

**INDEPENDENT TESTING LAB**

830 ROBINWOOD COURT, TRAVERSE CITY, MI 49686

PH: 231-929-0905

FAX: 231-929-0894

www.gtanalytical.com

Company: MACKINAC ENVIRONMENTAL
Name:
ClientProj: M19-3095
GTA ProjNo: 080719-1

Site Addr: MOOSE JAW JUNCTION

Sampled By: BRAD JEFFERS/MET
Date Rec: 8/7/2019
Time Rec: 11:30 AM

Sample No.	Sample ID	Date Sampled	Time Sampled	Sample Matrix
1	SB-1	8/6/2019		WATER
2	SB-2	8/6/2019		WATER
3	SB-3	8/6/2019		WATER
4	PW-1	8/6/2019		WATER

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
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830 Robinwood Court
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COMPANY: MACKINAC ENVIRONMENTAL

PROJECT NO: M19-3095

LOCATION: MOOSE JAW JUNCTION

MI
SAMPLED BY: BRAD JEFFERS/MET

SAMPLE MATRIX: WATER

GTA PROJECT NO: 080719-1

GTA SAMPLE NO: 1

DATE SAMPLED: 8/6/2019

TIME SAMPLED:

DATE RECEIVED: 8/7/2019

TIME RECEIVED: 11:30 AM

SAMPLE ID: SB-1

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	1.0	ug/L (PPB)	MR		8/7/2019	EPA 5030B
Toluene	ND	1.0					
Ethylbenzene	ND	1.0					
Xylene(Total)	ND	3.0					
1,2,4-Trimethylbenzene	ND	1.0					
1,3,5-Trimethylbenzene	ND	1.0					
Methyl-t-Butyl Ether	ND	5.0					
Naphthalene	ND	5.0					
2-Methylnaphthalene	ND	5.0					
1,2-Dibromoethane	ND	1.0					
1,2-Dichloroethane	ND	1.0					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT

ND = NOT DETECTED

LOD = LIMIT OF DETECTION

COMPANY: MACKINAC ENVIRONMENTAL

PROJECT NO: M19-3095

LOCATION: MOOSE JAW JUNCTION

MI
SAMPLED BY: BRAD JEFFERS/MET

SAMPLE MATRIX: WATER

GTA PROJECT NO: 080719-1

GTA SAMPLE NO: 2

DATE SAMPLED: 8/6/2019

TIME SAMPLED:

DATE RECEIVED: 8/7/2019

TIME RECEIVED: 11:30 AM

SAMPLE ID: SB-2

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	1.0	ug/L (PPB)	MR		8/7/2019	EPA 5030B
Toluene	ND	1.0					
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Xylene(Total)	ND	3.0					
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2-Methylnaphthalene	ND	5.0					
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1,2-Dichloroethane	ND	1.0					

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COMPANY: MACKINAC ENVIRONMENTAL

GTA PROJECT NO: 080719-1

PROJECT NO: M19-3095

GTA SAMPLE NO: 3

LOCATION: MOOSE JAW JUNCTION

DATE SAMPLED: 8/6/2019

TIME SAMPLED:

DATE RECEIVED: 8/7/2019

TIME RECEIVED: 11:30 AM

SAMPLED BY: BRAD JEFFERS/MET

SAMPLE MATRIX: WATER

SAMPLE ID: SB-3

EPA 8260B VOLATILE ORGANICS

Units= ug/L (PPB)

