

WELD LABORATORIES, INC.

1527 First Avenue • Greeley, Colorado 80631

Phone: (970) 353-8118 • Fax: (970) 353-1671

www.weldlabs.com

March 11, 2020

Red Hawk Petroleum LLC

575 N. Dairy Ashford, Energy Center 2 Ste 210

Houston, TX 77079

Laboratory No.: E20061-4A

Project: Crumley

Sample: P1

Location: Planck 1-13H

Analyses performed according to methods in notes below

	Results	Units	Surr Recovery (%)	PQL (RL)
TRPH (ORO, Oil and Grease)	193	mg/kg - ppm	74.0	~167 ppm
TEH (DRO)	1	mg/kg - ppm	96.8	~3 ppm
TVH (GRO)	12	µg/kg - ppb	145.4	~500 ppb
Benzene	U	µg/kg - ppb	145.4	~5 ppb
Toluene	U	µg/kg - ppb	145.4	~5 ppb
Ethyl-benzene	U	µg/kg - ppb	145.4	~5 ppb
m,p-Xylene	2.5	µg/kg - ppb	145.4	~5 ppb
o-Xylene	0.9	µg/kg - ppb	145.4	~5 ppb
Sat. Paste pH	NA	SI	NA	
Sat. Paste EC	NA	mS/cm	NA	
Sat. Paste Saturation%	NA	%	NA	
Sat. Paste TDS	NA	mg/L	NA	
Sat. Paste SAR	NA	--	NA	

Notes:

TRPH = Total Recoverable Petroleum Hydrocarbons (EPA 1664 or SM5520F Soxhlet extracted SGT-HEM)

DRO = Diesel Range Organics, GRO = Gas Range Organics, ORO = Oil Range Organics

TVH = Total Volatile Hydrocarbons (C6-C10 EPA 8015, EPA 5030/5035 purge and trap)

TEH = Total Extractable Hydrocarbons (Diesel #2 C11-C28, EPA Method 8015 solvent extraction)

BTEX = Benzene, Toluene, Ethylbenzene, Xylenes (EPA 8015, EPA 5030/5035 purge and trap)

VOC = Volatile Organic Compounds (EPA 8260B, EPA 5030/5035 purge and trap)

Soils always run as received but reported on a dry weight basis (mg/kg-dry-wt)

Saturated Paste methods: Gavlak et al. "Soil, Plant, and Water reference methods for the western region"

U = Compound analyzed but not detected, NA = Not Applicable or Not Analyzed



Project Manager

10-5-20

Date

WELD LABORATORIES, INC.

1527 First Avenue • Greeley, Colorado 80631
Phone: (970) 353-8118 • Fax: (970) 353-1671
www.weldlabs.com

March 11, 2020

Red Hawk Petroleum LLC
575 N. Dairy Ashford, Energy Center 2 Ste 210
Huston, TX 77079


Laboratory No.: E20061-4B Project: Crumley
Sample: P2 Location: Planck 1-13H

Analyses performed according to methods in notes below

	Results	Units	Surr Recovery (%)	PQL (RL)
TRPH (ORO, Oil and Grease)	563	mg/kg - ppm	74.0	~167 ppm
TEH (DRO)	9	mg/kg - ppm	106.4	~3 ppm
TVH (GRO)	12	µg/kg - ppb	110.8	~500 ppb
Benzene	U	µg/kg - ppb	110.8	~5 ppb
Toluene	4.1	µg/kg - ppb	110.8	~5 ppb
Ethyl-benzene	0.5	µg/kg - ppb	110.8	~5 ppb
m,p-Xylene	1.4	µg/kg - ppb	110.8	~5 ppb
o-Xylene	U	µg/kg - ppb	110.8	~5 ppb
Sat. Paste pH	NA	SI	NA	
Sat. Paste EC	NA	mS/cm	NA	
Sat. Paste Saturation%	NA	%	NA	
Sat. Paste TDS	NA	mg/L	NA	
Sat. Paste SAR	NA	--	NA	

Notes:

TRPH = Total Recoverable Petroleum Hydrocarbons (EPA 1664 or SM5520F Soxhlet extracted SGT-HEM)
DRO = Diesel Range Organics, GRO = Gas Range Organics, ORO = Oil Range Organics
TVH = Total Volatile Hydrocarbons (C6-C10 EPA 8015, EPA 5030/5035 purge and trap)
TEH = Total Extractable Hydrocarbons (Diesel #2 C11-C28, EPA Method 8015 solvent extraction)
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes (EPA 8015, EPA 5030/5035 purge and trap)
VOC = Volatile Organic Compounds (EPA 8260B, EPA 5030/5035 purge and trap)
Soils always run as received but reported on a dry weight basis (mg/kg-dry-wt)
Saturated Paste methods: Gavlak et al. "Soil, Plant, and Water reference methods for the western region"
U = Compound analyzed but not detected, NA = Not Applicable or Not Analyzed



Project Manager

10-5-20

Date

WELD LABORATORIES, INC.

