STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

19 July 2017

Work Order: 1706168

Price: $8,050.00

Amy Keranen
MDEQ-RRD-UP
1504 W. Washington St.
Marquette, MI 49855

RE: ABANDONED MINING WASTES-QMCM Ops

I certify that the analyses performed by the MDEQ Environmental Laboratory were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Sincerely,

Kirby Shane
Laboratory Director

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MDEQ-RRD-UP	Project: ABANDONED MINING WASTES-QMCM Ops	
1504 W. Washington St.	Site Code: 31000098	**Reported:**
Marquette MI, 49855	Project Manager: Amy Keranen	07/19/2017

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
QMCM-SD02 0-1.4	1706168-01	Soil/Sediment	06/08/2017	06/14/2017	
QMCM-SD02 1.4-2.25	1706168-02	Soil/Sediment	06/08/2017	06/14/2017	
QMCM-SD01 0-2.9	1706168-03	Soil/Sediment	06/08/2017	06/14/2017	
QMCM-SD01 2.9-4.5	1706168-04	Soil/Sediment	06/08/2017	06/14/2017	
QMCM-SD03 0-3	1706168-05	Soil/Sediment	06/08/2017	06/14/2017	
QMCM-SD03 3-3.9	1706168-06	Soil/Sediment	06/08/2017	06/14/2017	
QMCM-SD04 0-1	1706168-07	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD04 1-1.9	1706168-08	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD05 0-1.4	1706168-09	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD05 1.4-2.75	1706168-10	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD06 0-1.4	1706168-11	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD06 1.4-2.75	1706168-12	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD07 0-2.3	1706168-13	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD07 2.3-4.8	1706168-14	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD08 0-1.25	1706168-15	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD08 0-1.25 Duplicate	1706168-16	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD08 1.25-2.8	1706168-17	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD09 0-2.75	1706168-18	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD09 2.75-4.9	1706168-19	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD10 0-.5	1706168-20	Soil/Sediment	06/09/2017	06/14/2017	

Notes and Definitions

Y20	Reporting Limits (RL) raised due to matrix.
Y11	Unidentified peaks present in sample.
X3	Spike recovery is not applicable due to large target analyte concentration in the source sample
A07	Result(s) and reporting limit(s) are estimated due to poor precision.
A05	Result and reporting limit are estimated due to low continuing calibration standard criteria failure.
A04	Result is estimated due to high matrix spike recovery.
A03	Result(s) and reporting limit(s) are estimated due to low matrix spike recovery.
ND	Indicates compound analyzed for but not detected
RL	Reporting Limit
NA	Not Applicable
dry	Sample results reported on a dry weight basis

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TEL: (517) 335-9800
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Client ID: QMCM-SD02 0-1.4

Lab ID: 1706168-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	720	ug/kg dry	1	06/22/17	B7F1601	8270	A05
Surrogate: 2-Fluorobiphenyl			*82.5 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*75.5 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*86.5 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*139 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*93.1 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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Client ID: QMCM-SD02 0-1.4

Lab ID: 1706168-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**69.2**	0.1	%	1	06/19/17	B7F1917	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.4**	0.5	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-39-3	**Barium**	**14**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-47-3	**Chromium**	**29**	2.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-50-8	**Copper**	**2000**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-92-1	**Lead**	**8.5**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-97-6	**Mercury**	**0.7**	0.07	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-22-4	**Silver**	**4.0**	0.1	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-66-6	**Zinc**	**83**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	

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TEL: (517) 335-9800
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Client ID: QMCM-SD02 1.4-2.25

Lab ID: 1706168-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y11, Y20**
91-57-6	2-Methylnaphthalene	ND	640	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	250	ug/kg dry	1	06/22/17	B7F1601	8270	A05
Surrogate: 2-Fluorobiphenyl			*82.5 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*65.1 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*88.8 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/24/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/24/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/24/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/24/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/24/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/24/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/24/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/24/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/24/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*140 %*	*30-150*		*06/24/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*88.7 %*	*30-150*		*06/24/17*	B7F2102	*8081/8082*	

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Client ID: QMCM-SD02 1.4-2.25

Lab ID: 1706168-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**78.7**	0.1	%	1	06/19/17	B7F1917	2540 B	

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Client ID: QMCM-SD01 0-2.9

Lab ID: 1706168-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	1900	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	A05
Surrogate: 2-Fluorobiphenyl			*82.4 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*69.7 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*84.1 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*156 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*93.7 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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Client ID: QMCM-SD01 0-2.9

Lab ID: 1706168-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**66.8**	0.1	%	1	06/19/17	B7F1917	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.3**	0.5	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-39-3	**Barium**	**15**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-47-3	**Chromium**	**27**	2.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-50-8	**Copper**	**1600**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-92-1	**Lead**	**9.2**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-97-6	**Mercury**	**0.4**	0.07	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-22-4	**Silver**	**3.5**	0.1	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-66-6	**Zinc**	**77**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	

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TEL: (517) 335-9800
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Client ID: QMCM-SD01 2.9-4.5

Lab ID: 1706168-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	1700	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	690	ug/kg dry	1	06/22/17	B7F1601	8270	A05
Surrogate: 2-Fluorobiphenyl			*79.5 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*68.8 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*83.2 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*151 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*89.9 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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Client ID: QMCM-SD01 2.9-4.5

Lab ID: 1706168-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**72.8**	0.1	%	1	06/19/17	B7F1917	2540 B	

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Client ID: QMCM-SD03 0-3

Lab ID: 1706168-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	1700	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	A05
Surrogate: 2-Fluorobiphenyl			*79.8 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*68.1 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*87.1 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*143 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*84.8 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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Client ID: QMCM-SD03 0-3

Lab ID: 1706168-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**71.7**	0.1	%	1	06/19/17	B7F1917	2540 B	
Inorganics-Metals									
7440-38-2	Arsenic	ND	0.5	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-39-3	**Barium**	**14**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-47-3	**Chromium**	**22**	2.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-50-8	**Copper**	**1700**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-92-1	**Lead**	**6.2**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-97-6	**Mercury**	**0.4**	0.07	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-22-4	**Silver**	**4.2**	0.1	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-66-6	**Zinc**	**82**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	

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Client ID: QMCM-SD03 3-3.9

Lab ID: 1706168-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	670	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	A05
Surrogate: 2-Fluorobiphenyl			*79.9 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*69.9 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*86.5 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*177 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*103 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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Client ID: QMCM-SD03 3-3.9

Lab ID: 1706168-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**74.4**	0.1	%	1	06/19/17	B7F1917	2540 B	

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Client ID: QMCM-SD04 0-1

Lab ID: 1706168-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	680	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	540	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	A05
Surrogate: 2-Fluorobiphenyl			*79.4 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*68.5 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*82.9 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*162 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*95.2 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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Client ID: QMCM-SD04 0-1

Lab ID: 1706168-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**73.7**	0.1	%	1	06/19/17	B7F1917	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.2**	0.5	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-39-3	**Barium**	**24**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-47-3	**Chromium**	**23**	2.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-50-8	**Copper**	**740**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-92-1	**Lead**	**8.1**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-97-6	**Mercury**	**0.1**	0.07	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-22-4	**Silver**	**1.7**	0.1	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-66-6	**Zinc**	**74**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	

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Client ID: QMCM-SD04 1-1.9

Lab ID: 1706168-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	600	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	480	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	480	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	480	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	480	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	480	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	480	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	240	ug/kg dry	1	06/22/17	B7F1601	8270	A05
Surrogate: 2-Fluorobiphenyl			*81.9 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*71.4 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*89.1 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*172 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*110 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD04 1-1.9

Lab ID: 1706168-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**83.2**	0.1	%	1	06/19/17	B7F1917	2540 B	

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Client ID: QMCM-SD05 0-1.4

Lab ID: 1706168-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	1900	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	750	ug/kg dry	1	06/22/17	B7F1601	8270	
Surrogate: 2-Fluorobiphenyl			*87.3 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*69.4 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*88.8 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	150	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*150 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*96.0 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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FAX: (517) 335-9600

Client ID: QMCM-SD05 0-1.4

Lab ID: 1706168-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**66.2**	0.1	%	1	06/19/17	B7F1917	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.8**	0.5	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-39-3	**Barium**	**32**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-43-9	**Cadmium**	**0.4**	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-47-3	**Chromium**	**22**	2.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-50-8	**Copper**	**1400**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-92-1	**Lead**	**20**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-97-6	**Mercury**	**0.5**	0.08	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-22-4	**Silver**	**3.1**	0.1	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-66-6	**Zinc**	**110**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	

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Client ID: QMCM-SD05 1.4-2.75

Lab ID: 1706168-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	650	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
Surrogate: 2-Fluorobiphenyl			*83.8 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*64.5 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*88.7 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*152 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*91.3 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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ENVIRONMENTAL LABORATORY

P.O. Box 30270
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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD05 1.4-2.75

Lab ID: 1706168-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**77.0**	0.1	%	1	06/19/17	B7F1917	2540 B	

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TEL: (517) 335-9800
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Client ID: QMCM-SD06 0-1.4

Lab ID: 1706168-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	670	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	530	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	530	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	530	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	530	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	530	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	530	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	270	ug/kg dry	1	06/22/17	B7F1601	8270	
Surrogate: 2-Fluorobiphenyl			*86.3 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*70.2 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*85.2 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*158 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*97.1 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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FAX: (517) 335-9600

Client ID: QMCM-SD06 0-1.4

Lab ID: 1706168-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**75.0**	0.1	%	1	06/19/17	B7F1917	2540 B	
Inorganics-Metals									
7440-38-2	Arsenic	ND	0.5	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-39-3	**Barium**	**14**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-47-3	**Chromium**	**22**	2.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-50-8	**Copper**	**700**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-92-1	**Lead**	**4.8**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-97-6	**Mercury**	**0.2**	0.07	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-22-4	**Silver**	**2.1**	0.1	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-66-6	**Zinc**	**62**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	

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ENVIRONMENTAL LABORATORY

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Client ID: QMCM-SD06 1.4-2.75

Lab ID: 1706168-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	650	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	520	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
Surrogate: 2-Fluorobiphenyl			*81.5 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*62.7 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*80.3 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*142 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*83.7 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD06 1.4-2.75

Lab ID: 1706168-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**77.1**	0.1	%	1	06/23/17	B7F2116	2540 B	

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Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD07 0-2.3

Lab ID: 1706168-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	640	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	510	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	260	ug/kg dry	1	06/22/17	B7F1601	8270	
Surrogate: 2-Fluorobiphenyl			*86.2 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*66.8 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*86.4 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*167 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*100 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD07 0-2.3

Lab ID: 1706168-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**78.1**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**0.5**	0.5	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-39-3	**Barium**	**11**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-47-3	**Chromium**	**22**	2.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-50-8	**Copper**	**8300**	1000	mg/kg dry	10000	07/05/17	B7F2832	6020/200.8	
7439-92-1	**Lead**	**6.9**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-97-6	**Mercury**	**0.3**	0.06	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-22-4	**Silver**	**8.4**	0.1	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-66-6	**Zinc**	**80**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	

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TEL: (517) 335-9800
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Client ID: QMCM-SD07 2.3-4.8

Lab ID: 1706168-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	1800	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1400	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	700	ug/kg dry	1	06/22/17	B7F1601	8270	
Surrogate: 2-Fluorobiphenyl			*91.5 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*74.4 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*83.5 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	140	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*126 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*77.4 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD07 2.3-4.8

Lab ID: 1706168-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**71.2**	0.1	%	1	06/23/17	B7F2116	2540 B	

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TEL: (517) 335-9800
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Client ID: QMCM-SD08 0-1.25

Lab ID: 1706168-15

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	1500	ug/kg dry	1	06/22/17	B7F1601	8270	
83-32-9	Acenaphthene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
208-96-8	Acenaphthylene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
120-12-7	Anthracene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
56-55-3	Benz[a]anthracene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
50-32-8	Benzo[a]pyrene	ND	1200	ug/kg dry	1	06/22/17	B7F1601	8270	
205-99-2	Benzo[b]fluoranthene	ND	1200	ug/kg dry	1	06/22/17	B7F1601	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1200	ug/kg dry	1	06/22/17	B7F1601	8270	
207-08-9	Benzo[k]fluoranthene	ND	1200	ug/kg dry	1	06/22/17	B7F1601	8270	
218-01-9	Chrysene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1200	ug/kg dry	1	06/22/17	B7F1601	8270	
206-44-0	Fluoranthene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
86-73-7	Fluorene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1200	ug/kg dry	1	06/22/17	B7F1601	8270	
91-20-3	Naphthalene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
85-01-8	Phenanthrene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
129-00-0	Pyrene	ND	620	ug/kg dry	1	06/22/17	B7F1601	8270	
Surrogate: 2-Fluorobiphenyl			*89.3 %*	*32.9-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: Nitrobenzene-d5			*71.9 %*	*31.8-115*		*06/22/17*	B7F1601	*8270*	
Surrogate: p-Terphenyl-d14			*89.2 %*	*38.5-115*		*06/22/17*	B7F1601	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	120	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*145 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*86.3 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD08 0-1.25

Lab ID: 1706168-15

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**80.9**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.1**	0.5	mg/kg dry	10	07/05/17	B7F2832	6020/200.8	
7440-39-3	**Barium**	**11**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	A04
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-47-3	**Chromium**	**24**	2.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-50-8	**Copper**	**2200**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-92-1	**Lead**	**5.4**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7439-97-6	**Mercury**	**0.3**	0.06	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-22-4	**Silver**	**4.9**	0.1	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	
7440-66-6	**Zinc**	**70**	1.0	mg/kg dry	10	06/30/17	B7F2832	6020/200.8	A04

