics (C28-C36) 970 200 " 1000 97.2 58-124

Surrogate: o-Terphenyl 50 " 50.0 100 59-131

LCS (5J09007-BS2)

Prepared: 10/09/2015 Analyzed: 10/09/2015

Diesel (C10-C28) 860 50 mg/kg 1000 86.0 64-121

Residual Range Organics (C28-C36) 700 200 " 1000 70.2 58-124

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Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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
Batch 5J09007 - EPA 3580										
LCS (5J09007-BS2)					Prepared: 10/09/2015 Analyzed: 10/09/2015					
Surrogate: o-Terphenyl	40		mg/kg	50.0		81.0	59-131			
LCS (5J09007-BS3)					Prepared: 10/09/2015 Analyzed: 10/09/2015					
Diesel (C10-C28)	870	50	mg/kg	1000		86.9	64-121			
Residual Range Organics (C28-C36)	740	200	"	1000		74.0	58-124			
Surrogate: o-Terphenyl	42		"	50.0		83.6	59-131			
Matrix Spike (5J09007-MS1)					Source: X510098-01		Prepared: 10/09/2015 Analyzed: 10/09/2015			
Diesel (C10-C28)	1000	50	mg/kg	1000	ND	103	53-125			
Residual Range Organics (C28-C36)	950	200	"	1000	16	93.7	47-133			
Surrogate: o-Terphenyl	48		"	50.0		96.2	59-131			
Matrix Spike (5J09007-MS2)					Source: X510098-02		Prepared: 10/09/2015 Analyzed: 10/09/2015			
Diesel (C10-C28)	870	50	mg/kg	1000	ND	86.7	53-125			
Residual Range Organics (C28-C36)	720	200	"	1000	16	70.4	47-133			
Surrogate: o-Terphenyl	39		"	50.0		78.8	59-131			
Matrix Spike (5J09007-MS3)					Source: X510098-03		Prepared: 10/09/2015 Analyzed: 10/09/2015			
Diesel (C10-C28)	960	50	mg/kg	1000	ND	96.3	53-125			
Residual Range Organics (C28-C36)	880	200	"	1000	15	86.8	47-133			
Surrogate: o-Terphenyl	47		"	50.0		93.3	59-131			
Matrix Spike Dup (5J09007-MSD1)					Source: X510098-01		Prepared: 10/09/2015 Analyzed: 10/09/2015			
Diesel (C10-C28)	1000	50	mg/kg	1000	ND	99.8	53-125	2.89	20	
Residual Range Organics (C28-C36)	920	200	"	1000	16	90.5	47-133	3.39	20	
Surrogate: o-Terphenyl	48		"	50.0		96.5	59-131			
Matrix Spike Dup (5J09007-MSD2)					Source: X510098-02		Prepared: 10/09/2015 Analyzed: 10/09/2015			

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Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

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
Batch 5J09007 - EPA 3580										
Matrix Spike Dup (5J09007-MSD2)		Source: X510098-02			Prepared: 10/09/2015 Analyzed: 10/09/2015					
Diesel (C10-C28)	1100	50	mg/kg	1000	ND	105	53-125	19.4	20	
Residual Range Organics (C28-C36)	930	200	"	1000	16	91.1	47-133	25.2	20	QR-02
Surrogate: o-Terphenyl	48		"	50.0		96.2	59-131			
Matrix Spike Dup (5J09007-MSD3)		Source: X510098-03			Prepared: 10/09/2015 Analyzed: 10/09/2015					
Diesel (C10-C28)	1000	50	mg/kg	1000	ND	100	53-125	3.96	20	
Residual Range Organics (C28-C36)	910	200	"	1000	15	89.7	47-133	3.20	20	
Surrogate: o-Terphenyl	46		"	50.0		91.1	59-131			

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Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5J09009 - NO PREP										
Duplicate (5J09009-DUP1)		Source: X510106-01			Prepared: 10/09/2015 Analyzed: 10/09/2015					
pH	8.08		pH Units		8.11			0.371	25	
Batch 5J09010 - NO PREP										
Blank (5J09010-BLK1)		Prepared: 10/09/2015 Analyzed: 10/09/2015								
Specific Conductance (EC)	0.00470		mmhos/cm							
Duplicate (5J09010-DUP1)		Source: X510106-01			Prepared: 10/09/2015 Analyzed: 10/09/2015					
Specific Conductance (EC)	0.488		mmhos/cm		0.427			13.3	25	

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Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

Notes and Definitions

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

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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October 13, 2015

Apex Companies, LLC

Brad Keiding

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

Project Name - KMG - UPRR 42 Pan Am V1 and Bluffs White W5-1 **Project Number - 88906129**

Attached are your analytical results for KMG - UPRR 42 Pan Am V1 and Bluffs White W5-1 received by Origins Laboratory, Inc. October 12, 2015. This project is associated with Origins project number X510121-01.