1527 First Avenue • Greeley, Colorado 80631

Phone: (970) 353-8118 • Fax: (970) 353-1671

www.weldlabs.com

March 11, 2020

Red Hawk Petroleum LLC

575 N. Dairy Ashford, Energy Center 2 Ste 210

Houston, TX 77079

Laboratory No.: E20061-4C

Sample: P3

Project: Crumley

Location: Planck 1-13H

Analyses performed according to methods in notes below

	Results	Units	Surr Recovery (%)	PQL (RL)
TRPH (ORO, Oil and Grease)	194	mg/kg - ppm	74.0	~167 ppm
TEH (DRO)	1	mg/kg - ppm	87.9	~3 ppm
TVH (GRO)	21	µg/kg - ppb	148.5	~500 ppb
Benzene	U	µg/kg - ppb	148.5	~5 ppb
Toluene	2.1	µg/kg - ppb	148.5	~5 ppb
Ethyl-benzene	U	µg/kg - ppb	148.5	~5 ppb
m,p-Xylene	2.3	µg/kg - ppb	148.5	~5 ppb
o-Xylene	4.9	µg/kg - ppb	148.5	~5 ppb
Sat. Paste pH	NA	SI	NA	
Sat. Paste EC	NA	mS/cm	NA	
Sat. Paste Saturation%	NA	%	NA	
Sat. Paste TDS	NA	mg/L	NA	
Sat. Paste SAR	NA	--	NA	

Notes:

TRPH = Total Recoverable Petroleum Hydrocarbons (EPA 1664 or SM5520F Soxhlet extracted SGT-HEM)

DRO = Diesel Range Organics, GRO = Gas Range Organics, ORO = Oil Range Organics

TVH = Total Volatile Hydrocarbons (C6-C10 EPA 8015, EPA 5030/5035 purge and trap)

TEH = Total Extractable Hydrocarbons (Diesel #2 C11-C28, EPA Method 8015 solvent extraction)

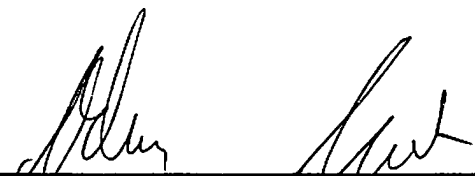
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes (EPA 8015, EPA 5030/5035 purge and trap)

VOC = Volatile Organic Compounds (EPA 8260B, EPA 5030/5035 purge and trap)

Soils always run as received but reported on a dry weight basis (mg/kg-dry-wt)

Saturated Paste methods: Gavlak et al. "Soil, Plant, and Water reference methods for the western region"

U = Compound analyzed but not detected, NA = Not Applicable or Not Analyzed



Project Manager

10-5-20

Date

WELD LABORATORIES, INC.

1527 First Avenue • Greeley, Colorado 80631

Phone: (970) 353-8118 • Fax: (970) 353-1671

www.weldlabs.com

March 11, 2020

Red Hawk Petroleum LLC

575 N. Dairy Ashford, Energy Center 2 Ste 210

Houston, TX 77079

Laboratory No.: E20061-4D

Sample: P4

Project: Crumley

Location: Planck 1-13H

Analyses performed according to methods in notes below

	Results	Units	Surr Recovery (%)	PQL (RL)
TRPH (ORO, Oil and Grease)	85	mg/kg – ppm	74.0	~167 ppm
TEH (DRO)	U	mg/kg - ppm	95.8	~3 ppm
TVH (GRO)	320	µg/kg - ppb	134.7	~500 ppb
Benzene	U	µg/kg - ppb	134.7	~5 ppb
Toluene	36.7	µg/kg - ppb	134.7	~5 ppb
Ethyl-benzene	28.4	µg/kg - ppb	134.7	~5 ppb
m,p-Xylene	99.1	µg/kg - ppb	134.7	~5 ppb
o-Xylene	76.3	µg/kg - ppb	134.7	~5 ppb
Sat. Paste pH	NA	SI	NA	
Sat. Paste EC	NA	mS/cm	NA	
Sat. Paste Saturation%	NA	%	NA	
Sat. Paste TDS	NA	mg/L	NA	
Sat. Paste SAR	NA	--	NA	

Notes:

TRPH = Total Recoverable Petroleum Hydrocarbons (EPA 1664 or SM5520F Soxhlet extracted SGT-HEM)

DRO = Diesel Range Organics, GRO = Gas Range Organics, ORO = Oil Range Organics

TVH = Total Volatile Hydrocarbons (C6-C10 EPA 8015, EPA 5030/5035 purge and trap)

TEH = Total Extractable Hydrocarbons (Diesel #2 C11-C28, EPA Method 8015 solvent extraction)


BTEX = Benzene, Toluene, Ethylbenzene, Xylenes (EPA 8015, EPA 5030/5035 purge and trap)

VOC = Volatile Organic Compounds (EPA 8260B, EPA 5030/5035 purge and trap)

Soils always run as received but reported on a dry weight basis (mg/kg-dry-wt)

Saturated Paste methods: Gavlak et al. "Soil, Plant, and Water reference methods for the western region"

U = Compound analyzed but not detected, NA = Not Applicable or Not Analyzed


Project Manager

10-5-20
Date