Analyst= MR

Date

Date Completed= 8/7/2019

Prep

EPA 5030B

Analyte	Concentration	LOD
ACETONE	ND	25
ALLYL CHLORIDE	ND	10
BENZENE	ND	1.0
BROMOBENZENE	ND	1.0
BROMOCHLOROMETHANE	ND	1.0
BROMODICHLOROMETHANE	ND	1.0
BROMOFORM	ND	1.0
BROMOMETHANE	ND	1.0
n-BUTYLBENZENE	ND	1.0
s-BUTYLBENZENE	ND	1.0
t-BUTYLBENZENE	ND	1.0
CARBON DISULFIDE	ND	5.0
CARBON TETRACHLORIDE	ND	1.0
CHLOROBEZENE	ND	1.0
1-CHLOROBUTANE	ND	1.0
CHLOROFORM	ND	1.0
CHLOROETHANE	ND	1.0
CHLOROMETHANE	ND	1.0
2-CHLOROTOLUENE	ND	1.0
4-CHLOROTOLUENE	ND	1.0
DIBROMOCHLOROMETHANE	ND	1.0
DIBROMOMETHANE	ND	1.0
1,2-DIBROMOETHANE	ND	1.0
1,2-DICHLOROBENZENE	ND	1.0
1,3-DICHLOROBENZENE	ND	1.0
1,4-DICHLOROBENZENE	ND	1.0
t-1,4-DICHLORO-2-BUTENE	ND	10
DICHLORODIFLUOROMETHANE	ND	1.0
1,1-DICHLOROETHANE	ND	1.0
1,2-DICHLOROETHANE	ND	1.0
1,1-DICHLOROETHENE	ND	1.0
cis-1,2-DICHLOROETHENE	ND	1.0
trans-1,2-DICHLOROETHENE	ND	1.0
1,2-DICHLOROPROPANE	ND	1.0
1,3-DICHLOROPROPANE	ND	1.0
2,2-DICHLOROPROPANE	ND	1.0
1,1-DICHLOROPROPENE	ND	1.0

Analyte	Concentration	LOD
cis-1,3-DICHLOROPROPENE	ND	1.0
trans-1,3-DICHLOROPROPENE	ND	1.0
DIETHYL ETHER	ND	10
ETHYLBENZENE	ND	1.0
ETHYL METHACRYLATE	ND	10
HEXACHLOROBUTADIENE	ND	1.0
HEXACHLOROETHANE	ND	10
2-HEXANONE	ND	10
IDOMETHANE	ND	10
ISOPROPYLBENZENE	ND	1.0
ISOPROPYLTOLUENE	ND	1.0
METHYL ACRYLATE	ND	10
METHYL ETHYL KETONE	ND	10
METHYL-t-BUTYL ETHER	ND	5.0
METHYLENE CHLORIDE	ND	1.0
METHYL METHACRYLATE	ND	10
MIBK	ND	10
2-METHYLNAPHTHALENE	ND	5.0
NAPHTHALENE	ND	5.0
PENTACHLOROETHANE	ND	10
n-PROPYLBENZENE	ND	1.0
STYRENE	ND	1.0
1,1,1,2-TETRACHLOROETHANE	ND	1.0
1,1,2,2-TETRACHLOROETHANE	ND	1.0
TETRACHLOROETHENE	ND	1.0
TOLUENE	ND	1.0
1,2,3-TRICHLOROBENZENE	ND	1.0
1,2,4-TRICHLOROBENZENE	ND	1.0
1,1,1-TRICHLOROETHANE	ND	1.0
1,1,2-TRICHLOROETHANE	ND	1.0
TRICHLOROETHENE	ND	1.0
TRICHLORFLUOROMETHANE	ND	1.0
1,2,3-TRICHLOROPROPANE	ND	1.0
1,2,4-TRIMETHYLBENZENE	ND	1.0
1,3,5-TRIMETHYLBENZENE	ND	1.0
VINYL CHLORIDE	ND	1.0
XYLENE (TOTAL)	ND	3.0

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LOD = LIMIT OF DETECTION.

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PROJECT NO: M19-3095

LOCATION: MOOSE JAW JUNCTION

SAMPLED BY: MI
BRAD JEFFERS/MET

SAMPLE MATRIX: WATER

GTA PROJECT NO: 080719-1

GTA SAMPLE NO: 4

DATE SAMPLED: 8/6/2019

TIME SAMPLED:

DATE RECEIVED: 8/7/2019

TIME RECEIVED: 11:30 AM

SAMPLE ID: PW-1

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	1.0	ug/L (PPB)	MR		8/7/2019	EPA 5030B
Toluene	ND	1.0					
Ethylbenzene	ND	1.0					
Xylene(Total)	ND	3.0					
1,2,4-Trimethylbenzene	ND	1.0					
1,3,5-Trimethylbenzene	ND	1.0					
Methyl-t-Butyl Ether	ND	5.0					
Naphthalene	ND	5.0					
2-Methylnaphthalene	ND	5.0					
1,2-Dibromoethane	ND	1.0					
1,2-Dichloroethane	ND	1.0					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT