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

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-11 @ 8'	X510121-01	Soil	October 12, 2015 15:10	10/12/2015 18:05
SS-12 @ 10'	X510121-02	Soil	October 12, 2015 15:15	10/12/2015 18:05
SS-13 @ 8'	X510121-03	Soil	October 12, 2015 15:20	10/12/2015 18:05
SS-14 @ 10'	X510121-04	Soil	October 12, 2015 15:25	10/12/2015 18:05
SS-15 @ 8'	X510121-05	Soil	October 12, 2015 15:30	10/12/2015 18:05
SS-16 @ 10'	X510121-06	Soil	October 12, 2015 15:35	10/12/2015 18:05
SS-17 @ 8'	X510121-07	Soil	October 12, 2015 15:40	10/12/2015 18:05
SS-18 @ 8'	X510121-08	Soil	October 12, 2015 15:45	10/12/2015 18:05
SS-19 @ 8'	X510121-09	Soil	October 12, 2015 15:50	10/12/2015 18:05
SS-20 @ 8'	X510121-10	Soil	October 12, 2015 15:55	10/12/2015 18:05

Origins Laboratory, Inc.



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3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-21 @ 10'	X510121-11	Soil	October 12, 2015 16:00	10/12/2015 18:05
SS-22 @ 8'	X510121-12	Soil	October 12, 2015 16:05	10/12/2015 18:05

Origins Laboratory, Inc.



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Apex Companies, LLC

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

Brad Keiding

Project Number: 88906129

Project: KMG - UPRR 42 Pan Am V1 and Bluffs White W5-1

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page 1 of 2

Client: Apex Companies Project Manager: Brad Keiding
Address: 1746 Cole Boulevard Suite 205 Project Name: UPRR 42 Pan Am V1 and Bluffs White W5-1
Lakewood CO 80401 Project Number: W0: 88906129
Telephone Number: 720 501 5641 Samples Collected By: David Pichler
Email Address: Brad.Keiding@apexcos.com *Bill to Anada-ko

Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix		Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Alr Summa #	Other	5050	5050#	
SS-11 @ 8'	10/12/15	1510	2	X					X					1000
SS-12 @ 10'	10/12/15	1515	1											SAC
SS-13 @ 8'	10/12/15	1520	1											
SS-14 @ 10'	10/12/15	1525	1											
SS-15 @ 8'	10/12/15	1530	1											
SS-16 @ 10'	10/12/15	1535	1											
SS-17 @ 8'	10/12/15	1540	1											
SS-18 @ 8'	10/12/15	1545	1											
SS-19 @ 8'	10/12/15	1550	1											
SS-20 @ 8'	10/12/15	1555	1											
Relinquished By: <u>David Pichler</u>	Date: <u>10/12/15</u>	Time: <u>1805</u>		Received By: <u>gag Ann</u>	Date: <u>10/12/15</u>	Time: <u>1805</u>		Turnaround Time: <u>24 Hr</u>	<input checked="" type="checkbox"/> Same Day	<input type="checkbox"/> 48 Hr	<input type="checkbox"/> 72 Hr	<input type="checkbox"/> Standard		

Date Results Needed

Temp Received: 14.3

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

www.originslaboratory.com

page 2 of 2

1210121

ORIGINS LABORATORY, INC

Client: Apex Companies
Address: 1746 Cole Boulevard Suite 205
Lawrence CO 80401
Telephone Number: 720 501 5011
Email Address: bradkeiding@apexcos.com

Project Manager: Brad Keiding
Project Name: UPRR 42 Pan Am V1 and Bluffs White W5-1
Project Number: 88906129
Samples Collected By: David Bucherik

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative			Matrix			Analysis			Sample Instructions				
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa	Canister #	Other		GC	GC/MS	GC/MS	GC/MS
SS-21 @ 10'	10/12/15	1600	2	X									X	X	X	X	HOLD SAR
SS-22 @ 8'	10/12/15	1605	2	X									X	X	X	X	HOLD SAR
Relinquished By: <i>[Signature]</i>	Date: 10/12/15	Time: 1605															Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>
Relinquished By: <i>[Signature]</i>	Date: 10/12/15	Time: 1605															

Temp Received: 14.3 Date Results Needed

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs White W5-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: XS10121

Client: Apex

Client Project ID: UPRR 42 Pan Am V1 + Bluffs White

Checklist Completed by: Jeff Smith

Shipped Via: H/D
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10/12/13

Airbill #: NA

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

Cooler Number/Temperature: 1 / 14.3 °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"/>		Sampled Same Day
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"/>			PH
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)

10/12/13
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini

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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-11 @ 8'

10/12/2015 3:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	75.2 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5J12017	10/12/2015	10/13/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	0.015	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	96.3 %	70-130			"	"	"
Surrogate: Toluene-d8	92.0 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	98.9 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	9.24		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.170		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-12 @ 10'