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TEL: (517) 335-9800
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Client ID: QMCM-SD08 0-1.25 Duplicate

Lab ID: 1706168-16

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	640	ug/kg dry	1	06/23/17	B7F1915	8270	
83-32-9	Acenaphthene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
208-96-8	Acenaphthylene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
120-12-7	Anthracene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
56-55-3	Benz[a]anthracene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
50-32-8	Benzo[a]pyrene	ND	510	ug/kg dry	1	06/23/17	B7F1915	8270	
205-99-2	Benzo[b]fluoranthene	ND	510	ug/kg dry	1	06/23/17	B7F1915	8270	
191-24-2	Benzo[g,h,i]perylene	ND	510	ug/kg dry	1	06/23/17	B7F1915	8270	
207-08-9	Benzo[k]fluoranthene	ND	510	ug/kg dry	1	06/23/17	B7F1915	8270	
218-01-9	Chrysene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
53-70-3	Dibenz[a,h]anthracene	ND	510	ug/kg dry	1	06/23/17	B7F1915	8270	
206-44-0	Fluoranthene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
86-73-7	Fluorene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	510	ug/kg dry	1	06/23/17	B7F1915	8270	
91-20-3	Naphthalene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
85-01-8	Phenanthrene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
129-00-0	Pyrene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
Surrogate: 2-Fluorobiphenyl			*86.5 %*	*32.9-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: Nitrobenzene-d5			*69.8 %*	*31.8-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: p-Terphenyl-d14			*90.2 %*	*38.5-115*		*06/23/17*	B7F1915	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/25/17	B7F2102	8081/8082	
Surrogate: Decachlorobiphenyl			*141 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*87.6 %*	*30-150*		*06/25/17*	B7F2102	*8081/8082*	

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD08 0-1.25 Duplicate

Lab ID: 1706168-16

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**78.7**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**0.9**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**11**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**25**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**2800**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**5.3**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.5**	0.06	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**5.5**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**75**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD08 1.25-2.8

Lab ID: 1706168-17

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	640	ug/kg dry	1	06/23/17	B7F1915	8270	
83-32-9	Acenaphthene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
208-96-8	Acenaphthylene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
120-12-7	Anthracene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
56-55-3	Benz[a]anthracene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
50-32-8	Benzo[a]pyrene	ND	520	ug/kg dry	1	06/23/17	B7F1915	8270	
205-99-2	Benzo[b]fluoranthene	ND	520	ug/kg dry	1	06/23/17	B7F1915	8270	
191-24-2	Benzo[g,h,i]perylene	ND	520	ug/kg dry	1	06/23/17	B7F1915	8270	
207-08-9	Benzo[k]fluoranthene	ND	520	ug/kg dry	1	06/23/17	B7F1915	8270	
218-01-9	Chrysene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
53-70-3	Dibenz[a,h]anthracene	ND	520	ug/kg dry	1	06/23/17	B7F1915	8270	
206-44-0	Fluoranthene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
86-73-7	Fluorene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	520	ug/kg dry	1	06/23/17	B7F1915	8270	
91-20-3	Naphthalene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
85-01-8	Phenanthrene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
129-00-0	Pyrene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
Surrogate: 2-Fluorobiphenyl			*55.5 %*	*32.9-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: Nitrobenzene-d5			*43.3 %*	*31.8-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: p-Terphenyl-d14			*66.1 %*	*38.5-115*		*06/23/17*	B7F1915	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*104 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*103 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	

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FAX: (517) 335-9600

Client ID: QMCM-SD08 1.25-2.8

Lab ID: 1706168-17

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**77.6**	0.1	%	1	06/23/17	B7F2116	2540 B	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD09 0-2.75

Lab ID: 1706168-18

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	660	ug/kg dry	1	06/23/17	B7F1915	8270	
83-32-9	Acenaphthene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
208-96-8	Acenaphthylene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
120-12-7	Anthracene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
56-55-3	Benz[a]anthracene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
50-32-8	Benzo[a]pyrene	ND	530	ug/kg dry	1	06/23/17	B7F1915	8270	
205-99-2	Benzo[b]fluoranthene	ND	530	ug/kg dry	1	06/23/17	B7F1915	8270	
191-24-2	Benzo[g,h,i]perylene	ND	530	ug/kg dry	1	06/23/17	B7F1915	8270	
207-08-9	Benzo[k]fluoranthene	ND	530	ug/kg dry	1	06/23/17	B7F1915	8270	
218-01-9	Chrysene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
53-70-3	Dibenz[a,h]anthracene	ND	530	ug/kg dry	1	06/23/17	B7F1915	8270	
206-44-0	Fluoranthene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
86-73-7	Fluorene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	530	ug/kg dry	1	06/23/17	B7F1915	8270	
91-20-3	Naphthalene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
85-01-8	Phenanthrene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
129-00-0	Pyrene	ND	260	ug/kg dry	1	06/23/17	B7F1915	8270	
Surrogate: 2-Fluorobiphenyl			*73.5 %*	*32.9-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: Nitrobenzene-d5			*57.8 %*	*31.8-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: p-Terphenyl-d14			*77.3 %*	*38.5-115*		*06/23/17*	B7F1915	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*86.4 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*87.2 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	

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Client ID: QMCM-SD09 0-2.75

Lab ID: 1706168-18

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**76.0**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.6**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**8.5**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**19**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**4200**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**5.3**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.3**	0.07	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**7.0**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**69**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD09 2.75-4.9

Lab ID: 1706168-19

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	760	ug/kg dry	1	06/23/17	B7F1915	8270	
83-32-9	Acenaphthene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
208-96-8	Acenaphthylene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
120-12-7	Anthracene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
56-55-3	Benz[a]anthracene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
50-32-8	Benzo[a]pyrene	ND	610	ug/kg dry	1	06/23/17	B7F1915	8270	
205-99-2	Benzo[b]fluoranthene	ND	610	ug/kg dry	1	06/23/17	B7F1915	8270	
191-24-2	Benzo[g,h,i]perylene	ND	610	ug/kg dry	1	06/23/17	B7F1915	8270	
207-08-9	Benzo[k]fluoranthene	ND	610	ug/kg dry	1	06/23/17	B7F1915	8270	
218-01-9	Chrysene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
53-70-3	Dibenz[a,h]anthracene	ND	610	ug/kg dry	1	06/23/17	B7F1915	8270	
206-44-0	Fluoranthene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
86-73-7	Fluorene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	610	ug/kg dry	1	06/23/17	B7F1915	8270	
91-20-3	Naphthalene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
85-01-8	Phenanthrene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
129-00-0	Pyrene	ND	300	ug/kg dry	1	06/23/17	B7F1915	8270	
Surrogate: 2-Fluorobiphenyl			*67.6 %*	*32.9-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: Nitrobenzene-d5			*49.9 %*	*31.8-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: p-Terphenyl-d14			*73.7 %*	*38.5-115*		*06/23/17*	B7F1915	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	300	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	300	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	300	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	300	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	300	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	300	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	300	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	300	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	300	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*80.0 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*78.9 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	

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Client ID: QMCM-SD09 2.75-4.9

Lab ID: 1706168-19

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**65.6**	0.1	%	1	06/23/17	B7F2116	2540 B	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD10 0-.5

Lab ID: 1706168-20

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	850	ug/kg dry	1	06/23/17	B7F1915	8270	
83-32-9	Acenaphthene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
208-96-8	Acenaphthylene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
120-12-7	Anthracene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
56-55-3	Benz[a]anthracene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
50-32-8	Benzo[a]pyrene	ND	680	ug/kg dry	1	06/23/17	B7F1915	8270	
205-99-2	Benzo[b]fluoranthene	ND	680	ug/kg dry	1	06/23/17	B7F1915	8270	
191-24-2	Benzo[g,h,i]perylene	ND	680	ug/kg dry	1	06/23/17	B7F1915	8270	
207-08-9	Benzo[k]fluoranthene	ND	680	ug/kg dry	1	06/23/17	B7F1915	8270	
218-01-9	Chrysene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
53-70-3	Dibenz[a,h]anthracene	ND	680	ug/kg dry	1	06/23/17	B7F1915	8270	
206-44-0	Fluoranthene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
86-73-7	Fluorene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	680	ug/kg dry	1	06/23/17	B7F1915	8270	
91-20-3	Naphthalene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
85-01-8	Phenanthrene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
129-00-0	Pyrene	ND	340	ug/kg dry	1	06/23/17	B7F1915	8270	
Surrogate: 2-Fluorobiphenyl			*82.2 %*	*32.9-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: Nitrobenzene-d5			*62.5 %*	*31.8-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: p-Terphenyl-d14			*88.0 %*	*38.5-115*		*06/23/17*	B7F1915	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	340	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	340	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	340	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	340	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	340	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	340	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	340	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	340	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	340	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*88.4 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*89.8 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD10 0-.5

Lab ID: 1706168-20

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**58.8**	0.1	%	1	06/23/17	B7F2116	2540 B	
57-12-5	Available Cyanide	ND	0.17	mg/kg dry	1	06/22/17	B7F2204	OIA-1677	
Inorganics-Metals									
7440-38-2	**Arsenic**	**5.1**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**18**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**22**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**310**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**5.4**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.2**	0.09	mg/kg dry	1	07/05/17	B7F2834	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**0.8**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**56**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
[illegible]	Abandoned Mining Wastes- QMCM Ops	SEDIMENT

Site Code/Project Number: 31000098	AV: 17	CC Email 1: jbinkley@manniksmithgroup.com	Project TAT Days:	Sample Collector: BE
Dept-Division-District: DEQ RRD UP District- Calumet	Index: 44251	CC Email 2:	Project Due Date:	Sample Collector Phone: 906-337-0389
State Project Manager: Amy Keranen	PCA: 30843	CC Email 3:		Contract Firm: Mannik & Smith Group
State Project Manager Email: keranena@michigan.gov	Project: 456457	Overflow Lab Choice 1: Test America- asbestos	Accept Analysis Hold time codes: N	Contract Firm Primary Contact: Jeff Binkley
State Project Manager Phone: 906-337-0389	Phase: 00	Overflow Lab Choice 2: ALS for waste characterization		Primary Contact Phone: 906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1		QMCM-SD 02 0-1.4	6/8/17	1545	1	
2		QMCM-SD 02 1.4-2.25	6/8/17	1550	1	
3		QMCM-SD 01 0-2.9	6/8/17	1610	1	Lab Dup-SD02
4		QMCM-SD 01 2.9-4.5	6/8/17	1615	1	" "
5		QMCM-SD 03 0-3	6/8/17	1640	1	
6		QMCM-SD 03 3-3.9	6/8/17	1645	1	
7		QMCM-SD 04 0-1	6/9/17	1135	1	
8		QMCM-SD 04 1-1.9	6/9/17	1140	1	
9		QMCM-SD 05 0-1.4	6/9/17	1205	1	
10		QMCM-SD 05 1.4-2.75	6/9/17	1210	1	

ORGANIC CHEMISTRY

VOA - Volatile Organic Acetic
Volatiles - Full List: 1 2 3 4 5 6 7 8 9 10
BTEX/MTBE/VM only: 1 2 3 4 5 6 7 8 9 10
Chlorinated only: 1 2 3 4 5 6 7 8 9 10
GRO: 1 2 3 4 5 6 7 8 9 10
1,4 Dioxane: 1 2 3 4 5 6 7 8 9 10

OA - Pesticides, PCBs
Pesticides & PCBs: 1 2 3 4 5 6 7 8 9 10
Pesticides only: 1 2 3 4 5 6 7 8 9 10
PCBs only: 1 2 3 4 5 6 7 8 9 10
Toxaphene: 1 2 3 4 5 6 7 8 9 10

BNA - Base Neutral Acid
BNAs: 1 2 3 4 5 6 7 8 9 10 NO
PNAs only: 1 2 3 4 5 6 7 8 9 10
BNA only: 1 2 3 4 5 6 7 8 9 10

Organic Specialty Requests
Library search - Volatile: 1 2 3 4 5 6 7 8 9 10
Library search - Semivols: 1 2 3 4 5 6 7 8 9 10
Fingerprint: 1 2 3 4 5 6 7 8 9 10
GRO / DRO: 1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

Optimized - Total: 1 2 3 4 5 6 7 8 9 10
(Sb,As,Ba,Be,Cd,Cr,Co,Cu,Fe,Pb,Mn,Hg,Mo,Ni,Se,Ag,Tl,V,Zn)
Michigan 10 - Total: 1 2 3 4 5 6 7 8 9 10
(Arsenic,Cadmium,Cobalt,Copper,Lead,Mercury,Nickel,Selenium,Zinc)

