



October 26, 2017

Hobson Sandoval EPOC
Jicarilla Apache Tribe

OIL CONS. DIV DIST. 3
NOV 22 2017

Hobson,

EnerVest Operating has put together a remediation plan as per your request for the Apache #111, Lease #129 (API# 30-039-21763) located at section U/L: K, section 13, 24N, 04W Rio Arriba County, New Mexico. EnerVest had tested the soil with a PID meter with Hobson Sandoval present, on October 24th, 2017 at 10:30am. The soil test showed only to reach a high of 5.0ppm. A soil sample was grabbed and taken to Envirotech and will be analyzed by their lab. During that time we will have Envirotech come out and spray the remainder of the excavation area with 500 gallons of potassium permanganate. After all soil has been spray EnerVest will have 300 yards of clean soil hauled in from a pond located at Lat:36.327483, Long: 107. 273075, Elevation 6,790ft, Rio Arriba County, New Mexico; this area has been designated from Hobson Sandoval.

EnerVest Operating, LLC

Accepted For
Record CS

Michael Dame
HSE Associate

11

ENERVEST OPERATING, LLC

2700 FARMINGTON AVE BLDG K STE 1 • FARMINGTON, NM 87401 • 505-325-0318 • FAX 505-325-0328 • WWW.ENERVEST.NET



OIL CONS. DIV DIST. 3

NOV 22 2017

Analytical Report

Report Summary

Client: Enervest Operating

Chain Of Custody Number:

Samples Received: 10/26/2017 2:20:00PM

Job Number: 05123-0002

Work Order: P710084

Project Name/Location: Jicarilla Tribal Contract
129 #111

Report Reviewed By:

Date: 11/2/17

Walter Hinchman, Laboratory Director

Date: 11/2/17

Tim Cain, Quality Assurance Officer

The results in this report apply to the samples submitted to Envirotech's Analytical Laboratory and were analyzed in accordance with the chain of custody document supplied by you, the client, and as such are for your exclusive use only. The results in this report are based on the sample as received unless otherwise noted. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc. If you have any questions regarding this analytical report, please don't hesitate to contact Envirotech's Laboratory Staff.



Envirotech Operating
2700 Farmington Ave.
Farmington NM, 87401

Project Name: Jicarilla Tribal Contract 129 #111
Project Number: 05123-0002
Project Manager: Mike Dame

Reported:
02-Nov-17 16:52

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Jicarilla Tribal Contract 129 #111	P710084-01A	Soil	10/25/17	10/26/17	Glass Jar, 4 oz.
	P710084-01B	Soil	10/25/17	10/26/17	Glass Jar, 4 oz.

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Enervest Operating 2700 Farmington Ave. Farmington NM, 87401	Project Name: Jicarilla Tribal Contract 129 #111 Project Number: 05123-0002 Project Manager: Mike Dame	Reported: 02-Nov-17 16:52
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**Jicarilla Tribal Contract 129 #111
P710084-01 (Solid)**

Reporting								
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
<u>Volatile Organics by EPA 8021</u>								
Benzene	ND	0.10	mg/kg	1	1744006	10/30/17	10/31/17	EPA 8021B
Toluene	ND	0.10	mg/kg	1	1744006	10/30/17	10/31/17	EPA 8021B
Ethylbenzene	ND	0.10	mg/kg	1	1744006	10/30/17	10/31/17	EPA 8021B
p,m-Xylene	ND	0.20	mg/kg	1	1744006	10/30/17	10/31/17	EPA 8021B
o-Xylene	ND	0.10	mg/kg	1	1744006	10/30/17	10/31/17	EPA 8021B
Total Xylenes	ND	0.10	mg/kg	1	1744006	10/30/17	10/31/17	EPA 8021B
Total BTEX	ND	0.10	mg/kg	1	1744006	10/30/17	10/31/17	EPA 8021B
Surrogate: 4-Bromochlorobenzene-PID		100 %		50-150	1744006	10/30/17	10/31/17	EPA 8021B
<u>Nonhalogenated Organics by 8015</u>								
Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1744006	10/30/17	10/31/17	EPA 8015D
Diesel Range Organics (C10-C28)	31.2	25.0	mg/kg	1	1744003	10/30/17	10/31/17	EPA 8015D
Oil Range Organics (C28-C40+)	ND	50.0	mg/kg	1	1744003	10/30/17	10/31/17	EPA 8015D
Surrogate: 1-Chloro-4-fluorobenzene-FID		98.5 %		50-150	1744006	10/30/17	10/31/17	EPA 8015D
Surrogate: n-Nonane		81.3 %		50-200	1744003	10/30/17	10/31/17	EPA 8015D
<u>Anions by 300.0</u>								
Chloride	328	20.0	mg/kg	1	1744012	11/01/17	11/01/17	EPA 300.0
<u>Total Petroleum Hydrocarbons by 418.1</u>								
Total Petroleum Hydrocarbons	56.0	40.0	mg/kg	1	1744002	10/30/17	10/30/17	EPA 418.1