10/12/2015 3:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	80.4 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	12.4	5.00	mg/kg	25	5J12017	10/12/2015	10/13/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	0.596	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	88.8 %	70-130			"	"	"
Surrogate: Toluene-d8	91.8 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	98.0 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.15		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.282		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-13 @ 8'

10/12/2015 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	140	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	88.1 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	112	5.00	mg/kg	25	5J12017	10/12/2015	10/13/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	0.307	0.050	"	"	"	"	"
Xylenes, total	5.00	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	88.2 %	70-130			"	"	"
Surrogate: Toluene-d8	95.5 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.56		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.281		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-14 @ 10'

10/12/2015 3:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	89.5 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	19.8	5.00	mg/kg	25	5J12017	10/12/2015	10/13/2015
Benzene	0.061	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	0.060	0.050	"	"	"	"	"
Xylenes, total	0.728	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	91.5 %	70-130			"	"	"
Surrogate: Toluene-d8	92.6 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	94.8 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.55		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.219		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-15 @ 8'

10/12/2015 3:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	74.9 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	42.1	5.00	mg/kg	25	5J12017	10/12/2015	10/13/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	0.644	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	89.5 %	70-130			"	"	"
Surrogate: Toluene-d8	93.5 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	97.4 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	9.01		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0795		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-16 @ 10'

10/12/2015 3:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-06 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 78.6 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	5J12017	10/12/2015	10/13/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	ND	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 86.4 % 70-130 " " "
Surrogate: Toluene-d8 91.5 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.41		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.287		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-17 @ 8'

10/12/2015 3:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-07 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	690	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	74.9 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	3500	50.0	mg/kg	250	5J12017	10/12/2015	10/13/2015
Benzene	0.134	0.050	"	25	"	"	10/13/2015
Toluene	0.056	0.050	"	"	"	"	"
Ethylbenzene	5.30	0.050	"	"	"	"	"
Xylenes, total	168	0.498	"	250	"	"	10/13/2015

Surrogate: 1,2-Dichloroethane-d4	88.5 %	70-130			"	"	10/13/2015
Surrogate: Toluene-d8	106 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	127 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.77		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.308		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-18 @ 8'

10/12/2015 3:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-08 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	150	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	72.7 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	72.6	5.00	mg/kg	25	5J12017	10/12/2015	10/13/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	0.105	0.050	"	"	"	"	"
Xylenes, total	1.52	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	88.5 %	70-130			"	"	"
Surrogate: Toluene-d8	94.0 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.32		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.480		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-19 @ 8'

10/12/2015 3:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-09 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	390	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	84.2 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	207	5.00	mg/kg	25	5J12017	10/12/2015	10/13/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	0.988	0.050	"	"	"	"	"
Xylenes, total	15.9	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	90.7 %	70-130			"	"	"
Surrogate: Toluene-d8	96.7 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	106 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.18		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.461		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-20 @ 8'

10/12/2015 3:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-10 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	820	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	88.9 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	808	50.0	mg/kg	250	5J12017	10/12/2015	10/13/2015
Benzene	0.124	0.050	"	25	"	"	10/13/2015
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	1.47	0.050	"	"	"	"	"
Xylenes, total	45.3	0.498	"	250	"	"	10/13/2015

Surrogate: 1,2-Dichloroethane-d4	90.6 %	70-130			"	"	"
Surrogate: Toluene-d8	93.3 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	95.2 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	7.58		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.460		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-21 @ 10'

10/12/2015 4:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X510121-11 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	240	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	78.2 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	288	5.00	mg/kg	25	5J12017	10/12/2015	10/13/2015
Benzene	0.254	0.050	"	"	"	"	"
Toluene	0.499	0.050	"	"	"	"	"
Ethylbenzene	0.786	0.050	"	"	"	"	"
Xylenes, total	14.2	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	91.0 %	70-130			"	"	"
Surrogate: Toluene-d8	119 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.62		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.276		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS-22 @ 8'

10/12/2015 4:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510121-12 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J12016	10/12/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	73.4 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	14.0	5.00	mg/kg	25	5J12017	10/12/2015	10/13/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	ND	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	91.9 %	70-130			"	"	"
Surrogate: Toluene-d8	99.4 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	96.8 %	70-130			"	"	"

pH in Soil by EPA 9045D

pH	8.41		pH Units	1	5J12014	10/12/2015	10/12/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.353		mmhos/cm	"	5J12015	10/12/2015	10/12/2015
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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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J12017 - EPA 5030 (soil)

Blank (5J12017-BLK1)

Prepared: 10/12/2015 Analyzed: 10/12/2015

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	59.9		ug/kg	62.5		95.9	70-130			
Surrogate: Toluene-d8	58.0		"	62.5		92.8	70-130			
Surrogate: 4-Bromofluorobenzene	64.5		"	62.5		103	70-130			

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J12017 - EPA 5030 (soil)

LCS (5J12017-BS1)

Prepared: 10/12/2015 Analyzed: 10/12/2015

Benzene	0.092	0.002	mg/kg	0.100		92.4	77.1-124			
Toluene	0.099	0.002	"	0.100		99.1	74.5-128			
Ethylbenzene	0.114	0.002	"	0.100		114	66.4-127			
m,p-Xylene	0.231	0.004	"	0.200		116	76.6-124			
o-Xylene	0.111	0.002	"	0.100		111	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	58.6		ug/kg	62.5		93.7	70-130			
Surrogate: Toluene-d8	55.1		"	62.5		88.2	70-130			
Surrogate: 4-Bromofluorobenzene	59.4		"	62.5		95.1	70-130			

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.