MS - TOTAL METALS

Silver - Ag: 1 2 3 4 5 6 7 8 9 10
Aluminum - Al: 1 2 3 4 5 6 7 8 9 10
Arsenic - As: 1 2 3 4 5 6 7 8 9 10
Barium - Ba: 1 2 3 4 5 6 7 8 9 10
Beryllium - Be: 1 2 3 4 5 6 7 8 9 10
Cadmium - Cd: 1 2 3 4 5 6 7 8 9 10
Cobalt - Co: 1 2 3 4 5 6 7 8 9 10
Chromium - Cr: 1 2 3 4 5 6 7 8 9 10
Copper - Cu: 1 2 3 4 5 6 7 8 9 10
Iron - Fe: 1 2 3 4 5 6 7 8 9 10
Mercury - Hg: 1 2 3 4 5 6 7 8 9 10
Lithium - Li: 1 2 3 4 5 6 7 8 9 10
Manganese - Mn: 1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo: 1 2 3 4 5 6 7 8 9 10
Nickel - Ni: 1 2 3 4 5 6 7 8 9 10
Lead - Pb: 1 2 3 4 5 6 7 8 9 10
Antimony - Sb: 1 2 3 4 5 6 7 8 9 10
Selenium - Se: 1 2 3 4 5 6 7 8 9 10
Strontium - Sr: 1 2 3 4 5 6 7 8 9 10
Titanium - Ti: 1 2 3 4 5 6 7 8 9 10
Thallium - Tl: 1 2 3 4 5 6 7 8 9 10
Uranium - U: 1 2 3 4 5 6 7 8 9 10
Vanadium - V: 1 2 3 4 5 6 7 8 9 10
Zinc - Zn: 1 2 3 4 5 6 7 8 9 10
Calcium - Ca: 1 2 3 4 5 6 7 8 9 10
Potassium - K: 1 2 3 4 5 6 7 8 9 10
Magnesium - Mg: 1 2 3 4 5 6 7 8 9 10
Sodium - Na: 1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GS - General Chemistry
Total Cyanide - CN: 1 2 3 4 5 6 7 8 9 10
Amenable Cyanide - CN: 1 2 3 4 5 6 7 8 9 10
Chem Oxygen Dem - COD: 1 2 3 4 5 6 7 8 9 10
Total Org Carbon - TOC: 1 2 3 4 5 6 7 8 9 10
Kjeldahl Nitrogen - KN: 1 2 3 4 5 6 7 8 9 10
Total Phosphorus - TP: 1 2 3 4 5 6 7 8 9 10

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org: [illegible] DEQ Signature:	[illegible]	6/16/17 1400
Print Name & Org: Signature:		
Print Name & Org: Signature:		

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
17 [illegible]	Abandoned Mining Wastes- QMCM Ops	SEDIMENT

Site Code/Project Number: 31000093	AY: 17	CC Email 1: jbinkley@manniksmithgroup.com	Project TAT Days:	Sample Collector: BE
Dept Div/Section/District: DEQ RRD UP District- Calumet	Index: 44251	CC Email 2:	Project Due Date:	Sample Collector Phone: 906-337-0389
State Project Manager: Amy Keranen	PCA: 30893	CC Email 3:		Contract Firm: Mannik & Smith Group
State Project Manager Email: keranena@michigan.gov	Project: 456457	Overflow Lab Choice 1: Test America- asbestos	Rocket Analysis Turnaround Time Codes: N	Contact Firm Primary Contact: Jeff Binkley
State Project Manager Phone: 906-337-0389	Phase: 00	Overflow Lab Choice 2: ALS for waste characterization		Primary Contact Phone: 906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1		QMCM-SD06 0-1.4	6/9/17	1325	1	
2		QMCM-SD06 1.4-2.75	6/9/17	1350	1	
3		QMCM-SD07 0-2.3	6/9/17	1355	1	
4		QMCM-SD07 2.3-4.8	6/9/17	1355	1	
5		QMCM-SD08 0-1.25	6/9/17	1415	1	
6		QMCM-SD09 0-1.25 Duplicate	6/9/17	1420	1	
7		QMCM-SD08 1.25-2.8	6/9/17	1425	1	
8		QMCM-SD09 0-2.75	6/9/17	1450	1	
9		QMCM-SD09 2.75-4.9	6/9/17	1455	1	
10		QMCM-SD10 0-.5	6/9/17	1510	1	

ORGANIC CHEMISTRY

VOA - Volatile Organic Acetic
Volatiles - Full List: 1 2 3 4 5 6 7 8 9 10
MTBE/MEK/TMB only: 1 2 3 4 5 6 7 8 9 10
Chlorinated only: 1 2 3 4 5 6 7 8 9 10
GRO: 1 2 3 4 5 6 7 8 9 10
1,4 Dioxane: 1 2 3 4 5 6 7 8 9 10

OS - Pesticides, PCBs
Pesticides & PCBs: 1 2 3 4 5 6 7 8 9 10
Pesticides only: 1 2 3 4 5 6 7 8 9 10
PCBs only: 1 2 3 4 5 6 7 8 9 10
Toxaphene: 1 2 3 4 5 6 7 8 9 10

BNA - Base Neutral Acids
BNAs: 1 2 3 4 5 6 7 8 9 10 — NO
PAHs only: 1 2 3 4 5 6 7 8 9 10
BNAs only: 1 2 3 4 5 6 7 8 9 10

Organic Specialty Requests:
Tentatively Identified - Volatile: 1 2 3 4 5 6 7 8 9 10
Tentatively Identified - Semi-Volatile: 1 2 3 4 5 6 7 8 9 10
Fingerprint: 1 2 3 4 5 6 7 8 9 10
DRO / ORG: 1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

Ophiemsd - Total: 1 2 3 4 5 6 7 8 9 10
(16 As, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn)
Michigan 10 - Total: 1 2 3 4 5 6 7 8 9 10
(As, Ba, Cd, Cr, Cu, Pb, Hg, Se, Ag, Zn)

MS - TOTAL METALS

Silver - Ag: 1 2 3 4 5 6 7 8 9 10
Aluminum - Al: 1 2 3 4 5 6 7 8 9 10
Arsenic - As: 1 2 3 4 5 6 7 8 9 10
Barium - Ba: 1 2 3 4 5 6 7 8 9 10
Beryllium - Be: 1 2 3 4 5 6 7 8 9 10
Cadmium - Cd: 1 2 3 4 5 6 7 8 9 10
Cobalt - Co: 1 2 3 4 5 6 7 8 9 10
Chromium - Cr: 1 2 3 4 5 6 7 8 9 10
Copper - Cu: 1 2 3 4 5 6 7 8 9 10
Iron - Fe: 1 2 3 4 5 6 7 8 9 10
Mercury - Hg: 1 2 3 4 5 6 7 8 9 10
Lithium - Li: 1 2 3 4 5 6 7 8 9 10
Manganese - Mn: 1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo: 1 2 3 4 5 6 7 8 9 10
Nickel - Ni: 1 2 3 4 5 6 7 8 9 10
Lead - Pb: 1 2 3 4 5 6 7 8 9 10
Antimony - Sb: 1 2 3 4 5 6 7 8 9 10
Selenium - Se: 1 2 3 4 5 6 7 8 9 10
Strontium - Sr: 1 2 3 4 5 6 7 8 9 10
Titanium - Ti: 1 2 3 4 5 6 7 8 9 10
Thallium - Tl: 1 2 3 4 5 6 7 8 9 10
Uranium - U: 1 2 3 4 5 6 7 8 9 10
Vanadium - V: 1 2 3 4 5 6 7 8 9 10
Zinc - Zn: 1 2 3 4 5 6 7 8 9 10
Calcium - Ca: 1 2 3 4 5 6 7 8 9 10
Potassium - K: 1 2 3 4 5 6 7 8 9 10
Magnesium - Mg: 1 2 3 4 5 6 7 8 9 10
Sodium - Na: 1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

Total Cyanide - CN: 1 2 3 4 5 6 7 8 9 10
Available Cyanide - CN: 1 2 3 4 5 6 7 8 9 10
Chem Oxygen Dem - COD: 1 2 3 4 5 6 7 8 9 10
Total Org Carbon - TOC: 1 2 3 4 5 6 7 8 9 10
Kjeldahl Nitrogen - KN: 1 2 3 4 5 6 7 8 9 10
Total Phosphorus - TP: 1 2 3 4 5 6 7 8 9 10

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org: [illegible] Signature: [illegible]	[illegible]	6/13/17 [illegible]
Print Name & Org: Signature:		
Print Name & Org: Signature:		

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

19 July 2017

Work Order: 1706169

Price: $5,307.50

Amy Keranen
MDEQ-RRD-UP
1504 W. Washington St.
Marquette, MI 49855

RE: ABANDONED MINING WASTES-QMCM Ops

I certify that the analyses performed by the MDEQ Environmental Laboratory were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Sincerely,

Kirby Shane
Laboratory Director

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

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MDEQ-RRD-UP	Project: ABANDONED MINING WASTES-QMCM Ops	
1504 W. Washington St.	Site Code: 31000098	**Reported:**
Marquette MI, 49855	Project Manager: Amy Keranen	07/19/2017

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
QMCM-SD10 .5-1	1706169-01	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD47 0-2	1706169-02	Soil/Sediment	06/09/2017	06/14/2017	
QMCM-SD12 0-1	1706169-03	Soil/Sediment	06/11/2017	06/14/2017	
QMCM-SD12 1-2.3	1706169-04	Soil/Sediment	06/11/2017	06/14/2017	
QMCM-SD12 1-2.3 FD	1706169-05	Soil/Sediment	06/11/2017	06/14/2017	
QMCM-SD13 0-3	1706169-06	Soil/Sediment	06/11/2017	06/14/2017	
QMCM-SD13 3-4.2	1706169-07	Soil/Sediment	06/11/2017	06/14/2017	
QMCM-SD14 0-0.3	1706169-08	Soil/Sediment	06/11/2017	06/14/2017	
QMCM-SD15 0-1.1	1706169-09	Soil/Sediment	06/11/2017	06/14/2017	
QMCM-SD15 1.1-2.9	1706169-10	Soil/Sediment	06/11/2017	06/14/2017	
QMCM-SD38 0-0.5	1706169-11	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD39 0-1.6	1706169-12	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD39 1.6-3.75	1706169-13	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD35 0-0.75	1706169-14	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD35 0.75-1.5	1706169-15	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD34 0-0.8	1706169-16	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD34 0.8-2.5	1706169-17	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD33 0-2.5	1706169-18	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD33 2.5-5.1	1706169-19	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD28 0-2	1706169-20	Soil/Sediment	06/12/2017	06/14/2017	

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Notes and Definitions

Y20	Reporting Limits (RL) raised due to matrix.
Y16	No tare weight on vial. Results and reporting limits are estimated.
X3	Spike recovery is not applicable due to large target analyte concentration in the source sample.
X	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200 °C. 2-Methylnaphthalene & naphthalene have boiling points above 200 °C and are better suited to analysis by methods 8270 & 625 as semivolatile organics.
A09	Result is estimated due to high recovery of batch quality control.
A07	Result(s) and reporting limit(s) are estimated due to poor precision.
A06	Result is estimated due to high continuing calibration standard criteria failure.
A05	Result and reporting limit are estimated due to low continuing calibration standard criteria failure.
A04	Result is estimated due to high matrix spike recovery.
A03	Result(s) and reporting limit(s) are estimated due to low matrix spike recovery.
ND	Indicates compound analyzed for but not detected
RL	Reporting Limit
NA	Not Applicable
dry	Sample results reported on a dry weight basis

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD10 .5-1

Lab ID: 1706169-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	620	ug/kg dry	1	06/23/17	B7F1915	8270	
83-32-9	Acenaphthene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
208-96-8	Acenaphthylene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
120-12-7	Anthracene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
56-55-3	Benz[a]anthracene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
50-32-8	Benzo[a]pyrene	ND	490	ug/kg dry	1	06/23/17	B7F1915	8270	
205-99-2	Benzo[b]fluoranthene	ND	490	ug/kg dry	1	06/23/17	B7F1915	8270	
191-24-2	Benzo[g,h,i]perylene	ND	490	ug/kg dry	1	06/23/17	B7F1915	8270	
207-08-9	Benzo[k]fluoranthene	ND	490	ug/kg dry	1	06/23/17	B7F1915	8270	
218-01-9	Chrysene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
53-70-3	Dibenz[a,h]anthracene	ND	490	ug/kg dry	1	06/23/17	B7F1915	8270	
206-44-0	Fluoranthene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
86-73-7	Fluorene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	490	ug/kg dry	1	06/23/17	B7F1915	8270	
91-20-3	Naphthalene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
85-01-8	Phenanthrene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
129-00-0	Pyrene	ND	250	ug/kg dry	1	06/23/17	B7F1915	8270	
Surrogate: 2-Fluorobiphenyl			*83.3 %*	*32.9-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: Nitrobenzene-d5			*64.7 %*	*31.8-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: p-Terphenyl-d14			*79.9 %*	*38.5-115*		*06/23/17*	B7F1915	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*81.9 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*82.6 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	

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TEL: (517) 335-9800
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Client ID: QMCM-SD10 .5-1

Lab ID: 1706169-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**81.0**	0.1	%	1	06/23/17	B7F2116	2540 B	

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P.O. Box 30270
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Client ID: QMCM-SD47 0-2

Lab ID: 1706169-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y16**
630-20-6	1,1,1,2-Tetrachloroethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
71-55-6	1,1,1-Trichloroethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
79-00-5	1,1,2-Trichloroethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
75-34-3	1,1-Dichloroethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
75-35-4	1,1-Dichloroethylene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
96-18-4	1,2,3-Trichloropropane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
106-93-4	1,2-Dibromoethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
95-50-1	1,2-Dichlorobenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
107-06-2	1,2-Dichloroethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
78-87-5	1,2-Dichloropropane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
541-73-1	1,3-Dichlorobenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
106-46-7	1,4-Dichlorobenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
540-84-1	2,2,4-Trimethylpentane	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
78-93-3	2-Butanone (MEK)	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	X
67-64-1	2-Propanone (acetone)	ND	1500	ug/kg dry	50	06/17/17	B7F1611	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
107-13-1	Acrylonitrile	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
71-43-2	Benzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
74-97-5	Bromochloromethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
75-27-4	Bromodichloromethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
75-25-2	Bromoform	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
74-83-9	Bromomethane	ND	300	ug/kg dry	50	06/17/17	B7F1611	8260	
75-15-0	Carbon disulfide	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
56-23-5	Carbon tetrachloride	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
108-90-7	Chlorobenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
75-00-3	Chloroethane	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
67-66-3	Chloroform	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
74-87-3	Chloromethane	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
110-82-7	Cyclohexane	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
124-48-1	Dibromochloromethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
74-95-3	Dibromomethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	

