

**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

Company: BREITBURN OPERATING
Name:
ClientProj:

Site Addr: HH JOSEPH 1

GTA ProjNo: 101519-17

Sampled By: JIM BEEHLER/BBOP
Date Rec: 10/15/2019
Time Rec: 3:35 PM

Sample No.	Sample ID	Date Sampled	Time Sampled	Sample Matrix
1	N WALL 5' BG 12' FWH	10/14/2019	3:10 PM	SOIL
2	S WALL 5' BG 8' FWH	10/14/2019	3:15 PM	SOIL
3	W WALL 5' BG 7' FWH	10/14/2019	3:25 PM	SOIL
4	E WALL 5' BG 8' FWH	10/14/2019	3:30 PM	SOIL
5	W BASE 12' BG 4' FWH	10/14/2019	3:40 PM	SOIL
6	E BASE 12' BG 4' FWH	10/14/2019	3:45 PM	SOIL

ELECTRONIC SIGNATURE REPORT. This is a final report for the following pages of data for the samples specified above. All analysis was performed by the methods stated and all quality control measures required were completed. All quality control information is available upon request.

Kirk L Chase

Kirk L. Chase/Chemist
Grand Traverse Analytical
830 Robinwood Court
Traverse City, MI 49686
Ph: 231-929-0905
Fx: 231-929-0894
SP: 231-590-0291
kirk@gtanalytical.com

**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 1

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:10 PM

MI

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

SAMPLE MATRIX: SOIL

SAMPLE ID: N WALL 5' BG 12' FWH

SAMPLED BY: JIM BEEHLER/BBOP

**THIS SAMPLE WAS RECEIVED MEOH PRESERVED.

EPA 8260B VOLATILE ORGANICS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u> <u>Extracted</u>	<u>Date</u> <u>Complete</u>	<u>Prep Method</u>
Benzene	ND	50	ug/Kg (PPB) MR		10/14/2019	10/16/2019	EPA 5035A
Toluene	ND	50					
Ethylbenzene	ND	50					
Xylene(Total)	ND	150					
1,2,4-Trimethylbenzene	ND	50					
1,3,5-Trimethylbenzene	ND	50					
Naphthalene	ND	250					
2-Methylnaphthalene	ND	250					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT BASIS.

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 2

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:15 PM

MI

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

SAMPLE MATRIX: SOIL

SAMPLE ID: S WALL 5' BG 8' FWH

SAMPLED BY: JIM BEEHLER/BBOP

**THIS SAMPLE WAS RECEIVED MEOH PRESERVED.

EPA 8260B VOLATILE ORGANICS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u> <u>Extracted</u>	<u>Date</u> <u>Complete</u>	<u>Prep Method</u>
Benzene	ND	50	ug/Kg (PPB) MR		10/14/2019	10/16/2019	EPA 5035A
Toluene	ND	50					
Ethylbenzene	ND	50					
Xylene(Total)	ND	150					
1,2,4-Trimethylbenzene	ND	50					
1,3,5-Trimethylbenzene	ND	50					
Naphthalene	ND	250					
2-Methylnaphthalene	ND	250					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT BASIS.

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 3

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:25 PM

MI

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

SAMPLE MATRIX: SOIL

SAMPLE ID: W WALL 5' BG 7' FWH

SAMPLED BY: JIM BEEHLER/BBOP

**THIS SAMPLE WAS RECEIVED MEOH PRESERVED.

EPA 8260B VOLATILE ORGANICS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u> <u>Extracted</u>	<u>Date</u> <u>Complete</u>	<u>Prep Method</u>
Benzene	ND	50	ug/Kg (PPB) MR		10/14/2019	10/16/2019	EPA 5035A
Toluene	ND	50					
Ethylbenzene	ND	50					
Xylene(Total)	ND	150					
1,2,4-Trimethylbenzene	ND	50					
1,3,5-Trimethylbenzene	ND	50					
Naphthalene	ND	250					
2-Methylnaphthalene	ND	250					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT BASIS.