Jen Pellegrini For Noelle Doyle Mathis, President

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J12017 - EPA 5030 (soil)

Matrix Spike (5J12017-MS1)		Source: X510121-01			Prepared: 10/12/2015 Analyzed: 10/13/2015					
Benzene	0.086	0.002	mg/kg	0.100	0.0009	85.5	71.8-126			
Toluene	0.092	0.002	"	0.100	ND	92.0	65.1-130			
Ethylbenzene	0.102	0.002	"	0.100	0.001	101	62.2-130			
m,p-Xylene	0.206	0.004	"	0.200	0.015	95.6	46.5-137			
o-Xylene	0.105	0.002	"	0.100	0.002	103	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	62.9		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	57.9		"	62.5		92.7	70-130			
Surrogate: 4-Bromofluorobenzene	64.0		"	62.5		102	70-130			

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J12017 - EPA 5030 (soil)

Matrix Spike Dup (5J12017-MSD1)		Source: X510121-01			Prepared: 10/12/2015 Analyzed: 10/13/2015					
Benzene	0.078	0.002	mg/kg	0.100	0.0009	77.4	71.8-126	9.79	11.3	
Toluene	0.086	0.002	"	0.100	ND	85.7	65.1-130	7.02	15.4	
Ethylbenzene	0.090	0.002	"	0.100	0.001	89.2	62.2-130	12.4	19.6	
m,p-Xylene	0.194	0.004	"	0.200	0.015	90.0	46.5-137	5.60	19.2	
o-Xylene	0.095	0.002	"	0.100	0.002	93.4	54.2-134	9.68	17.9	
Surrogate: 1,2-Dichloroethane-d4	61.8		ug/kg	62.5		98.9	70-130			
Surrogate: Toluene-d8	56.6		"	62.5		90.5	70-130			
Surrogate: 4-Bromofluorobenzene	65.1		"	62.5		104	70-130			

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J12016 - EPA 3580

Blank (5J12016-BLK1)

Prepared: 10/12/2015 Analyzed: 10/13/2015

Diesel (C10-C28) ND 50 mg/kg

Residual Range Organics (C28-C36) ND 200 "

Surrogate: o-Terphenyl 51 " 50.0 102 59-131

LCS (5J12016-BS1)

Prepared: 10/12/2015 Analyzed: 10/13/2015

Diesel (C10-C28) 880 50 mg/kg 1000 87.6 64-121

Residual Range Organics (C28-C36) 1000 200 " 1000 99.8 58-124

Surrogate: o-Terphenyl 50 " 50.0 100 59-131

Matrix Spike (5J12016-MS1)

Source: X510121-01

Prepared: 10/12/2015 Analyzed: 10/13/2015

Diesel (C10-C28) 710 50 mg/kg 1000 ND 70.7 53-125

Residual Range Organics (C28-C36) 760 200 " 1000 13 75.2 47-133

Surrogate: o-Terphenyl 36 " 50.0 71.0 59-131

Matrix Spike Dup (5J12016-MSD1)

Source: X510121-01

Prepared: 10/12/2015 Analyzed: 10/13/2015

Diesel (C10-C28) 830 50 mg/kg 1000 ND 82.7 53-125 15.7 20

Residual Range Organics (C28-C36) 940 200 " 1000 13 92.8 47-133 20.6 20 QM-07

Surrogate: o-Terphenyl 43 " 50.0 86.0 59-131

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5J12014 - NO PREP										
Duplicate (5J12014-DUP1)		Source: X510116-11			Prepared: 10/12/2015 Analyzed: 10/12/2015					
pH	8.43		pH Units		8.72			3.38	25	
Batch 5J12015 - NO PREP										
Blank (5J12015-BLK1)		Prepared: 10/12/2015 Analyzed: 10/12/2015								
Specific Conductance (EC)	0.00410		mmhos/cm							
Duplicate (5J12015-DUP1)		Source: X510121-01			Prepared: 10/12/2015 Analyzed: 10/12/2015					
Specific Conductance (EC)	0.160		mmhos/cm		0.170			6.36	25	

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

Notes and Definitions

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



October 14, 2015

Apex Companies, LLC

Brad Keiding

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

**Project Name - KMG - UPRR 42 Pan Am V1 and
Bluffs White W5-1**

Project Number - 88906129

Attached are your analytical results for KMG - UPRR 42 Pan Am V1 and Bluffs White W5-1 received by Origins Laboratory, Inc. October 13, 2015. This project is associated with Origins project number X510141-01.