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Client ID: QMCM-SD47 0-2

Lab ID: 1706169-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y16**
75-71-8	Dichlorodifluoromethane	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
60-29-7	Diethyl ether	ND	300	ug/kg dry	50	06/17/17	B7F1611	8260	
108-20-3	Diisopropyl Ether	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
100-41-4	Ethylbenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
637-92-3	Ethyltertiarybutylether	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
67-72-1	Hexachloroethane	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
110-54-3	Hexane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
98-82-8	Isopropylbenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
1330-20-7	m & p - Xylene	ND	150	ug/kg dry	50	06/17/17	B7F1611	8260	
75-09-2	Methylene chloride	ND	150	ug/kg dry	50	06/17/17	B7F1611	8260	
1634-04-4	Methyltertiarybutylether	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
91-20-3	Naphthalene	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	X
104-51-8	n-Butylbenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
103-65-1	n-Propylbenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
95-47-6	o-Xylene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
135-98-8	sec-Butylbenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
100-42-5	Styrene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
98-06-6	tert-Butylbenzene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
75-65-0	tertiary Butyl Alcohol	ND	3700	ug/kg dry	50	06/17/17	B7F1611	8260	A05
994-05-8	tertiaryAmylmethylether	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
127-18-4	Tetrachloroethylene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
109-99-9	Tetrahydrofuran	ND	370	ug/kg dry	50	06/17/17	B7F1611	8260	
108-88-3	Toluene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
79-01-6	Trichloroethylene	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
75-69-4	Trichlorofluoromethane	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
75-01-4	Vinyl chloride	ND	74	ug/kg dry	50	06/17/17	B7F1611	8260	
Surrogate: Bromofluorobenzene			*108 %*	*40.3-194*		*06/17/17*	B7F1611	*8260*	
Surrogate: Dibromofluoromethane			*117 %*	*52.1-217*		*06/17/17*	B7F1611	*8260*	
Surrogate: Toluene-d8			*112 %*	*55.4-196*		*06/17/17*	B7F1611	*8260*	

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Client ID: QMCM-SD47 0-2

Lab ID: 1706169-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	600	ug/kg dry	1	06/23/17	B7F1915	8270	
83-32-9	Acenaphthene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
208-96-8	Acenaphthylene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
120-12-7	Anthracene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
56-55-3	Benz[a]anthracene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
50-32-8	Benzo[a]pyrene	ND	480	ug/kg dry	1	06/23/17	B7F1915	8270	
205-99-2	Benzo[b]fluoranthene	ND	480	ug/kg dry	1	06/23/17	B7F1915	8270	
191-24-2	Benzo[g,h,i]perylene	ND	480	ug/kg dry	1	06/23/17	B7F1915	8270	
207-08-9	Benzo[k]fluoranthene	ND	480	ug/kg dry	1	06/23/17	B7F1915	8270	
218-01-9	Chrysene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
53-70-3	Dibenz[a,h]anthracene	ND	480	ug/kg dry	1	06/23/17	B7F1915	8270	
206-44-0	Fluoranthene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
86-73-7	Fluorene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	480	ug/kg dry	1	06/23/17	B7F1915	8270	
91-20-3	Naphthalene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
85-01-8	Phenanthrene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
129-00-0	Pyrene	ND	240	ug/kg dry	1	06/23/17	B7F1915	8270	
Surrogate: 2-Fluorobiphenyl			*88.0 %*	*32.9-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: Nitrobenzene-d5			*71.5 %*	*31.8-115*		*06/23/17*	B7F1915	*8270*	
Surrogate: p-Terphenyl-d14			*82.4 %*	*38.5-115*		*06/23/17*	B7F1915	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	120	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*77.2 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*72.4 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	

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Client ID: QMCM-SD47 0-2

Lab ID: 1706169-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**83.8**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.1**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**20**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**21**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1500**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**5.8**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	Mercury	ND	0.06	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**1.2**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**65**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD12 0-1

Lab ID: 1706169-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	310	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	310	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	310	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	310	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	310	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	310	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	310	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	310	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	310	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*94.3 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*92.4 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**63.8**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**2.5**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**16**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**46**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**2600**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**6.4**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.7**	0.08	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**3.2**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**120**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD12 1-2.3

Lab ID: 1706169-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*86.3 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*84.6 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**77.7**	0.1	%	1	06/23/17	B7F2116	2540 B	

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Client ID: QMCM-SD12 1-2.3 FD

Lab ID: 1706169-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*80.8 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*82.2 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**77.6**	0.1	%	1	06/23/17	B7F2116	2540 B	

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TEL: (517) 335-9800
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Client ID: QMCM-SD13 0-3

Lab ID: 1706169-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	360	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	360	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	360	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	360	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	360	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	360	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	360	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	360	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	360	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*85.0 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*87.6 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**55.1**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**3.5**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**20**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**64**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**2500**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**8.9**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.8**	0.09	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**3.0**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**170**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD13 3-4.2

Lab ID: 1706169-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	260	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*79.5 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*80.8 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**76.9**	0.1	%	1	06/23/17	B7F2116	2540 B	

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Client ID: QMCM-SD14 0-0.3

Lab ID: 1706169-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	240	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	240	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	240	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	240	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	240	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	240	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	240	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	240	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	240	ug/kg dry	1	06/27/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*73.7 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*73.7 %*	*30-150*		*06/27/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**84.4**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**0.7**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**8.8**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**41**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**2900**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**4.6**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.1**	0.06	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**2.0**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**82**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD15 0-1.1

Lab ID: 1706169-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	240	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	240	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	240	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	240	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	240	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	240	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	240	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	240	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	240	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*79.7 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*82.4 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**84.6**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	Arsenic	ND	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**7.3**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**32**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**2700**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**4.4**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.3**	0.06	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**3.1**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**89**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD15 1.1-2.9

Lab ID: 1706169-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	110	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	110	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	110	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	110	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	110	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	110	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	110	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	110	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	110	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*85.0 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*88.9 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**87.3**	0.1	%	1	06/23/17	B7F2116	2540 B	

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Client ID: QMCM-SD38 0-0.5

Lab ID: 1706169-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*85.3 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*82.8 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**77.3**	0.1	%	1	06/23/17	B7F2116	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.6**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**15**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**30**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1800**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**7.2**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.07**	0.06	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**1.6**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**80**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD39 0-1.6

Lab ID: 1706169-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	640	ug/kg dry	1	06/27/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
120-12-7	Anthracene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	510	ug/kg dry	1	06/27/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	510	ug/kg dry	1	06/27/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	510	ug/kg dry	1	06/27/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	510	ug/kg dry	1	06/27/17	B7F2312	8270	
218-01-9	Chrysene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	510	ug/kg dry	1	06/27/17	B7F2312	8270	
206-44-0	Fluoranthene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
86-73-7	Fluorene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	510	ug/kg dry	1	06/27/17	B7F2312	8270	
91-20-3	Naphthalene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
85-01-8	Phenanthrene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
129-00-0	Pyrene	ND	260	ug/kg dry	1	06/27/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*88.9 %*	*32.9-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*71.5 %*	*31.8-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*89.9 %*	*38.5-115*		*06/27/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*74.5 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*75.4 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	

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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD39 0-1.6

Lab ID: 1706169-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**78.3**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**0.6**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**9.2**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**27**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**650**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**5.3**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.07**	0.06	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**1.6**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**76**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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TEL: (517) 335-9800
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Client ID: QMCM-SD39 1.6-3.75

Lab ID: 1706169-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*70.3 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*74.2 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**74.7**	0.1	%	1	06/23/17	B7F2313	2540 B	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD35 0-0.75

Lab ID: 1706169-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	250	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	250	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	250	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	250	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	250	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	250	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	250	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	250	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	250	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*70.6 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*71.1 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**79.2**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.1**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**13**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**37**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1500**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**7.0**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.2**	0.06	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**2.6**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**99**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD35 0.75-1.5

Lab ID: 1706169-15

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	120	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11104-28-2	Aroclor 1221	ND	120	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11141-16-5	Aroclor 1232	ND	120	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
53469-21-9	Aroclor 1242	ND	120	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
12672-29-6	Aroclor 1248	ND	120	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11097-69-1	Aroclor 1254	ND	120	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11096-82-5	Aroclor 1260	ND	120	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
37324-23-5	Aroclor 1262	ND	120	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
11100-14-4	Aroclor 1268	ND	120	ug/kg dry	1	06/28/17	B7F2205	8081/8082	
Surrogate: Decachlorobiphenyl			*76.2 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*79.9 %*	*30-150*		*06/28/17*	B7F2205	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**83.6**	0.1	%	1	06/23/17	B7F2313	2540 B	

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TEL: (517) 335-9800
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Client ID: QMCM-SD34 0-0.8

Lab ID: 1706169-16

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	280	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	280	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	280	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	280	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	280	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	280	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	280	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	280	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	280	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*87.8 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*84.3 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**71.4**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**5.7**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**16**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**42**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1900**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**10**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.2**	0.07	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**3.5**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**120**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD34 0.8-2.5

Lab ID: 1706169-17

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	320	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	320	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	320	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	320	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	320	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	320	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	320	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	320	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	320	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*81.6 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*82.1 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**62.7**	0.1	%	1	06/23/17	B7F2313	2540 B	

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Client ID: QMCM-SD33 0-2.5

Lab ID: 1706169-18

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	2300	ug/kg dry	1	06/27/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	930	ug/kg dry	1	06/27/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	930	ug/kg dry	1	06/27/17	B7F2312	8270	
120-12-7	Anthracene	ND	930	ug/kg dry	1	06/27/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	930	ug/kg dry	1	06/27/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
218-01-9	Chrysene	ND	930	ug/kg dry	1	06/27/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
206-44-0	Fluoranthene	ND	930	ug/kg dry	1	06/27/17	B7F2312	8270	
86-73-7	Fluorene	ND	930	ug/kg dry	1	06/27/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
91-20-3	Naphthalene	ND	930	ug/kg dry	1	06/27/17	B7F2312	8270	
85-01-8	**Phenanthrene**	**1200**	930	ug/kg dry	1	06/27/17	B7F2312	8270	
129-00-0	Pyrene	ND	930	ug/kg dry	1	06/27/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*87.5 %*	*32.9-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*69.4 %*	*31.8-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*79.2 %*	*38.5-115*		*06/27/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*75.6 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*73.3 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	

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Client ID: QMCM-SD33 0-2.5

Lab ID: 1706169-18

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**53.7**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**15**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**41**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**64**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1600**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**15**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.6**	0.09	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**2.4**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**180**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD33 2.5-5.1

Lab ID: 1706169-19

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	340	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	340	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	340	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	340	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	340	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	340	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	340	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	340	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	340	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*75.1 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*73.5 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**59.1**	0.1	%	1	06/23/17	B7F2115	2540 B	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD28 0-2

Lab ID: 1706169-20

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	2300	ug/kg dry	1	06/27/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
120-12-7	Anthracene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
218-01-9	Chrysene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
206-44-0	Fluoranthene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
86-73-7	Fluorene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1900	ug/kg dry	1	06/27/17	B7F2312	8270	
91-20-3	Naphthalene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
85-01-8	Phenanthrene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
129-00-0	Pyrene	ND	940	ug/kg dry	1	06/27/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*87.5 %*	*32.9-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*68.2 %*	*31.8-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*80.4 %*	*38.5-115*		*06/27/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*79.9 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*79.1 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD28 0-2

Lab ID: 1706169-20

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**53.4**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**13**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**67**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	Cadmium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**58**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1800**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**15**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.5**	0.09	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**3.2**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**180**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
[illegible]	Abandoned Mining Wastes- QMCM Ops	SEDIMENT

Site Code/Project Number: 31000098	AV: 17	CC Email 1: jbinkley@manniksmithgroup.com	Project TAT Days:	Sample Collector: BE
Dept-Division-District: DEQ RRD UP District- Calumet	Index: 44251	CC Email 2:	Project Due Date:	Sample Collector Phone: 906-337-0389
State Project Manager: Amy Keranen	PCA: 30843	CC Email 3:		Contract Firm: Mannik & Smith Group
State Project Manager Email: keranena@michigan.gov	Project: 456457	Overflow Lab Choice 1: Test America- asbestos	Accept Analysis Hold Time Exceed: N	Contract Firm Primary Contact: Jeff Binkley
State Project Manager Phone: 906-337-0389	Phase: 00	Overflow Lab Choice 2: ALS for waste characterization		Primary Contact Phone: 906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1		QMCM-SD 10 .5-1	6/9/17	1515	1	
2		QMCM-SD 47 0-2	6/9/17	1545	2	
3		QMCM-SD 12 0-1	6/11/17	1010	1	
4		QMCM-SD 12 1-2.3	↑	1012	1	
5		QMCM-SD 12 1-2.3 FD		1012	1	
6		QMCM-SD 13 0-3		1106	1	
7		QMCM-SD 13 3-4.2		1108	1	
8		QMCM-SD 14 0-0.3		1200	1	
9		QMCM-SD 15 0-1.1		1250	1	
10		QMCM-SD 15 1.1-2.9	6/11/17	1252	1	