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 4

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:30 PM

MI

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

SAMPLE MATRIX: SOIL

SAMPLE ID: E WALL 5' BG 8' FWH

SAMPLED BY: JIM BEEHLER/BBOP

**THIS SAMPLE WAS RECEIVED MEOH PRESERVED.

EPA 8260B VOLATILE ORGANICS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u> <u>Extracted</u>	<u>Date</u> <u>Complete</u>	<u>Prep Method</u>
Benzene	ND	50	ug/Kg (PPB) MR		10/14/2019	10/16/2019	EPA 5035A
Toluene	ND	50					
Ethylbenzene	ND	50					
Xylene(Total)	ND	150					
1,2,4-Trimethylbenzene	ND	50					
1,3,5-Trimethylbenzene	ND	50					
Naphthalene	ND	250					
2-Methylnaphthalene	ND	250					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT BASIS.

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 5

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:40 PM

MI

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

SAMPLE MATRIX: SOIL

SAMPLE ID: W BASE 12' BG 4' FWH

SAMPLED BY: JIM BEEHLER/BBOP

**THIS SAMPLE WAS RECEIVED MEOH PRESERVED.

EPA 8260B VOLATILE ORGANICS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u> <u>Extracted</u>	<u>Date</u> <u>Complete</u>	<u>Prep Method</u>
Benzene	ND	50	ug/Kg (PPB) MR		10/14/2019	10/16/2019	EPA 5035A
Toluene	ND	50					
Ethylbenzene	ND	50					
Xylene(Total)	ND	150					
1,2,4-Trimethylbenzene	ND	50					
1,3,5-Trimethylbenzene	ND	50					
Naphthalene	ND	250					
2-Methylnaphthalene	ND	250					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT BASIS.

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 6

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:45 PM

MI

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

SAMPLE MATRIX: SOIL

SAMPLE ID: E BASE 12' BG 4' FWH

SAMPLED BY: JIM BEEHLER/BBOP

**THIS SAMPLE WAS RECEIVED MEOH PRESERVED.

EPA 8260B VOLATILE ORGANICS

<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u> <u>Extracted</u>	<u>Date</u> <u>Complete</u>	<u>Prep Method</u>
Benzene	ND	50	ug/Kg (PPB) MR		10/14/2019	10/16/2019	EPA 5035A
Toluene	ND	50					
Ethylbenzene	ND	50					
Xylene(Total)	ND	150					
1,2,4-Trimethylbenzene	ND	50					
1,3,5-Trimethylbenzene	ND	50					
Naphthalene	ND	250					
2-Methylnaphthalene	ND	250					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT BASIS.

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

GTA SAMPLE NO: 1

PROJECT NO:

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:10 PM

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

MI

SAMPLED BY: JIM BEEHLER/BBOP

SAMPLE ANALYSIS

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u>	<u>Sample</u>
	SAMPLE ID: N WALL 5' BG 12' FWH						
	CHLORIDE EPA 300.0	ND	56	mg/Kg (PPM)	LV	10/17/2019	SOIL

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

s.u. = STANDARD pH UNITS REPORTED AT 25 C

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 2

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:15 PM

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

MI

SAMPLED BY: JIM BEEHLER/BBOP

SAMPLE ANALYSIS

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u>	<u>Sample</u>
	SAMPLE ID: S WALL 5' BG 8' FWH CHLORIDE EPA 300.0	ND	52	mg/Kg (PPM)	LV	10/17/2019	SOIL

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

s.u. = STANDARD pH UNITS REPORTED AT 25 C

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 3

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:25 PM

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

MI

SAMPLED BY: JIM BEEHLER/BBOP

SAMPLE ANALYSIS

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u>	<u>Sample</u>
	SAMPLE ID: W WALL 5' BG 7' FWH						
	CHLORIDE EPA 300.0	250	53	mg/Kg (PPM)	LV	10/17/2019	SOIL

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

s.u. = STANDARD pH UNITS REPORTED AT 25 C

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 4

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:30 PM

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

MI

SAMPLED BY: JIM BEEHLER/BBOP

SAMPLE ANALYSIS

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u>	<u>Sample</u>
	SAMPLE ID: E WALL 5' BG 8' FWH						
	CHLORIDE EPA 300.0	130	52	mg/Kg (PPM)	LV	10/17/2019	SOIL