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

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS21B @ 17'	X510141-01	Soil	October 13, 2015 11:27	10/13/2015 17:48
SS23 @ 8'	X510141-02	Soil	October 13, 2015 15:39	10/13/2015 17:48
SS24 @ 8'	X510141-03	Soil	October 13, 2015 15:42	10/13/2015 17:48

Brad added GRO to all three samples on 10/14/15.

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

ORIGINS LABORATORY, INC

Client: Apex Companies
Address: 1746 Cole Blvd
Lakewood, CO 80401
Telephone Number: 970-260-5457
Email Address: Brad.Keiding@apexcos.com

Project Manager: Brad Keiding
Project Name: UPRR 42 Pan Am V1 and Bluffs
Project Number: 88906129
Samples Collected By: John Hickey

www.originslaboratory.com

page | of |

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative			Matrix		Analysis			Sample Instructions
				Unpreserved	HCl	HNO ₃	Groundwater	Soil	Alr Summa #	Other	Other	
SS21B 17'	10-13-15	1127	2 X					X		X	GC/MS	1
SS23 28'	↓	1539	2 X					X		X	GC/MS	2
SS24 28'	↓	1542	2 X					X		X	GC/MS	3
												4
												5
												6
												7
												8
												9
												10

Inquired By: Brad Date: 10-13-15 Time: 1746

Relinquished By: John Hickey Date: 10-13-15 Time: 1746

Turnaround Time: Same Day ☒ 24 Hr ☐ 48 Hr ☐ 72 Hr ☐ Standard ☐

Date Results Needed: 10-14-15 7am

Temp Received: 13

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X510141

Client: Apex

Client Project ID: UPRR 42 Pan Am V1 + Bluffs White

Checklist Completed by: Jef Smith

Shipped Via: H/D

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

Date/time completed: 10/13/15

Airbill #: 123

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

(Describe)

Cooler Number/Temperature: 1 / 131 °C 1 °C 1 °C 1 °C

Thermometer ID: TDS3

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"/>		
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"/>			PU
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)

Date/Time Reviewed

Origins Laboratory, Inc.

Jef 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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS21B @ 17'

10/13/2015 11:27:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X510141-01 (Soil)

BTEX by EPA 8260C

Benzene	0.134	0.050	mg/kg	25	5J13006	10/13/2015	10/13/2015
Toluene	0.128	0.050	"	"	"	"	"
Ethylbenzene	0.096	0.050	"	"	"	"	"
Xylenes, total	1.81	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4

98.8 % 70-130

" " "

Surrogate: Toluene-d8

95.3 % 70-130

" " "

Surrogate: 4-Bromofluorobenzene

96.3 % 70-130

" " "

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J13008	10/13/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl

87.8 % 59-131

" " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	20.9	5.00	mg/kg	25	5J13006	10/13/2015	10/13/2015
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pH in Soil by EPA 9045D

pH	8.20		pH Units	1	5J13011	10/13/2015	10/13/2015
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Specific Conductance by Modified 9050A

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS21B @ 17'

10/13/2015 11:27:00AM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

Origins Laboratory, Inc.
X510141-01 (Soil)

Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.406	mmhos/cm	1	5J13015	10/13/2015	10/13/2015
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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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS23 @ 8'

10/13/2015 3:39:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510141-02 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.050	mg/kg	25	5J13006	10/13/2015	10/13/2015
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	ND	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	98.8 %	70-130			"	"	"
Surrogate: Toluene-d8	93.5 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	98.9 %	70-130			"	"	"

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J13008	10/13/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	89.2 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	5J13006	10/13/2015	10/13/2015
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pH in Soil by EPA 9045D

pH	8.54		pH Units	1	5J13011	10/13/2015	10/13/2015
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Specific Conductance by Modified 9050A

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS23 @ 8'

10/13/2015 3:39:00PM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

Origins Laboratory, Inc.
X510141-02 (Soil)

Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.452	mmhos/cm	1	5J13015	10/13/2015	10/13/2015
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS24 @ 8'

10/13/2015 3:42:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510141-03 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.050	mg/kg	25	5J13006	10/13/2015	10/13/2015
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	ND	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	96.3 %	70-130			"	"	"
Surrogate: Toluene-d8	94.5 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	95.0 %	70-130			"	"	"

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J13008	10/13/2015	10/13/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	86.2 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	5J13006	10/13/2015	10/13/2015
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pH in Soil by EPA 9045D

pH	7.76		pH Units	1	5J13011	10/13/2015	10/13/2015
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Specific Conductance by Modified 9050A

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

SS24 @ 8'

10/13/2015 3:42:00PM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

Origins Laboratory, Inc.
X510141-03 (Soil)

Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.553	mmhos/cm	1	5J13015	10/13/2015	10/13/2015
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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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J13006 - EPA 5030 (soil)