ORGANIC CHEMISTRY

VOA - Volatile Organic Acids
Volatiles - Full List 1 2 3 4 5 6 7 8 9 10
MTBE/MTBE/TAME only 1 2 3 4 5 6 7 8 9 10
Chlorinated only 1 2 3 4 5 6 7 8 9 10
GRO 1 2 3 4 5 6 7 8 9 10
1,4 Dioxane 1 2 3 4 5 6 7 8 9 10

GS - Pesticides / PCBs
Pesticides & PCBs 1 2 3 4 5 6 7 8 9 10
Pesticides only 1 2 3 4 5 6 7 8 9 10
PCBs only 1 2 3 4 5 6 7 8 9 10
Toxaphene 1 2 3 4 5 6 7 8 9 10

BNA - Base Neutral Acids
BNAs NA - 1 2 3 4 5 6 7 8 9 10
PNAs only 1 2 3 4 5 6 7 8 9 10
BNAs only 1 2 3 4 5 6 7 8 9 10

Organic Specialty Requests
Library search - Volatiles 1 2 3 4 5 6 7 8 9 10
Library search - Semi Vol's 1 2 3 4 5 6 7 8 9 10
Phenol Prep 1 2 3 4 5 6 7 8 9 10
DEP / DRO 1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

OpMetals2 - Total 1 2 3 4 5 6 7 8 9 10
(Ba,As,Be,Cd,Cr,Co,Cu,Fe,Pb,Mn,Hg,Ni,Mo,Se,Ag,Tl,V,Zn)
Michigan10 - Total 1 2 3 4 5 6 7 8 9 10
(Al,Sb,Cd,Cr,Cu,Pb,Hg,Se,Ag,Zn)

MS - TOTAL METALS

Silver - Ag 1 2 3 4 5 6 7 8 9 10
Aluminum - Al 1 2 3 4 5 6 7 8 9 10
Arsenic - As 1 2 3 4 5 6 7 8 9 10
Barium - Ba 1 2 3 4 5 6 7 8 9 10
Beryllium - Be 1 2 3 4 5 6 7 8 9 10
Cadmium - Cd 1 2 3 4 5 6 7 8 9 10
Cobalt - Co 1 2 3 4 5 6 7 8 9 10
Chromium - Cr 1 2 3 4 5 6 7 8 9 10
Copper - Cu 1 2 3 4 5 6 7 8 9 10
Iron - Fe 1 2 3 4 5 6 7 8 9 10
Mercury - Hg 1 2 3 4 5 6 7 8 9 10
Lithium - Li 1 2 3 4 5 6 7 8 9 10
Manganese - Mn 1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo 1 2 3 4 5 6 7 8 9 10
Nickel - Ni 1 2 3 4 5 6 7 8 9 10
Lead - Pb 1 2 3 4 5 6 7 8 9 10
Antimony - Sb 1 2 3 4 5 6 7 8 9 10
Selenium - Se 1 2 3 4 5 6 7 8 9 10
Strontium - Sr 1 2 3 4 5 6 7 8 9 10
Titanium - Ti 1 2 3 4 5 6 7 8 9 10
Thallium - Tl 1 2 3 4 5 6 7 8 9 10
Uranium - U 1 2 3 4 5 6 7 8 9 10
Vanadium - V 1 2 3 4 5 6 7 8 9 10
Zinc - Zn 1 2 3 4 5 6 7 8 9 10
Calcium - Ca 1 2 3 4 5 6 7 8 9 10
Potassium - K 1 2 3 4 5 6 7 8 9 10
Magnesium - Mg 1 2 3 4 5 6 7 8 9 10
Sodium - Na 1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GS - General Chemistry
Total Cyanide - CN 1 2 3 4 5 6 7 8 9 10
Available Cyanide - CN 1 2 3 4 5 6 7 8 9 10
Chem Oxyg Dem - COD 1 2 3 4 5 6 7 8 9 10
Total Org Carbon - TOC 1 2 3 4 5 6 7 8 9 10
Kjeldahl Nitrogen - KN 1 2 3 4 5 6 7 8 9 10
Total Phenolics - TP 1 2 3 4 5 6 7 8 9 10

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org: [illegible] DEQ Signature:	[illegible]	6/14/17 [illegible]
Print Name & Org: Signature:		
Print Name & Org: Signature:		

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
[illegible]	Abandoned Mining Wastes- QMCM Ops	SEDIMENT

Site Code/Project Number	AY	CC Email 1	Project TAT Days	Sample Collector
31000098	17	jbinkley@manniksmithgroup.com		BE
Dept Division/District	**Index**	**CC Email 2**	**Project Due Date**	**Sample Collector Phone**
DEQ RRD UP District- Calumet	44251			906-337-0389
State Project Manager	**PCA**	**CC Email 3**		**Contract Firm**
Amy Keranen	30843			Mannik & Smith Group
State Project Manager Email	**Project**	**Overflow Lab Choice 1**	**Do not compete laboratories**	**Contract Firm Primary Contact**
keranena@michigan.gov	456457	Test America- asbestos		Jeff Binkley
State Project Manager Phone	**Phase**	**Overflow Lab Choice 2**		**Primary Contact Phone**
906-337-0389	00	ALS for waste characterization		906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1		QMCM-SD 38 0-0.5	6/12/17	1106	1	
2		QMCM-SD 39 0-1.6		1145	1	
3		QMCM-SD 39 1.6-3.75		1150	1	
4		QMCM-SD 35 ~~0-.75~~ 0-0.75		1305	1	
5		QMCM-SD 35 0.75-1.5		1307	1	
6		QMCM-SD 34 0-0.8		1345	1	
7		QMCM-SD 34 0.8-2.5		1350	1	
8		QMCM-SD 33 0-2.5		1425	1	
9		QMCM-SD 33 2.5-5.1		1470	1	
10		QMCM-SD 28 0-2	6/12/17	1525	1	

ORGANIC CHEMISTRY

VOA - Volatile Organic Acidic
Volatiles - full list 1 2 3 4 5 6 7 8 9 10
BTEX/MTBE/DMB only 1 2 3 4 5 6 7 8 9 10
Chlorinated only 1 2 3 4 5 6 7 8 9 10
GRO 1 2 3 4 5 6 7 8 9 10
1,4 Dioxane 1 2 3 4 5 6 7 8 9 10

OS - Pesticides, PCBs
Pesticides & PCBs 1 2 3 4 5 6 7 8 9 10
Pesticides only 1 2 3 4 5 6 7 8 9 10
PCBs only 1 2 3 4 5 6 7 8 9 10
Toxaphene 1 2 3 4 5 6 7 8 9 10

BNA - Base Neutral Acids
BNA: 1 2 3 4 5 6 7 8 9 10 — ND
BNA sat: 1 2 3 4 5 6 7 8 9 10
BNA only: 1 2 3 4 5 6 7 8 9 10

Organic Specialty Requests
Library search - Volatile 1 2 3 4 5 6 7 8 9 10
Library search - SemiVol 1 2 3 4 5 6 7 8 9 10
Flash Point 1 2 3 4 5 6 7 8 9 10
DRO / ORO 1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

Oil/Metals - Total 1 2 3 4 5 6 7 8 9 10
(Sb, As, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn)
Mo Organic - Total 1 2 3 4 5 6 7 8 9 10
(As, Hg, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Se, Ag, Zn)

MS - TOTAL METALS

Silver - Ag 1 2 3 4 5 6 7 8 9 10
Aluminum - Al 1 2 3 4 5 6 7 8 9 10
Arsenic - As 1 2 3 4 5 6 7 8 9 10
Barium - Ba 1 2 3 4 5 6 7 8 9 10
Beryllium - Be 1 2 3 4 5 6 7 8 9 10
Cadmium - Cd 1 2 3 4 5 6 7 8 9 10
Cobalt - Co 1 2 3 4 5 6 7 8 9 10
Chromium - Cr 1 2 3 4 5 6 7 8 9 10
Copper - Cu 1 2 3 4 5 6 7 8 9 10
Iron - Fe 1 2 3 4 5 6 7 8 9 10
Mercury - Hg 1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo 1 2 3 4 5 6 7 8 9 10
Manganese - Mn 1 2 3 4 5 6 7 8 9 10
Magnesium - Mg 1 2 3 4 5 6 7 8 9 10
Nickel - Ni 1 2 3 4 5 6 7 8 9 10
Lead - Pb 1 2 3 4 5 6 7 8 9 10
Antimony - Sb 1 2 3 4 5 6 7 8 9 10
Selenium - Se 1 2 3 4 5 6 7 8 9 10
Strontium - Sr 1 2 3 4 5 6 7 8 9 10
Titanium - Ti 1 2 3 4 5 6 7 8 9 10
Thallium - Tl 1 2 3 4 5 6 7 8 9 10
Uranium - U 1 2 3 4 5 6 7 8 9 10
Vanadium - V 1 2 3 4 5 6 7 8 9 10
Zinc - Zn 1 2 3 4 5 6 7 8 9 10
Calcium - Ca 1 2 3 4 5 6 7 8 9 10
Potassium - K 1 2 3 4 5 6 7 8 9 10
Magnesium - Mg 1 2 3 4 5 6 7 8 9 10
Sodium - Na 1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GS - General Chemistry
Total Cyanide - CN 1 2 3 4 5 6 7 8 9 10
Available Cyanide - CN 1 2 3 4 5 6 7 8 9 10
Chem Oxy Dem - COD 1 2 3 4 5 6 7 8 9 10
Total Org Carbon - TOC 1 2 3 4 5 6 7 8 9 10
Kjeldahl Nitrogen - KN 1 2 3 4 5 6 7 8 9 10
Total Phosphorus - TP 1 2 3 4 5 6 7 8 9 10

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name: [illegible]	[illegible]	[illegible]
& Org.:		
Signature:		
Print Name:		
& Org.:		
Signature:		
Print Name:		

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

28 July 2017

Work Order: 1706170

Price: $5,230.00

Amy Keranen
MDEQ-RRD-UP
1504 W. Washington St.
Marquette, MI 49855

RE: ABANDONED MINING WASTES-QMCM Ops

I certify that the analyses performed by the MDEQ Environmental Laboratory were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Sincerely,

Kirby Shane
Laboratory Director

STATE OF MICHIGAN
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FAX: (517) 335-9600

MDEQ-RRD-UP	Project: ABANDONED MINING WASTES-QMCM Ops	
1504 W. Washington St.	Site Code: 31000098	**Reported:**
Marquette MI, 49855	Project Manager: Amy Keranen	07/28/2017

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
QMCM-SD 28-2'-4'	1706170-01	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 23-0-2'	1706170-02	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 23-2'-4.25'	1706170-03	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 46-0-2.5'	1706170-04	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 46-2.5'-5.2'	1706170-05	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 46-2.5'-5.2' dup	1706170-06	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 20-0-2.1'	1706170-07	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 20-2.1'-4.25'	1706170-08	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 19-0-2.2'	1706170-09	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 19-2.2'-4.3'	1706170-10	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 40-0-0.6	1706170-11	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD36-0-1.3	1706170-12	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD36-0-1.3 FD	1706170-13	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 36-1.3-1.7	1706170-14	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 43-0-0.9	1706170-15	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 43-0.9-3	1706170-16	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 41-0-0.3	1706170-17	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 42-0-1.3	1706170-18	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 42-1.3-2.75	1706170-19	Soil/Sediment	06/12/2017	06/14/2017	
QMCM-SD 42-1.3-2.75 FD	1706170-20	Soil/Sediment	06/12/2017	06/14/2017	

Notes and Definitions

Y20	Reporting Limits (RL) raised due to matrix.
X3	Spike recovery is not applicable due to large target analyte concentration in the source sample
A04	Result is estimated due to high matrix spike recovery.
A03	Result(s) and reporting limit(s) are estimated due to low matrix spike recovery.
ND	Indicates compound analyzed for but not detected
RL	Reporting Limit
NA	Not Applicable
dry	Sample results reported on a dry weight basis

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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 28-2'-4'

Lab ID: 1706170-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*70.7 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*76.4 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**66.8**	0.1	%	1	06/23/17	B7F2313	2540 B	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 23-0-2'

Lab ID: 1706170-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	2300	ug/kg dry	1	06/27/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
120-12-7	Anthracene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
218-01-9	Chrysene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
206-44-0	Fluoranthene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
86-73-7	Fluorene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
91-20-3	Naphthalene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
85-01-8	Phenanthrene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
129-00-0	Pyrene	ND	920	ug/kg dry	1	06/27/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*83.9 %*	*32.9-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*66.2 %*	*31.8-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*90.8 %*	*38.5-115*		*06/27/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	370	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*84.7 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*83.8 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	

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P.O. Box 30270
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FAX: (517) 335-9600

Client ID: QMCM-SD 23-0-2'

Lab ID: 1706170-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**54.5**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**18**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**38**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**63**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1700**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**12**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.4**	0.09	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**2.8**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**200**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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TEL: (517) 335-9800
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Client ID: QMCM-SD 23-2'-4.25'

Lab ID: 1706170-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	300	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*73.7 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*76.6 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**66.7**	0.1	%	1	06/23/17	B7F2313	2540 B	

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Client ID: QMCM-SD 46-0-2.5'