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

s.u. = STANDARD pH UNITS REPORTED AT 25 C

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

GTA SAMPLE NO: 5

PROJECT NO:

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:40 PM

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

MI

SAMPLED BY: JIM BEEHLER/BBOP

SAMPLE ANALYSIS

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u>	<u>Sample</u>
	SAMPLE ID: W BASE 12' BG 4' FWH						
	CHLORIDE EPA 300.0	ND	50	mg/Kg (PPM)	LV	10/17/2019	SOIL

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

s.u. = STANDARD pH UNITS REPORTED AT 25 C

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-17

PROJECT NO:

GTA SAMPLE NO: 6

LOCATION: HH JOSEPH 1

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:45 PM

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

MI

SAMPLED BY: JIM BEEHLER/BBOP

SAMPLE ANALYSIS

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date</u>	<u>Sample</u>
	SAMPLE ID: E BASE 12' BG 4' FWH						
	CHLORIDE EPA 300.0	ND	51	mg/Kg (PPM)	LV	10/17/2019	SOIL

ND = NOT DETECTED, RESULT < LOD

LOD = LIMIT OF DETECTION

s.u. = STANDARD pH UNITS REPORTED AT 25 C

**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

COMPANY: BREITBURN OPERATING

GTA PROJECT NO: 101519-

NAME:

SAMPLED BY: JIM BEEHLER/BBOP

PROJECT NO:

DATE SAMPLED: 10/14/2019

TIME SAMPLED: 3:10 PM

LOCATION: HH JOSEPH 1

SAMPLE MATRIX: SOIL

DATE RECEIVED: 10/15/2019

TIME RECEIVED: 3:35 PM

MI

MOISTURE

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Complete</u>
	SAMPLE ID: N WALL 5' BG 12' FWH % MOISTURE EPA 3550C	11	0.050	% OF SAMPLE	AS	10/15/2019
	SAMPLE ID: S WALL 5' BG 8' FWH % MOISTURE EPA 3550C	5.1	0.050	% OF SAMPLE	AS	10/15/2019
	SAMPLE ID: W WALL 5' BG 7' FWH % MOISTURE EPA 3550C	7.0	0.050	% OF SAMPLE	AS	10/15/2019
	SAMPLE ID: E WALL 5' BG 8' FWH % MOISTURE EPA 3550C	6.1	0.050	% OF SAMPLE	AS	10/15/2019
	SAMPLE ID: W BASE 12' BG 4' FWH % MOISTURE EPA 3550C	4.2	0.050	% OF SAMPLE	AS	10/15/2019
	SAMPLE ID: E BASE 12' BG 4' FWH % MOISTURE EPA 3550C	1.8	0.050	% OF SAMPLE	AS	10/15/2019

CHAIN OF CUSTODY

PROJECT NUMBER HH JOSEPH I	SITE NAME/ADDRESS	COMPANY/NAME BREIT BURN
SAMPLED BY Jim BEEHLER	COMPANY BREITBURN	GTA PROJECT # 101519-17

SAMPLE INFORMATION

#	SAMPLE ID	DATE SAMPLED	TIME	MATRIX	ANALYSIS
1	N WALL 5'86 12' FWH	10-14-19	310 PM	SOIL	BTEX+4 CHLORIDES
2	S WALL 5'86 8' FWH	10-14-19	315 PM	SOIL	BTEX+4 CHLORIDES
3	W WALL 5'86 7' FWH	10-14-19	325 PM	SOIL	BTEX+4 CHLORIDES
4	E WALL 5'86 8' FWH	10-14-19	330 PM	SOIL	BTEX+4 CHLORIDES
5	W BASE 12'86 4' FWH	10-14-19	340 PM	SOIL	BTEX+4 CHLORIDES
6	E BASE 12'86 4' FWH	10-14-19	345 PM	SOIL	BTEX+4 CHLORIDES

BILL TO:

REPORT TO:

RELEASED BY Jim Beehler	DATE/TIME 10-15-19 335 PM	RECEIVED BY [Signature]	DATE/TIME 10/15/19 3:35

REQUESTED TAT ☐ STANDARD ☐ 1 BUSINESS DAY ☐ 2 BUSINESS DAYS ☒ 3 BUSINESS DAYS