Blank (5J13006-BLK1)

Prepared: 10/13/2015 Analyzed: 10/13/2015

Benzene	ND	0.002	mg/kg							
Gasoline Range Hydrocarbons	ND	0.200	"							
Toluene	ND	0.002	"							
Benzene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	65.9		ug/kg	62.5		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		105	70-130			
Surrogate: Toluene-d8	58		"	62.5		93.2	70-130			
Surrogate: Toluene-d8	58.3		"	62.5		93.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63.4		"	62.5		101	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J13006 - EPA 5030 (soil)										
LCS (5J13006-BS1)					Prepared: 10/13/2015 Analyzed: 10/13/2015					
Benzene	0.091	0.002	mg/kg	0.100		90.6	77.1-124			
Toluene	0.099	0.002	"	0.100		98.7	74.5-128			
Benzene	0.091	0.002	"	0.100		90.6	77.1-124			
Ethylbenzene	0.107	0.002	"	0.100		107	66.4-127			
Toluene	0.099	0.002	"	0.100		98.7	74.5-128			
m,p-Xylene	0.221	0.004	"	0.200		111	76.6-124			
Ethylbenzene	0.107	0.002	"	0.100		107	66.4-127			
o-Xylene	0.110	0.002	"	0.100		110	76.6-124			
m,p-Xylene	0.221	0.004	"	0.200		111	76.6-124			
o-Xylene	0.110	0.002	"	0.100		110	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	63.8		ug/kg	62.5		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		102	70-130			
Surrogate: Toluene-d8	58.9		"	62.5		94.3	70-130			
Surrogate: Toluene-d8	59		"	62.5		94.3	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63.3		"	62.5		101	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J13006 - EPA 5030 (soil)

Matrix Spike (5J13006-MS1)		Source: X510131-01			Prepared: 10/13/2015 Analyzed: 10/13/2015					
Benzene	0.091	0.002	mg/kg	0.100	ND	90.7	71.8-126			
Toluene	0.097	0.002	"	0.100	ND	97.0	65.1-130			
Benzene	0.091	0.002	"	0.100	ND	90.7	71.8-126			
Toluene	0.097	0.002	"	0.100	ND	97.0	65.1-130			
Ethylbenzene	0.105	0.002	"	0.100	ND	105	62.2-130			
m,p-Xylene	0.210	0.004	"	0.200	ND	105	46.5-137			
Ethylbenzene	0.105	0.002	"	0.100	ND	105	62.2-130			
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134			
m,p-Xylene	0.210	0.004	"	0.200	ND	105	46.5-137			
o-Xylene	0.101	0.002	"	0.100	ND	101	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	66.4		ug/kg	62.5		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.1	70-130			
Surrogate: Toluene-d8	61.3		"	62.5		98.1	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	62.3		"	62.5		99.7	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J13006 - EPA 5030 (soil)

Matrix Spike Dup (5J13006-MSD1)		Source: X510131-01			Prepared: 10/13/2015 Analyzed: 10/13/2015					
Benzene	0.078	0.002	mg/kg	0.100	ND	78.2	71.8-126	14.9	11.3	QM-07
Toluene	0.086	0.002	"	0.100	ND	86.0	65.1-130	12.0	15.4	
Benzene	0.078	0.002	"	0.100	ND	78.2	71.8-126	14.9	11.3	QM-07
Ethylbenzene	0.094	0.002	"	0.100	ND	93.9	62.2-130	11.1	19.6	
Toluene	0.086	0.002	"	0.100	ND	86.0	65.1-130	12.0	15.4	
m,p-Xylene	0.184	0.004	"	0.200	ND	91.8	46.5-137	13.5	19.2	
Ethylbenzene	0.094	0.002	"	0.100	ND	93.9	62.2-130	11.1	19.6	
o-Xylene	0.092	0.002	"	0.100	ND	92.3	54.2-134	9.35	17.9	
m,p-Xylene	0.184	0.004	"	0.200	ND	91.8	46.5-137	13.5	19.2	
o-Xylene	0.092	0.002	"	0.100	ND	92.3	54.2-134	9.35	17.9	
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	65.5		"	62.5		105	70-130			
Surrogate: Toluene-d8	58.6		"	62.5		93.8	70-130			
Surrogate: Toluene-d8	59		"	62.5		93.8	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	62.5		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

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 5J13008 - EPA 3580

Blank (5J13008-BLK1)

Prepared: 10/13/2015 Analyzed: 10/13/2015

Diesel (C10-C28)	ND	50	mg/kg							
Residual Range Organics (C28-C36)	ND	200	"							
Surrogate: o-Terphenyl	100		"	100		104	59-131			

LCS (5J13008-BS1)

Prepared: 10/13/2015 Analyzed: 10/13/2015

Diesel (C10-C28)	660	50	mg/kg	1000		65.7	64-121			
Residual Range Organics (C28-C36)	750	200	"	1000		75.2	58-124			
Surrogate: o-Terphenyl	39		"	50.0		77.5	59-131			