Lab ID: 1706170-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	360	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	360	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	360	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	360	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	360	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	360	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	360	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	360	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	360	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*72.2 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*70.2 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**55.4**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**9.2**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**27**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**56**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1900**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**6.1**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.5**	0.09	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**2.6**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**170**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD 46-2.5'-5.2'

Lab ID: 1706170-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	330	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	330	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	330	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	330	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	330	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	330	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	330	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	330	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	330	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*71.1 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*70.3 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**60.3**	0.1	%	1	06/23/17	B7F2313	2540 B	

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Client ID: QMCM-SD 46-2.5'-5.2' dup

Lab ID: 1706170-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*78.9 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*79.0 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**60.7**	0.1	%	1	06/23/17	B7F2313	2540 B	

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Client ID: QMCM-SD 20-0-2.1'

Lab ID: 1706170-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	2200	ug/kg dry	1	06/27/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
120-12-7	Anthracene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
218-01-9	Chrysene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
206-44-0	Fluoranthene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
86-73-7	Fluorene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1800	ug/kg dry	1	06/27/17	B7F2312	8270	
91-20-3	Naphthalene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
85-01-8	Phenanthrene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
129-00-0	Pyrene	ND	890	ug/kg dry	1	06/27/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*83.4 %*	*32.9-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*63.8 %*	*31.8-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*83.2 %*	*38.5-115*		*06/27/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	360	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	360	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	360	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	360	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	360	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	360	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	360	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	360	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	360	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*61.4 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*62.8 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	

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Client ID: QMCM-SD 20-0-2.1'

Lab ID: 1706170-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**55.9**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**11**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**35**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**54**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1200**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**16**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.8**	0.09	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**1.9**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**150**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD 20-2.1'-4.25'

Lab ID: 1706170-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*63.2 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*62.7 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**60.8**	0.1	%	1	06/23/17	B7F2313	2540 B	

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ENVIRONMENTAL LABORATORY

P.O. Box 30270
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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 19-0-2.2'

Lab ID: 1706170-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	2100	ug/kg dry	1	06/27/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	830	ug/kg dry	1	06/27/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	830	ug/kg dry	1	06/27/17	B7F2312	8270	
120-12-7	Anthracene	ND	830	ug/kg dry	1	06/27/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	830	ug/kg dry	1	06/27/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	1700	ug/kg dry	1	06/27/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	1700	ug/kg dry	1	06/27/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1700	ug/kg dry	1	06/27/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	1700	ug/kg dry	1	06/27/17	B7F2312	8270	
218-01-9	Chrysene	ND	830	ug/kg dry	1	06/27/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1700	ug/kg dry	1	06/27/17	B7F2312	8270	
206-44-0	**Fluoranthene**	**1200**	830	ug/kg dry	1	06/27/17	B7F2312	8270	
86-73-7	Fluorene	ND	830	ug/kg dry	1	06/27/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1700	ug/kg dry	1	06/27/17	B7F2312	8270	
91-20-3	Naphthalene	ND	830	ug/kg dry	1	06/27/17	B7F2312	8270	
85-01-8	**Phenanthrene**	**1100**	830	ug/kg dry	1	06/27/17	B7F2312	8270	
129-00-0	**Pyrene**	**1000**	830	ug/kg dry	1	06/27/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*90.8 %*	*32.9-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*72.9 %*	*31.8-115*		*06/27/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*85.7 %*	*38.5-115*		*06/27/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	330	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*64.6 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*67.7 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 19-0-2.2'

Lab ID: 1706170-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**60.2**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**13**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**27**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	Cadmium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**47**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**1600**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**7.8**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	**Mercury**	**0.3**	0.08	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**2.5**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**150**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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FAX: (517) 335-9600

Client ID: QMCM-SD 19-2.2'-4.3'

Lab ID: 1706170-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	320	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	320	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	320	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	320	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	320	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	320	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	320	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	320	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	320	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*56.4 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*64.7 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**61.5**	0.1	%	1	06/23/17	B7F2313	2540 B	

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TEL: (517) 335-9800
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Client ID: QMCM-SD 40-0-0.6

Lab ID: 1706170-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	620	ug/kg dry	1	06/28/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
120-12-7	Anthracene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	500	ug/kg dry	1	06/28/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	500	ug/kg dry	1	06/28/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	500	ug/kg dry	1	06/28/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	500	ug/kg dry	1	06/28/17	B7F2312	8270	
218-01-9	Chrysene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	500	ug/kg dry	1	06/28/17	B7F2312	8270	
206-44-0	Fluoranthene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
86-73-7	Fluorene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	500	ug/kg dry	1	06/28/17	B7F2312	8270	
91-20-3	Naphthalene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
85-01-8	Phenanthrene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
129-00-0	Pyrene	ND	250	ug/kg dry	1	06/28/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*85.4 %*	*32.9-115*		*06/28/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*65.2 %*	*31.8-115*		*06/28/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*85.9 %*	*38.5-115*		*06/28/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	250	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	250	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	250	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	250	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	250	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	250	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	250	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	250	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	250	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*74.9 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*76.9 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	

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Client ID: QMCM-SD 40-0-0.6

Lab ID: 1706170-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**80.5**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**2.9**	0.5	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-39-3	**Barium**	**12**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-43-9	Cadmium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-47-3	**Chromium**	**19**	2.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-50-8	**Copper**	**6100**	100	mg/kg dry	1000	07/07/17	B7F2833	6020/200.8	
7439-92-1	**Lead**	**24**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7439-97-6	Mercury	ND	0.06	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-22-4	**Silver**	**3.7**	0.1	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	
7440-66-6	**Zinc**	**81**	1.0	mg/kg dry	10	07/07/17	B7F2833	6020/200.8	

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Client ID: QMCM-SD36-0-1.3

Lab ID: 1706170-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	700	ug/kg dry	1	06/28/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	280	ug/kg dry	1	06/28/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	280	ug/kg dry	1	06/28/17	B7F2312	8270	
120-12-7	Anthracene	ND	280	ug/kg dry	1	06/28/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	280	ug/kg dry	1	06/28/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	560	ug/kg dry	1	06/28/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	560	ug/kg dry	1	06/28/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	560	ug/kg dry	1	06/28/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	560	ug/kg dry	1	06/28/17	B7F2312	8270	
218-01-9	Chrysene	ND	280	ug/kg dry	1	06/28/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	560	ug/kg dry	1	06/28/17	B7F2312	8270	
206-44-0	**Fluoranthene**	**300**	280	ug/kg dry	1	06/28/17	B7F2312	8270	
86-73-7	Fluorene	ND	280	ug/kg dry	1	06/28/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	560	ug/kg dry	1	06/28/17	B7F2312	8270	
91-20-3	Naphthalene	ND	280	ug/kg dry	1	06/28/17	B7F2312	8270	
85-01-8	Phenanthrene	ND	280	ug/kg dry	1	06/28/17	B7F2312	8270	
129-00-0	**Pyrene**	**280**	280	ug/kg dry	1	06/28/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*86.3 %*	*32.9-115*		*06/28/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*67.5 %*	*31.8-115*		*06/28/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*82.3 %*	*38.5-115*		*06/28/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	280	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	280	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	280	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	280	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	280	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	280	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	280	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	280	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	280	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*71.4 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*73.8 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	

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Client ID: QMCM-SD36-0-1.3

Lab ID: 1706170-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**71.7**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**2.3**	0.5	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-39-3	**Barium**	**21**	1.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-47-3	**Chromium**	**32**	2.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-50-8	**Copper**	**2100**	100	mg/kg dry	1000	07/11/17	B7G0307	6020/200.8	
7439-92-1	**Lead**	**16**	1.0	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7439-97-6	**Mercury**	**0.3**	0.07	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-22-4	**Silver**	**3.2**	0.1	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-66-6	**Zinc**	**110**	10	mg/kg dry	100	07/11/17	B7G0307	6020/200.8	

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Client ID: QMCM-SD36-0-1.3 FD

Lab ID: 1706170-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	720	ug/kg dry	1	06/26/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
120-12-7	Anthracene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	570	ug/kg dry	1	06/26/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	570	ug/kg dry	1	06/26/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	570	ug/kg dry	1	06/26/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	570	ug/kg dry	1	06/26/17	B7F2312	8270	
218-01-9	Chrysene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	570	ug/kg dry	1	06/26/17	B7F2312	8270	
206-44-0	Fluoranthene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
86-73-7	Fluorene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	570	ug/kg dry	1	06/26/17	B7F2312	8270	
91-20-3	Naphthalene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
85-01-8	Phenanthrene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
129-00-0	Pyrene	ND	290	ug/kg dry	1	06/26/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*76.0 %*	*32.9-115*		*06/26/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*67.6 %*	*31.8-115*		*06/26/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*83.6 %*	*38.5-115*		*06/26/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	290	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	290	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	290	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	290	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	290	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	290	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	290	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	290	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	290	ug/kg dry	1	07/06/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*69.4 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*72.4 %*	*30-150*		*07/06/17*	B7F2820	*8081/8082*	

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Client ID: QMCM-SD36-0-1.3 FD

Lab ID: 1706170-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**69.9**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**2.6**	0.5	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-39-3	**Barium**	**23**	1.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-47-3	**Chromium**	**33**	2.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-50-8	**Copper**	**2200**	100	mg/kg dry	1000	07/11/17	B7G0307	6020/200.8	
7439-92-1	**Lead**	**16**	1.0	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7439-97-6	**Mercury**	**0.3**	0.07	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-22-4	**Silver**	**3.4**	0.1	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-66-6	**Zinc**	**110**	10	mg/kg dry	100	07/11/17	B7G0307	6020/200.8	

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Client ID: QMCM-SD 36-1.3-1.7

Lab ID: 1706170-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									
12674-11-2	Aroclor 1016	ND	130	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11104-28-2	Aroclor 1221	ND	130	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11141-16-5	Aroclor 1232	ND	130	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
53469-21-9	Aroclor 1242	ND	130	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
12672-29-6	Aroclor 1248	ND	130	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11097-69-1	Aroclor 1254	ND	130	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11096-82-5	Aroclor 1260	ND	130	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
37324-23-5	Aroclor 1262	ND	130	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
11100-14-4	Aroclor 1268	ND	130	ug/kg dry	1	07/05/17	B7F2820	8081/8082	
Surrogate: Decachlorobiphenyl			*72.0 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*70.4 %*	*30-150*		*07/05/17*	B7F2820	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**79.4**	0.1	%	1	06/23/17	B7F2313	2540 B	

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TEL: (517) 335-9800
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Client ID: QMCM-SD 43-0-0.9

Lab ID: 1706170-15

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	290	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	290	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	290	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	290	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	290	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	290	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	290	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	290	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	290	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*87.0 %*	*30-150*		*07/20/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*93.3 %*	*30-150*		*07/20/17*	B7G1213	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**69.4**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.0**	0.5	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-39-3	**Barium**	**30**	1.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-47-3	**Chromium**	**32**	2.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-50-8	**Copper**	**710**	100	mg/kg dry	1000	07/11/17	B7G0307	6020/200.8	
7439-92-1	**Lead**	**18**	1.0	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7439-97-6	**Mercury**	**0.1**	0.07	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-22-4	**Silver**	**1.2**	0.1	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-66-6	**Zinc**	**98**	10	mg/kg dry	100	07/11/17	B7G0307	6020/200.8	

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Client ID: QMCM-SD 43-0.9-3

Lab ID: 1706170-16

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	280	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	280	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	280	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	280	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	280	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	280	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	280	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	280	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	280	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*77.0 %*	*30-150*		*07/20/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*90.6 %*	*30-150*		*07/20/17*	B7G1213	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**71.0**	0.1	%	1	06/23/17	B7F2313	2540 B	

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Client ID: QMCM-SD 41-0-0.3

Lab ID: 1706170-17

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	260	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	260	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	260	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	260	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	260	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	260	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	260	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	260	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	260	ug/kg dry	1	07/20/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*73.2 %*	*30-150*		*07/20/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*87.1 %*	*30-150*		*07/20/17*	B7G1213	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**77.1**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.0**	0.5	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-39-3	**Barium**	**15**	1.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-47-3	**Chromium**	**24**	2.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-50-8	**Copper**	**3200**	100	mg/kg dry	1000	07/11/17	B7G0307	6020/200.8	
7439-92-1	**Lead**	**28**	1.0	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7439-97-6	**Mercury**	**0.1**	0.06	mg/kg dry	1	07/05/17	B7F2835	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-22-4	**Silver**	**4.0**	0.1	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-66-6	**Zinc**	**91**	10	mg/kg dry	100	07/11/17	B7G0307	6020/200.8	

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Client ID: QMCM-SD 42-0-1.3

Lab ID: 1706170-18

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*74.3 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*77.0 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**72.4**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**1.1**	0.5	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-39-3	**Barium**	**16**	1.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-43-9	**Cadmium**	**0.3**	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-47-3	**Chromium**	**33**	2.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-50-8	**Copper**	**890**	100	mg/kg dry	1000	07/11/17	B7G0307	6020/200.8	
7439-92-1	**Lead**	**9.0**	1.0	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7439-97-6	**Mercury**	**0.1**	0.07	mg/kg dry	1	07/05/17	B7F2836	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-22-4	**Silver**	**1.5**	0.1	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-66-6	**Zinc**	**93**	10	mg/kg dry	100	07/11/17	B7G0307	6020/200.8	

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Client ID: QMCM-SD 42-1.3-2.75

Lab ID: 1706170-19

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*77.6 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*89.1 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**70.9**	0.1	%	1	06/23/17	B7F2313	2540 B	