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COMPANY: MACKINAC ENVIRONMENTAL
PROJECT NO: M19-3095
LOCATION: MOOSE JAW JUNCTION

GTA PROJECT NO: 080719-1
GTA SAMPLE NO: 1

DATE SAMPLED: 8/6/2019
TIME SAMPLED:

SAMPLED BY: MI
BRAD JEFFERS/MET

DATE RECEIVED: 8/7/2019
TIME RECEIVED: 11:30 AM

SAMPLE MATRIX: WATER
SAMPLE ID: SB-1

PNA EPA 8270D (SIM)

<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>
Acenaphthene	ND	5.0	ug/Kg (PPB)	KC/TR	8/11/2019	8/12/2019	EPA 3511
Acenaphthylene	ND	5.0					
Anthracene	ND	5.0					
Benzo(a)anthracene	ND	1.0					
Benzo(b)fluoranthene	ND	1.0					
Benzo(k)fluoranthene	ND	1.0					
Benzo(a)pyrene	ND	1.0					
Benzo(ghi)perylene	ND	2.0					
2-Chloronaphthalene	ND	5.0					
Chrysene	ND	1.0					
Dibenz(ah)anthracene	ND	2.0					
Fluoranthene	ND	1.0					
Fluorene	ND	5.0					
Indeno(123-cd)pyrene	ND	2.0					
Phenanthrene	ND	2.0					
Pyrene	ND	5.0					

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COMPANY: MACKINAC ENVIRONMENTAL
PROJECT NO: M19-3095
LOCATION: MOOSE JAW JUNCTION

GTA PROJECT NO: 080719-1
GTA SAMPLE NO: 2

DATE SAMPLED: 8/6/2019
TIME SAMPLED:

SAMPLED BY: MI
BRAD JEFFERS/MET

DATE RECEIVED: 8/7/2019
TIME RECEIVED: 11:30 AM

SAMPLE MATRIX: WATER
SAMPLE ID: SB-2

PNA EPA 8270D (SIM)

<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>
Acenaphthene	ND	5.0	ug/Kg (PPB)	KC/TR	8/11/2019	8/12/2019	EPA 3511
Acenaphthylene	ND	5.0					
Anthracene	ND	5.0					
Benzo(a)anthracene	ND	1.0					
Benzo(b)fluoranthene	ND	1.0					
Benzo(k)fluoranthene	ND	1.0					
Benzo(a)pyrene	ND	1.0					
Benzo(ghi)perylene	ND	2.0					
2-Chloronaphthalene	ND	5.0					
Chrysene	ND	1.0					
Dibenz(ah)anthracene	ND	2.0					
Fluoranthene	ND	1.0					
Fluorene	ND	5.0					
Indeno(123-cd)pyrene	ND	2.0					
Phenanthrene	ND	2.0					
Pyrene	ND	5.0					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT BASIS.
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COMPANY: MACKINAC ENVIRONMENTAL
PROJECT NO: M19-3095
LOCATION: MOOSE JAW JUNCTION

GTA PROJECT NO: 080719-1
GTA SAMPLE NO: 3

DATE SAMPLED: 8/6/2019
TIME SAMPLED:

SAMPLED BY: MI
BRAD JEFFERS/MET

DATE RECEIVED: 8/7/2019
TIME RECEIVED: 11:30 AM

SAMPLE MATRIX: WATER
SAMPLE ID: SB-3

PNA EPA 8270D (SIM)

<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>
Acenaphthene	ND	5.0	ug/Kg (PPB)	KC/TR	8/11/2019	8/12/2019	EPA 3511
Acenaphthylene	ND	5.0					
Anthracene	ND	5.0					
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Benzo(k)fluoranthene	ND	1.0					
Benzo(a)pyrene	ND	1.0					
Benzo(ghi)perylene	ND	2.0					
2-Chloronaphthalene	ND	5.0					
Chrysene	ND	1.0					
Dibenz(ah)anthracene	ND	2.0					
Fluoranthene	ND	1.0					
Fluorene	ND	5.0					
Indeno(123-cd)pyrene	ND	2.0					
Phenanthrene	ND	2.0					
Pyrene	ND	5.0					

SOIL/SOLIDS CONCENTRATIONS ARE DETERMINED ON A DRY WEIGHT BASIS.
ND = NOT DETECTED, RESULT IS <LOD.
LOD = LIMIT OF DETECTION.