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Project Name: Jicarilla Tribal Contract 129 #111
Project Number: 05123-0002
Project Manager: Mike Dame

Reported:
02-Nov-17 16:52

Volatile Organics by EPA 8021 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1744006 - Purge and Trap EPA 5030A										
Blank (1744006-BLK1)										
Prepared: 30-Oct-17 Analyzed: 31-Oct-17										
Benzene	ND	0.10	mg/kg							
Toluene	ND	0.10	"							
Ethylbenzene	ND	0.10	"							
p,m-Xylene	ND	0.20	"							
o-Xylene	ND	0.10	"							
Total Xylenes	ND	0.10	"							
Total BTEX	ND	0.10	"							
Surrogate: 4-Bromochlorobenzene-PID	7.85		"	8.00		98.1	50-150			
LCS (1744006-BS1)										
Prepared: 30-Oct-17 Analyzed: 31-Oct-17										
Benzene	5.16	0.10	mg/kg	5.00		103	70-130			
Toluene	5.06	0.10	"	5.00		101	70-130			
Ethylbenzene	5.08	0.10	"	5.00		102	70-130			
p,m-Xylene	10.1	0.20	"	10.0		101	70-130			
o-Xylene	4.96	0.10	"	5.00		99.2	70-130			
Total Xylenes	15.1	0.10	"	15.0		101	70-130			
Surrogate: 4-Bromochlorobenzene-PID	8.06		"	8.00		101	50-150			
Matrix Spike (1744006-MS1)										
Source: P710084-01 Prepared: 30-Oct-17 Analyzed: 31-Oct-17										
Benzene	4.95	0.10	mg/kg	5.00	ND	99.1	54.3-133			
Toluene	4.89	0.10	"	5.00	ND	97.8	61.4-130			
Ethylbenzene	4.90	0.10	"	5.00	ND	98.1	61.4-133			
p,m-Xylene	9.75	0.20	"	10.0	ND	97.6	63.3-131			
o-Xylene	4.80	0.10	"	5.00	ND	96.0	63.3-131			
Total Xylenes	14.6	0.10	"	15.0	ND	97.1	63.3-131			
Surrogate: 4-Bromochlorobenzene-PID	8.34		"	8.00		104	50-150			
Matrix Spike Dup (1744006-MSD1)										
Source: P710084-01 Prepared: 30-Oct-17 Analyzed: 31-Oct-17										
Benzene	5.12	0.10	mg/kg	5.00	ND	103	54.3-133	3.41	20	
Toluene	5.02	0.10	"	5.00	ND	100	61.4-130	2.60	20	
Ethylbenzene	5.05	0.10	"	5.00	ND	101	61.4-133	2.98	20	
p,m-Xylene	10.1	0.20	"	10.0	ND	101	63.3-131	3.04	20	
o-Xylene	4.95	0.10	"	5.00	ND	99.0	63.3-131	3.10	20	
Total Xylenes	15.0	0.10	"	15.0	ND	100	63.3-131	3.06	20	
Surrogate: 4-Bromochlorobenzene-PID	8.11		"	8.00		101	50-150			

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Enervest Operating 2700 Farmington Ave. Farmington NM, 87401	Project Name: Jicarilla Tribal Contract 129 #111 Project Number: 05123-0002 Project Manager: Mike Dame	Reported: 02-Nov-17 16:52
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Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1744003 - DRO Extraction EPA 3570										
Blank (1744003-BLK1)				Prepared & Analyzed: 30-Oct-17						
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40+)	ND	50.0	"							
Surrogate: n-Nonane	42.9		"	50.0		85.8	50-200			
LCS (1744003-BS1)				Prepared & Analyzed: 30-Oct-17						
Diesel Range Organics (C10-C28)	373	25.0	mg/kg	500		74.6	38-132			
Surrogate: n-Nonane	39.4		"	50.0		78.8	50-200			
Matrix Spike (1744003-MS1)				Source: P710079-01	Prepared & Analyzed: 30-Oct-17					
Diesel Range Organics (C10-C28)	421	25.0	mg/kg	500	ND	84.2	38-132			
Surrogate: n-Nonane	42.3		"	50.0		84.6	50-200			
Matrix Spike Dup (1744003-MSD1)				Source: P710079-01	Prepared & Analyzed: 30-Oct-17					
Diesel Range Organics (C10-C28)	406	25.0	mg/kg	500	ND	81.3	38-132	3.60	20	
Surrogate: n-Nonane	40.2		"	50.0		80.5	50-200			