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Client ID: QMCM-SD 42-1.3-2.75 FD

Lab ID: 1706170-20

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	280	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*66.1 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*77.9 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**70.6**	0.1	%	1	06/23/17	B7F2313	2540 B	

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
170673	Abandoned Mining Wastes- QMCM Ops	SEDIMENT

Site Code/Project Number: 31000098	AY: 17	CC Email 1: jbinkley@manniksmithgroup.com	Project TAT Days:	Sample Collector: BE
Dept/Division/District: DEQ RRD UP District- Calumet	Index: 44251	CC Email 2:	Project Due Date:	Sample Collector Phone: 1-906-337-0389
State Project Manager: Amy Keranen	PCA: 30843	CC Email 3:		Contract Firm: Mannik & Smith Group
State Project Manager Email: keranena@michigan.gov	Project: 456457	Overflow Lab Choice 1: Test America- asbestos	Select Analysis Field Time Code: no	Contract Firm Primary Contact: Jeff Binkley
State Project Manager Phone: 906-337-0389	Phase: 00	Overflow Lab Choice 2: ALS for waste characterization		Primary Contact Phone: 906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1		QMCM-SD 28 - 2'-4'	6/12/17	1530		
2		QMCM-SD 23 - 0-2'	6/12/17	1635		
3		QMCM-SD 23 - 2'-4.25'	6/12/17	1646		
4		QMCM-SD 46 - 0-2.5'	6/13/17	0740		
5		QMCM-SD 46 - 2.5'-5.2'		0745		
6		QMCM-SD 46 - 2.5'-5.2' dup		0749		
7		QMCM-SD 20 - 0-2.1'		0840		
8		QMCM-SD 20 - 2.1' - 4.25'		0845		
9		QMCM-SD 19 - 0-2.2'		0915		
10		QMCM-SD 19 - 2.2' - 4.3'		0920		

ORGANIC CHEMISTRY

VOA - Volatile Organic Acids:
- Volatiles - Full List: 1 2 3 4 5 6 7 8 9 10
- BTEX/MTBE/TMB Only: 1 2 3 4 5 6 7 8 9 10
- Chlorinated only: 1 2 3 4 5 6 7 8 9 10
- THM: 1 2 3 4 5 6 7 8 9 10
- 1,4 Dioxane: 1 2 3 4 5 6 7 8 9 10

OS - Pesticides, PCBs:
- Pesticides & PCBs: 1 2 3 4 5 6 7 8 9 10
- Pesticides only: 1 2 3 4 5 6 7 8 9 10
- PCBs only: 1 2 3 4 5 6 7 8 9 10
- Toxaphene: 1 2 3 4 5 6 7 8 9 10

BNA - Base Neutral Acids:
- BNAs: 1 2 3 4 5 6 7 8 9 10
- PAHs only: 1 2 3 4 5 6 7 8 9 10
- BNAs only: 1 2 3 4 5 6 7 8 9 10

Organic Specialty Requests:
- Library search - Volatiles: 1 2 3 4 5 6 7 8 9 10
- Library search - SemiVol: 1 2 3 4 5 6 7 8 9 10
- Fingerprint: 1 2 3 4 5 6 7 8 9 10
- Oils / FOG: 1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

- OpMetals2 - Total: 1 2 3 4 5 6 7 8 9 10
- ISO As Ba Be Cd Co Cu Cr Fe Mn Hg Mo Ni Se Ag Tl V Zn
- Michigan 10 - Total: 1 2 3 4 5 6 7 8 9 10
- (As, Ba, Cd, Cr, Cu, Pb, Hg, Se, Ag, Zn)

MS - TOTAL METALS

- Silver - Ag: 1 2 3 4 5 6 7 8 9 10
- Aluminum - Al: 1 2 3 4 5 6 7 8 9 10
- Arsenic - As: 1 2 3 4 5 6 7 8 9 10
- Barium - Ba: 1 2 3 4 5 6 7 8 9 10
- Beryllium - Be: 1 2 3 4 5 6 7 8 9 10
- Cadmium - Cd: 1 2 3 4 5 6 7 8 9 10
- Cobalt - Co: 1 2 3 4 5 6 7 8 9 10
- Chromium - Cr: 1 2 3 4 5 6 7 8 9 10
- Copper - Cu: 1 2 3 4 5 6 7 8 9 10
- Iron - Fe: 1 2 3 4 5 6 7 8 9 10
- Mercury - Hg: 1 2 3 4 5 6 7 8 9 10
- Lithium - Li: 1 2 3 4 5 6 7 8 9 10
- Manganese - Mn: 1 2 3 4 5 6 7 8 9 10
- Molybdenum - Mo: 1 2 3 4 5 6 7 8 9 10
- Nickel - Ni: 1 2 3 4 5 6 7 8 9 10
- Lead - Pb: 1 2 3 4 5 6 7 8 9 10
- Antimony - Sb: 1 2 3 4 5 6 7 8 9 10
- Selenium - Se: 1 2 3 4 5 6 7 8 9 10
- Strontium - Sr: 1 2 3 4 5 6 7 8 9 10
- Thallium - Tl: 1 2 3 4 5 6 7 8 9 10
- Tin - Sn: 1 2 3 4 5 6 7 8 9 10
- Uranium - U: 1 2 3 4 5 6 7 8 9 10
- Vanadium - V: 1 2 3 4 5 6 7 8 9 10
- Zinc - Zn: 1 2 3 4 5 6 7 8 9 10
- Calcium - Ca: 1 2 3 4 5 6 7 8 9 10
- Potassium - K: 1 2 3 4 5 6 7 8 9 10
- Magnesium - Mg: 1 2 3 4 5 6 7 8 9 10
- Sodium - Na: 1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GS - General Chemistry:
- Total Cyanide - CN: 1 2 3 4 5 6 7 8 9 10
- Available Cyanide - CN: 1 2 3 4 5 6 7 8 9 10
- Chem Oxyg Dem - COD: 1 2 3 4 5 6 7 8 9 10
- Total Org Carbon - TOC: 1 2 3 4 5 6 7 8 9 10
- Nitrate Nitrogen - NN: 1 2 3 4 5 6 7 8 9 10
- Total Phosphorus - TP: 1 2 3 4 5 6 7 8 9 10

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org: [illegible] DEQ Signature: [illegible]	[illegible]	6/19/17 1607
Print Name & Org: Signature:		
Print Name & Org: Signature:		

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
17-06-116	Abandoned Mining Wastes- QMCM Ops	SEDIMENT

Site Code/Project Number	AY	CC Email 1	Project TAT Days	Sample Collector
31000098	17	jbinkley@manniksmithgroup.com		BE
Dept/Div/Sec/District	**Index**	**CC Email 2**	**Project Due Date**	**Sample Collector Phone**
DEQ RRD UP District- Calumet	44251			906-337-0389
State Project Manager	**PCA**	**CC Email 3**		**Contract Firm**
Amy Keranen	30843			Mannik & Smith Group
State Project Manager Email	**Project**	**Overflow Lab Choice 1**	**Accept Analysis Late Due Date**	**Contract Firm Primary Contact**
keranena@michigan.gov	456457	Test America- asbestos	N	Jeff Binkley
State Project Manager Phone	**Phase**	**Overflow Lab Choice 2**		**Primary Contact Phone**
906-337-0389	00	ALS for waste characterization		906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1		QMCM-SD 40 0-0.6	6/12/17	0740	1	
2		QMCM-SD 36 0-1.3		0812	1	
3		QMCM-SD 36 0-1.3 FD		0812	1	
4		QMCM-SD 36 1.3-1.7		0814	1	
5		QMCM-SD 43 0-0.9		0852	1	
6		QMCM-SD 43 0.9-3		0854	1	
7		QMCM-SD 41 0-0.3		0938	1	
8		QMCM-SD 42 0-1.3		1006	1	
9		QMCM-SD 42 1.3-2.75		1008	1	
10		QMCM-SD 42 1.3-2.75 FD	6/12/17	1008	1	

ORGANIC CHEMISTRY

VOA - Volatile Organic Aromatic
Volatiles - Full List 1 2 3 4 5 6 7 8 9 10
BTEX/MTBE/TMB only 1 2 3 4 5 6 7 8 9 10
Chlorinated only 1 2 3 4 5 6 7 8 9 10
EDO 1 2 3 4 5 6 7 8 9 10
1,4 Dioxane 1 2 3 4 5 6 7 8 9 10

GC - Pesticides, PCBs
Pesticides & PCBs 1 2 3 4 5 6 7 8 9 10
Pesticides only 1 2 3 4 5 6 7 8 9 10
PCBs only 1 2 3 4 5 6 7 8 9 10
Toxaphene 1 2 3 4 5 6 7 8 9 10

B/N - Base Neutral Acids
BNAs No 1 2 3 4 5 6 7 8 9 10
BNAs only 1 2 3 4 5 6 7 8 9 10
BNAs only 1 2 3 4 5 6 7 8 9 10

Organic Specialty Requests
Library search - Volatiles 1 2 3 4 5 6 7 8 9 10
Library search - SemiVols 1 2 3 4 5 6 7 8 9 10
Fingerprint 1 2 3 4 5 6 7 8 9 10
DRO / ORO 1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

RpMetals2 - Total) 1 2 3 4 5 6 7 8 9 10
(Sb As Ba Be Cd Cr Cu Co Fe Pb Mn Hg Mo Ni Se Ag Tl V Zn)
MRLLigandD - Total 1 2 3 4 5 6 7 8 9 10
(As,Ba,Cd,Co,Cu,Pb,Hg,Se,Ag,Zn)

MS - TOTAL METALS

Silver - Ag 1 2 3 4 5 6 7 8 9 10
Aluminum - Al 1 2 3 4 5 6 7 8 9 10
Arsenic - As 1 2 3 4 5 6 7 8 9 10
Barium - Ba 1 2 3 4 5 6 7 8 9 10
Beryllium - Be 1 2 3 4 5 6 7 8 9 10
Cadmium - Cd 1 2 3 4 5 6 7 8 9 10
Cobalt - Co 1 2 3 4 5 6 7 8 9 10
Chromium - Cr 1 2 3 4 5 6 7 8 9 10
Copper - Cu 1 2 3 4 5 6 7 8 9 10
Iron - Fe 1 2 3 4 5 6 7 8 9 10
Mercury - Hg 1 2 3 4 5 6 7 8 9 10
Lithium - Li 1 2 3 4 5 6 7 8 9 10
Manganese - Mn 1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo 1 2 3 4 5 6 7 8 9 10
Nickel - Ni 1 2 3 4 5 6 7 8 9 10
Lead - Pb 1 2 3 4 5 6 7 8 9 10
Antimony - Sb 1 2 3 4 5 6 7 8 9 10
Selenium - Se 1 2 3 4 5 6 7 8 9 10
Strontium - Sr 1 2 3 4 5 6 7 8 9 10
Titanium - Ti 1 2 3 4 5 6 7 8 9 10
Thallium - Tl 1 2 3 4 5 6 7 8 9 10
Uranium - U 1 2 3 4 5 6 7 8 9 10
Vanadium - V 1 2 3 4 5 6 7 8 9 10
Zinc - Zn 1 2 3 4 5 6 7 8 9 10
Calcium - Ca 1 2 3 4 5 6 7 8 9 10
Potassium - K 1 2 3 4 5 6 7 8 9 10
Magnesium - Mg 1 2 3 4 5 6 7 8 9 10
Sodium - Na 1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GS - General Chemistry
Total Cyanide - CN 1 2 3 4 5 6 7 8 9 10
Available Cyanide - CN 1 2 3 4 5 6 7 8 9 10
Chem Oxyg Dem - COD 1 2 3 4 5 6 7 8 9 10
Total Org Carbon - TOC 1 2 3 4 5 6 7 8 9 10
Kjeldahl Nitrogen - KN 1 2 3 4 5 6 7 8 9 10
Total Phosphorus - TP 1 2 3 4 5 6 7 8 9 10

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name: Brian Eckler DEQ & Org: Signature:	Michael Jack DEQ	6/13/17 10:00
Print Name: & Org: Signature:		
Print Name: & Org: Signature:		

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

28 July 2017

Work Order: 1706171

Price: $2,253.00

Amy Keranen
MDEQ-RRD-UP
1504 W. Washington St.
Marquette, MI 49855

RE: ABANDONED MINING WASTES-QMCM Ops

I certify that the analyses performed by the MDEQ Environmental Laboratory were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Sincerely,

Kirby Shane
Laboratory Director

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

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MDEQ-RRD-UP	Project: ABANDONED MINING WASTES-QMCM Ops	
1504 W. Washington St.	Site Code: 31000098	**Reported:**
Marquette MI, 49855	Project Manager: Amy Keranen	07/28/2017

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
QMCM-SD 17-0-2'	1706171-01	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 17-2'-4.2'	1706171-02	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 17-0-2' dup	1706171-03	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 31-0-2.8'	1706171-04	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 31-2.8'-5.6'	1706171-05	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 26-0-2.5'	1706171-06	Soil/Sediment	06/13/2017	06/14/2017	
QMCM-SD 26-2.5'-5'	1706171-07	Soil/Sediment	06/13/2017	06/14/2017	

Notes and Definitions

Y20	Reporting Limits (RL) raised due to matrix.
X3	Spike recovery is not applicable due to large target analyte concentration in the source sample
A04	Result is estimated due to high matrix spike recovery.
ND	Indicates compound analyzed for but not detected
RL	Reporting Limit
NA	Not Applicable
dry	Sample results reported on a dry weight basis