Matrix Spike (5J13008-MS1)

Source: X510125-05

Prepared: 10/13/2015 Analyzed: 10/13/2015

Diesel (C10-C28)	820	50	mg/kg	1000	ND	82.0	53-125			
Residual Range Organics (C28-C36)	890	200	"	1000	13	88.1	47-133			
Surrogate: o-Terphenyl	45		"	50.0		89.0	59-131			

Matrix Spike Dup (5J13008-MSD1)

Source: X510125-05

Prepared: 10/13/2015 Analyzed: 10/13/2015

Diesel (C10-C28)	800	50	mg/kg	1000	ND	80.0	53-125	2.44	20	
Residual Range Organics (C28-C36)	940	200	"	1000	13	92.5	47-133	4.84	20	
Surrogate: o-Terphenyl	44		"	50.0		87.9	59-131			

Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

Classical Chemistry Parameters - 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 5J13011 - NO PREP

Duplicate (5J13011-DUP1)

Source: X510124-01

Prepared: 10/13/2015 Analyzed: 10/13/2015

pH	7.31		pH Units		7.33			0.273	25	
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Batch 5J13015 - NO PREP

Blank (5J13015-BLK1)

Prepared: 10/13/2015 Analyzed: 10/13/2015

Specific Conductance (EC)	0.00560		mmhos/cm							
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Duplicate (5J13015-DUP1)

Source: X510138-05

Prepared: 10/13/2015 Analyzed: 10/13/2015

Specific Conductance (EC)	0.437		mmhos/cm		0.533			19.8	25	
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Origins Laboratory, Inc.



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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: KMG - UPRR 42 Pan Am V1 and Bluffs
White W5-1

Notes and Definitions

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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



October 15, 2015

Apex Companies, LLC

Brad Keiding

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

**Project Name - UPRR 42 Pan Am V1 & Bluffs
White W5-1**

Project Number - 88906129

Attached are your analytical results for UPRR 42 Pan Am V1 & Bluffs White W5-1 received by Origins Laboratory, Inc. October 14, 2015. This project is associated with Origins project number X510164-01.

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

Apex Companies, LLC

3240 W. 71st Avenue, Suite 1

Westminster CO 80030

Brad Keiding

Project Number: 88906129

Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS25 @ 10'	X510164-01	Soil	October 14, 2015 14:09	10/14/2015 16:20

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.

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

ORIGINS

LABORATORY, INC.

www.originslaboratory.com
page 1 of 1

Client: Apex Companies
Address: 1746 Cole Blvd.
Lakewood, CO
Telephone Number: 970-260-5457
Email Address: Brad.Kieding@apexcos.com

Project Manager: Brad Kieding
Project Name: UPR24 Ven And VI And Bluffs White WS
Project Number: 88906129
Samples Collected By: John Hickay
* Bill to Anadarko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	GSTEX	OPC/OCA	EC	
SS25@10'	10-14-15	1409	2	X					X			X	X	X	Hold SAR
Inquisitioned By:	Date:	10-14-15	Time:	1620	Received By:			Date:	10/14/15	Time:	Turnaround Time: Same Day: <input checked="" type="checkbox"/> 24 Hr 48 Hr: <input type="checkbox"/> 72 Hr: <input type="checkbox"/> Standard: <input type="checkbox"/>				
Relinquished By:	Date:		Time:		Received By:			Date:	10/14/15	Time:					

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

Temp Received: 11.8
Date Results Needed: 10-15-15
1 AM

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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: XS10164

Client: Apex

Client Project ID: UPRR 42 Van Am V1

Checklist Completed by: Jeff Smith

Shipped Via: HP

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

Date/time completed: 10/14/12

Airbill #: NA

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

Cooler Number/Temperature: 1 / 11.8 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: T603

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"/>		Sampled Same Day
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"/>			PH
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.

Jeff Smith
Reviewed by (Project Manager)

10/14/12
Date/Time Reviewed

Origins Laboratory, Inc.

Jen 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.

Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White W5-1

SS25 @ 10'

10/14/2015 2:09:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X510164-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5J14010	10/14/2015	10/14/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 94.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	10.2	5.00	mg/kg	25	5J14008	10/14/2015	10/15/2015
Benzene	ND	0.050	"	"	"	"	"
Toluene	ND	0.050	"	"	"	"	"
Ethylbenzene	ND	0.050	"	"	"	"	"
Xylenes, total	ND	0.050	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 98.0 % 70-130 " " "
Surrogate: Toluene-d8 99.0 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.9 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.15		pH Units	1	5J14011	10/14/2015	10/14/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.275		mmhos/cm	"	5J14012	10/14/2015	10/14/2015
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Apex Companies, LLC
3240 W. 71st Avenue, Suite 1
Westminster CO 80030