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Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1744006 - Purge and Trap EPA 5030A										
Blank (1744006-BLK1) Prepared: 30-Oct-17 Analyzed: 31-Oct-17										
Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.85		"	8.00		98.1	50-150			
LCS (1744006-BS2) Prepared: 30-Oct-17 Analyzed: 31-Oct-17										
Gasoline Range Organics (C6-C10)	49.1	20.0	mg/kg	50.0		98.2	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.86		"	8.00		98.3	50-150			
Matrix Spike (1744006-MS2) Source: P710084-01 Prepared: 30-Oct-17 Analyzed: 31-Oct-17										
Gasoline Range Organics (C6-C10)	50.2	20.0	mg/kg	50.0	ND	100	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.99		"	8.00		99.9	50-150			
Matrix Spike Dup (1744006-MSD2) Source: P710084-01 Prepared: 30-Oct-17 Analyzed: 31-Oct-17										
Gasoline Range Organics (C6-C10)	50.3	20.0	mg/kg	50.0	ND	101	70-130	0.299	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.09		"	8.00		101	50-150			

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Anions by 300.0 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1744012 - Anion Extraction EPA 300.0/9056A										
Blank (1744012-BLK1)				Prepared & Analyzed: 01-Nov-17						
Chloride	ND	20.0	mg/kg							
LCS (1744012-BS1)				Prepared & Analyzed: 01-Nov-17						
Chloride	254	20.0	mg/kg	250		102	90-110			
Matrix Spike (1744012-MS1)				Source: P710084-01 Prepared & Analyzed: 01-Nov-17						
Chloride	595	20.0	mg/kg	250	328	107	80-120			
Matrix Spike Dup (1744012-MSD1)				Source: P710084-01 Prepared & Analyzed: 01-Nov-17						
Chloride	581	20.0	mg/kg	250	328	101	80-120	2.37	20	

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Total Petroleum Hydrocarbons by 418.1 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1744002 - 418 Freon Extraction										
Blank (1744002-BLK1)										
Total Petroleum Hydrocarbons	ND	40.0	mg/kg							Prepared & Analyzed: 30-Oct-17
LCS (1744002-BS1)										
Total Petroleum Hydrocarbons	896	40.0	mg/kg	1000		89.6	80-120			Prepared & Analyzed: 30-Oct-17
Matrix Spike (1744002-MS1)										
Total Petroleum Hydrocarbons	934	40.0	mg/kg	1000	ND	93.4	70-130			Source: P710074-01 Prepared & Analyzed: 30-Oct-17
Matrix Spike Dup (1744002-MSD1)										
Total Petroleum Hydrocarbons	988	40.0	mg/kg	1000	ND	98.8	70-130	5.62	30	Source: P710074-01 Prepared & Analyzed: 30-Oct-17

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Project Name: Jicarilla Tribal Contract 129 #111
Project Number: 05123-0002
Project Manager: Mike Dame

Reported:
02-Nov-17 16:52

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

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Project Information

Chain of Custody

Page 1 of 1

Client: <u>Envirotech Operating</u>		Report Attention		Lab Use Only		TAT		EPA Program						
Project: <u>Jicarilla Tribal Contract 129 #111</u>		Report due by:		Lab WO#		Job Number		1D	3D	RCRA	CWA	SDWA		
Project Manager: <u>Michael Dame</u>		Attention:		<u>P710084</u>		<u>05123-0002</u>								
Address:		Address:		Analysis and Method						State				
City, State, Zip		City, State, Zip		DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	TPH 418.1	NM	CO	UT	AZ
Phone: <u>505-215-7879</u>		Phone:												
Email: <u>mdame@envirotech.net</u>		Email:												

Time Sampled	Date Sampled	Matrix	No Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	TPH 418.1	Remarks
<u>10/25/17</u>	<u>10/25/17</u>	<u>Soil</u>	<u>2-4oz</u>	<u>Jicarilla Tribal Contract 129 #111</u>	<u>1</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>			<u>✓</u>	<u>✓</u>	<u>3 day rush</u>

Additional Instructions:

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action. Sampled by: Mike Dame

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 5 °C on subsequent days.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Lab Use Only Received on ice: <u>Y/N</u> T1 _____ T2 _____ T3 _____ AVG Temp °C <u>4.0</u>
<u>Michael Dame</u>	<u>10/26/17</u>	<u>2:20pm</u>	<u>[Signature]</u>	<u>10-26-17</u>	<u>1420</u>	
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.