COMPANY: MACKINAC ENVIRONMENTAL
PROJECT NO: M19-3095
LOCATION: MOOSE JAW JUNCTION

GTA PROJECT NO: 080719-1
GTA SAMPLE NO: 4

DATE SAMPLED: 8/6/2019
TIME SAMPLED:

SAMPLED BY: MI
BRAD JEFFERS/MET

DATE RECEIVED: 8/7/2019
TIME RECEIVED: 11:30 AM

SAMPLE MATRIX: WATER
SAMPLE ID: PW-1

PNA EPA 8270D (SIM)

<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>
Acenaphthene	ND	5.0	ug/Kg (PPB)	KC/TR	8/11/2019	8/12/2019	EPA 3511
Acenaphthylene	ND	5.0					
Anthracene	ND	5.0					
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Chrysene	ND	1.0					
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Fluoranthene	ND	1.0					
Fluorene	ND	5.0					
Indeno(123-cd)pyrene	ND	2.0					
Phenanthrene	ND	2.0					
Pyrene	ND	5.0					

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COMPANY: MACKINAC ENVIRONMENTAL

GTA PROJECT NO: 080719-1

GTA SAMPLE NO: 1

PROJECT NO: M19-3095

LOCATION: MOOSE JAW JUNCTION

DATE SAMPLED: 8/6/2019

TIME SAMPLED:

SAMPLED BY: MI
BRAD JEFFERS/MET

DATE RECEIVED: 8/7/2019

TIME RECEIVED: 11:30 AM

SAMPLE MATRIX: WATER

METALS

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Complete</u>	<u>Digestion Method</u>
SAMPLE ID: SB-1							
1	LEAD DISS EPA 6020A	ND	0.0010	mg/L (PPM)	MR	8/8/2019	EPA 3005A

ND = NOT DETECTED, RESULT < LOD.

LOD = LIMIT OF DETECTION

DISS = DISSOLVED

COMPANY: MACKINAC ENVIRONMENTAL

GTA PROJECT NO: 080719-1

GTA SAMPLE NO: 2

PROJECT NO: M19-3095

LOCATION: MOOSE JAW JUNCTION

DATE SAMPLED: 8/6/2019

TIME SAMPLED:

SAMPLED BY: MI
BRAD JEFFERS/MET

DATE RECEIVED: 8/7/2019

TIME RECEIVED: 11:30 AM

SAMPLE MATRIX: WATER

METALS

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Complete</u>	<u>Digestion Method</u>
SAMPLE ID: SB-2							
2	LEAD DISS EPA 6020A	ND	0.0010	mg/L (PPM)	MR	8/8/2019	EPA 3005A

ND = NOT DETECTED, RESULT < LOD.

LOD = LIMIT OF DETECTION

DISS = DISSOLVED

COMPANY: MACKINAC ENVIRONMENTAL
PROJECT NO: M19-3095
LOCATION: MOOSE JAW JUNCTION
SAMPLED BY: MI
BRAD JEFFERS/MET
SAMPLE MATRIX: WATER

GTA PROJECT NO: 080719-1
GTA SAMPLE NO: 4
DATE SAMPLED: 8/6/2019
TIME SAMPLED:
DATE RECEIVED: 8/7/2019
TIME RECEIVED: 11:30 AM

METALS

<u>No:</u>	<u>Analysis</u>	<u>Concentration</u>	<u>LOD</u>	<u>Units</u>	<u>Analyst</u>	<u>Date Complete</u>	<u>Digestion Method</u>
SAMPLE ID: PW-1							
4	LEAD DISS EPA 6020A	ND	0.0010	mg/L (PPM)	MR	8/8/2019	EPA 3005A

ND = NOT DETECTED, RESULT < LOD.
LOD = LIMIT OF DETECTION
DISS = DISSOLVED