Brad Keiding
Project Number: 88906129
Project: UPRR 42 Pan Am V1 & Bluffs White
W5-1

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 5J14008 - EPA 5030 (soil)										
Blank (5J14008-BLK1)					Prepared: 10/14/2015 Analyzed: 10/14/2015					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	66.5		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	63.0		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	66.1		"	62.5		106	70-130			

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5J14008 - EPA 5030 (soil)

LCS (5J14008-BS1)

Prepared: 10/14/2015 Analyzed: 10/14/2015

Benzene	0.094	0.002	mg/kg	0.100		94.1	77.1-124			
Toluene	0.098	0.002	"	0.100		98.1	74.5-128			
Ethylbenzene	0.092	0.002	"	0.100		92.4	66.4-127			
m,p-Xylene	0.184	0.004	"	0.200		91.9	76.6-124			
o-Xylene	0.095	0.002	"	0.100		95.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	67.7		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	63.8		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	63.7		"	62.5		102	70-130			

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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 5J14008 - EPA 5030 (soil)

Matrix Spike (5J14008-MS1)		Source: X510146-01			Prepared: 10/14/2015 Analyzed: 10/14/2015					
Benzene	0.109	0.002	mg/kg	0.100	ND	109	71.8-126			
Toluene	0.109	0.002	"	0.100	ND	109	65.1-130			
Ethylbenzene	0.103	0.002	"	0.100	ND	103	62.2-130			
m,p-Xylene	0.207	0.004	"	0.200	ND	103	46.5-137			
o-Xylene	0.098	0.002	"	0.100	ND	98.2	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	69.8		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	61.2		"	62.5		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	61.2		"	62.5		97.9	70-130			

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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 5J14008 - EPA 5030 (soil)

Matrix Spike Dup (5J14008-MSD1)		Source: X510146-01			Prepared: 10/14/2015 Analyzed: 10/14/2015					
Benzene	0.112	0.002	mg/kg	0.100	ND	112	71.8-126	2.70	11.3	
Toluene	0.114	0.002	"	0.100	ND	114	65.1-130	5.09	15.4	
Ethylbenzene	0.114	0.002	"	0.100	ND	114	62.2-130	10.2	19.6	
m,p-Xylene	0.223	0.004	"	0.200	ND	112	46.5-137	7.67	19.2	
o-Xylene	0.105	0.002	"	0.100	ND	105	54.2-134	6.87	17.9	
Surrogate: 1,2-Dichloroethane-d4	71.0		ug/kg	62.5		114	70-130			
Surrogate: Toluene-d8	62.2		"	62.5		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	59.5		"	62.5		95.3	70-130			

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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 5J14010 - EPA 3580

Blank (5J14010-BLK1)

Prepared: 10/14/2015 Analyzed: 10/14/2015

Diesel (C10-C28) ND 50 mg/kg

Residual Range Organics (C28-C36) ND 200 "

Surrogate: o-Terphenyl 43 " 50.0 85.3 59-131

LCS (5J14010-BS1)

Prepared: 10/14/2015 Analyzed: 10/14/2015

Diesel (C10-C28) 800 50 mg/kg 1000 80.0 64-121

Residual Range Organics (C28-C36) 900 200 " 1000 90.5 58-124

Surrogate: o-Terphenyl 43 " 50.0 86.7 59-131

Matrix Spike (5J14010-MS1)

Source: X510146-01

Prepared: 10/14/2015 Analyzed: 10/14/2015

QM-07

Diesel (C10-C28) 1700 50 mg/kg 1000 1500 25.3 53-125

Residual Range Organics (C28-C36) 2100 200 " 1000 1800 37.4 47-133

Surrogate: o-Terphenyl 50 " 50.0 100 59-131

Matrix Spike Dup (5J14010-MSD1)

Source: X510146-01

Prepared: 10/14/2015 Analyzed: 10/14/2015

QM-07

Diesel (C10-C28) 2300 50 mg/kg 1000 1500 81.0 53-125 27.8 20

Residual Range Organics (C28-C36) 2900 200 " 1000 1800 119 47-133 32.3 20

Surrogate: o-Terphenyl 74 " 50.0 148 59-131

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W5-1

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5J14011 - NO PREP										
Duplicate (5J14011-DUP1)		Source: X510127-06			Prepared: 10/14/2015 Analyzed: 10/14/2015					
pH	6.29		pH Units		6.37			1.26	25	
Batch 5J14012 - NO PREP										
Blank (5J14012-BLK1)		Prepared: 10/14/2015 Analyzed: 10/14/2015								
Specific Conductance (EC)	0.00500		mmhos/cm							
Duplicate (5J14012-DUP1)		Source: X510127-06			Prepared: 10/14/2015 Analyzed: 10/14/2015					
Specific Conductance (EC)	3.08		mmhos/cm		3.08			0.00	25	

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W5-1

Notes and Definitions

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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Jen Pellegrini For Noelle Doyle Mathis, President