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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 17-0-2'

Lab ID: 1706171-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	2200	ug/kg dry	1	06/26/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
120-12-7	Anthracene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	1700	ug/kg dry	1	06/26/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	1700	ug/kg dry	1	06/26/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1700	ug/kg dry	1	06/26/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	1700	ug/kg dry	1	06/26/17	B7F2312	8270	
218-01-9	Chrysene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1700	ug/kg dry	1	06/26/17	B7F2312	8270	
206-44-0	Fluoranthene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
86-73-7	Fluorene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1700	ug/kg dry	1	06/26/17	B7F2312	8270	
91-20-3	Naphthalene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
85-01-8	Phenanthrene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
129-00-0	Pyrene	ND	870	ug/kg dry	1	06/26/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*81.0 %*	*32.9-115*		*06/26/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*70.4 %*	*31.8-115*		*06/26/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*91.5 %*	*38.5-115*		*06/26/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*77.5 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*88.4 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 17-0-2'

Lab ID: 1706171-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**57.8**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**11**	0.5	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-39-3	**Barium**	**49**	1.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-43-9	Cadmium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-47-3	**Chromium**	**44**	2.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	A04
7440-50-8	**Copper**	**1200**	100	mg/kg dry	1000	07/11/17	B7G0307	6020/200.8	
7439-92-1	**Lead**	**12**	1.0	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7439-97-6	**Mercury**	**0.2**	0.09	mg/kg dry	1	07/05/17	B7F2836	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-22-4	**Silver**	**2.1**	0.1	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-66-6	**Zinc**	**140**	10	mg/kg dry	100	07/11/17	B7G0307	6020/200.8	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 17-2'-4.2'

Lab ID: 1706171-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	330	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	330	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	330	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	330	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	330	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	330	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	330	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	330	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	330	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*69.7 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*81.1 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**60.5**	0.1	%	1	06/23/17	B7F2313	2540 B	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 17-0-2' dup

Lab ID: 1706171-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	2200	ug/kg dry	1	06/26/17	B7F2312	8270	
83-32-9	Acenaphthene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
208-96-8	Acenaphthylene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
120-12-7	Anthracene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
56-55-3	Benz[a]anthracene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
50-32-8	Benzo[a]pyrene	ND	1800	ug/kg dry	1	06/26/17	B7F2312	8270	
205-99-2	Benzo[b]fluoranthene	ND	1800	ug/kg dry	1	06/26/17	B7F2312	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1800	ug/kg dry	1	06/26/17	B7F2312	8270	
207-08-9	Benzo[k]fluoranthene	ND	1800	ug/kg dry	1	06/26/17	B7F2312	8270	
218-01-9	Chrysene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
53-70-3	Dibenz[a,h]anthracene	ND	1800	ug/kg dry	1	06/26/17	B7F2312	8270	
206-44-0	Fluoranthene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
86-73-7	Fluorene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	1800	ug/kg dry	1	06/26/17	B7F2312	8270	
91-20-3	Naphthalene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
85-01-8	Phenanthrene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
129-00-0	Pyrene	ND	890	ug/kg dry	1	06/26/17	B7F2312	8270	
Surrogate: 2-Fluorobiphenyl			*74.0 %*	*32.9-115*		*06/26/17*	B7F2312	*8270*	
Surrogate: Nitrobenzene-d5			*61.7 %*	*31.8-115*		*06/26/17*	B7F2312	*8270*	
Surrogate: p-Terphenyl-d14			*82.7 %*	*38.5-115*		*06/26/17*	B7F2312	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	360	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	360	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	360	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	360	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	360	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	360	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	360	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	360	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	360	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*75.7 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*83.9 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 17-0-2' dup

Lab ID: 1706171-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**56.2**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**13**	0.5	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-39-3	**Barium**	**52**	1.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-47-3	**Chromium**	**52**	2.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-50-8	**Copper**	**1300**	100	mg/kg dry	1000	07/11/17	B7G0307	6020/200.8	
7439-92-1	**Lead**	**12**	1.0	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7439-97-6	**Mercury**	**0.2**	0.09	mg/kg dry	1	07/05/17	B7F2836	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-22-4	**Silver**	**2.0**	0.1	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-66-6	**Zinc**	**160**	10	mg/kg dry	100	07/11/17	B7G0307	6020/200.8	

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Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 31-0-2.8'

Lab ID: 1706171-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	870	ug/kg dry	1	06/28/17	B7F2607	8270	
83-32-9	Acenaphthene	ND	350	ug/kg dry	1	06/28/17	B7F2607	8270	
208-96-8	Acenaphthylene	ND	350	ug/kg dry	1	06/28/17	B7F2607	8270	
120-12-7	Anthracene	ND	350	ug/kg dry	1	06/28/17	B7F2607	8270	
56-55-3	Benz[a]anthracene	ND	350	ug/kg dry	1	06/28/17	B7F2607	8270	
50-32-8	Benzo[a]pyrene	ND	700	ug/kg dry	1	06/28/17	B7F2607	8270	
205-99-2	Benzo[b]fluoranthene	ND	700	ug/kg dry	1	06/28/17	B7F2607	8270	
191-24-2	Benzo[g,h,i]perylene	ND	700	ug/kg dry	1	06/28/17	B7F2607	8270	
207-08-9	Benzo[k]fluoranthene	ND	700	ug/kg dry	1	06/28/17	B7F2607	8270	
218-01-9	Chrysene	ND	350	ug/kg dry	1	06/28/17	B7F2607	8270	
53-70-3	Dibenz[a,h]anthracene	ND	700	ug/kg dry	1	06/28/17	B7F2607	8270	
206-44-0	Fluoranthene	ND	350	ug/kg dry	1	06/28/17	B7F2607	8270	
86-73-7	Fluorene	ND	350	ug/kg dry	1	06/28/17	B7F2607	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	700	ug/kg dry	1	06/28/17	B7F2607	8270	
91-20-3	Naphthalene	ND	350	ug/kg dry	1	06/28/17	B7F2607	8270	
85-01-8	**Phenanthrene**	**400**	350	ug/kg dry	1	06/28/17	B7F2607	8270	
129-00-0	Pyrene	ND	350	ug/kg dry	1	06/28/17	B7F2607	8270	
Surrogate: 2-Fluorobiphenyl			*64.7 %*	*32.9-115*		*06/28/17*	B7F2607	*8270*	
Surrogate: Nitrobenzene-d5			*46.3 %*	*31.8-115*		*06/28/17*	B7F2607	*8270*	
Surrogate: p-Terphenyl-d14			*70.5 %*	*38.5-115*		*06/28/17*	B7F2607	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*71.1 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*78.9 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	

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Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 31-0-2.8'

Lab ID: 1706171-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**57.2**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**11**	0.5	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-39-3	**Barium**	**47**	1.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-47-3	**Chromium**	**54**	2.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-50-8	**Copper**	**1500**	100	mg/kg dry	1000	07/11/17	B7G0307	6020/200.8	
7439-92-1	**Lead**	**15**	1.0	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7439-97-6	**Mercury**	**0.6**	0.09	mg/kg dry	1	07/05/17	B7F2836	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-22-4	**Silver**	**2.3**	0.1	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-66-6	**Zinc**	**180**	10	mg/kg dry	100	07/11/17	B7G0307	6020/200.8	

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Client ID: QMCM-SD 31-2.8'-5.6'

Lab ID: 1706171-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*80.5 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*95.8 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**56.4**	0.1	%	1	06/23/17	B7F2313	2540 B	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 26-0-2.5'

Lab ID: 1706171-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	980	ug/kg dry	1	06/28/17	B7F2607	8270	
83-32-9	Acenaphthene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
208-96-8	Acenaphthylene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
120-12-7	Anthracene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
56-55-3	Benz[a]anthracene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
50-32-8	Benzo[a]pyrene	ND	780	ug/kg dry	1	06/28/17	B7F2607	8270	
205-99-2	Benzo[b]fluoranthene	ND	780	ug/kg dry	1	06/28/17	B7F2607	8270	
191-24-2	Benzo[g,h,i]perylene	ND	780	ug/kg dry	1	06/28/17	B7F2607	8270	
207-08-9	Benzo[k]fluoranthene	ND	780	ug/kg dry	1	06/28/17	B7F2607	8270	
218-01-9	Chrysene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
53-70-3	Dibenz[a,h]anthracene	ND	780	ug/kg dry	1	06/28/17	B7F2607	8270	
206-44-0	Fluoranthene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
86-73-7	Fluorene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	780	ug/kg dry	1	06/28/17	B7F2607	8270	
91-20-3	Naphthalene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
85-01-8	Phenanthrene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
129-00-0	Pyrene	ND	390	ug/kg dry	1	06/28/17	B7F2607	8270	
Surrogate: 2-Fluorobiphenyl			*73.6 %*	*32.9-115*		*06/28/17*	B7F2607	*8270*	
Surrogate: Nitrobenzene-d5			*55.1 %*	*31.8-115*		*06/28/17*	B7F2607	*8270*	
Surrogate: p-Terphenyl-d14			*77.0 %*	*38.5-115*		*06/28/17*	B7F2607	*8270*	
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	390	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	390	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	390	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	390	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	390	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	390	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	390	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	390	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	390	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*77.6 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*87.2 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	

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ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
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Client ID: QMCM-SD 26-0-2.5'

Lab ID: 1706171-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Inorganics-General Chemistry									
TS	**% Total Solids**	**51.3**	0.1	%	1	06/23/17	B7F2115	2540 B	
Inorganics-Metals									
7440-38-2	**Arsenic**	**13**	0.5	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-39-3	**Barium**	**53**	1.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-43-9	**Cadmium**	**0.2**	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-47-3	**Chromium**	**64**	2.0	mg/kg dry	10	07/11/17	B7G0307	6020/200.8	
7440-50-8	**Copper**	**1700**	100	mg/kg dry	1000	07/11/17	B7G0307	6020/200.8	
7439-92-1	**Lead**	**15**	1.0	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7439-97-6	**Mercury**	**0.4**	0.1	mg/kg dry	1	07/05/17	B7F2836	7471/245.5	
7782-49-2	Selenium	ND	0.2	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-22-4	**Silver**	**2.7**	0.1	mg/kg dry	10	07/10/17	B7G0307	6020/200.8	
7440-66-6	**Zinc**	**210**	10	mg/kg dry	100	07/11/17	B7G0307	6020/200.8	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SD 26-2.5'-5'

Lab ID: 1706171-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-PCBs as Aroclors									**See note Y20**
12674-11-2	Aroclor 1016	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11104-28-2	Aroclor 1221	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11141-16-5	Aroclor 1232	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
53469-21-9	Aroclor 1242	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
12672-29-6	Aroclor 1248	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11097-69-1	Aroclor 1254	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11096-82-5	Aroclor 1260	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
37324-23-5	Aroclor 1262	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
11100-14-4	Aroclor 1268	ND	350	ug/kg dry	1	07/21/17	B7G1213	8081/8082	
Surrogate: Decachlorobiphenyl			*79.3 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Surrogate: Tetrachloro-m-xylene			*92.3 %*	*30-150*		*07/21/17*	B7G1213	*8081/8082*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**57.6**	0.1	%	1	06/23/17	B7F2313	2540 B	

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
176171	Abandoned Mining Wastes- QMCM Ops	SEDIMENT

Site Code/Project Number: 31000098	AY: 17	CC Email 1: jbinkley@manniksmithgroup.com	Project TAT Days:	Sample Collector: BE
Dept-Division-District: DEQ RRD UP District- Calumet	Index: 44251	CC Email 2:	Project Due Date:	Sample Collector Phone: 1-906-337-0389
State Project Manager: Amy Keranen	PCA: 30843	CC Emails:		Contract Firm: Mannik & Smith Group
State Project Manager Email: keranena@michigan.gov	Project: 456457	Overflow Lab Choice 1: Test America- asbestos	Accept Analysis hold time codes: No	Contract Firm Primary Contact: Jeff Binkley
State Project Manager Phone: 906-337-0389	Phase: 00	Overflow Lab Choice 2: ALS for waste characterization		Primary Contact Phone: 906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1		QMCM-SD17-0-2'	6/13/17	1005		
2		QMCM-SD17-2'-4.2'		1010		
3		QMCM-SD17-0-2' dup		1005		
4		QMCM-SD31-0-2.8'		1120		
5		QMCM-SD31-2.8'-5.6'		1125		
6		QMCM-SD26-0-2.5'		1200		
7		QMCM-SD26-2.5'-5'		1205		
8		QMCM-SD				
9		QMCM-SD				
10		QMCM-SD				

ORGANIC CHEMISTRY

VOA - Volatile Organic Article
Volatiles - Full Scan 1 2 3 4 5 6 7 8 9 10
BTEX/MTBE only 1 2 3 4 5 6 7 8 9 10
Chlorinated 1 2 3 4 5 6 7 8 9 10
EDB 1 2 3 4 5 6 7 8 9 10
1,4-Dioxane 1 2 3 4 5 6 7 8 9 10

OS - Pesticides, PCBs
Pesticides & PCBs 1 2 3 4 5 6 7 8 9 10
Pesticides only 1 2 3 4 5 6 7 8 9 10
PCBs only 1 2 3 4 5 6 7 8 9 10
Toxaphene 1 2 3 4 5 6 7 8 9 10

BNA - Base Neutral & Acid
BNAs 1 2 3 4 5 6 7 8 9 10
PAHs only 1 2 3 4 5 6 7 8 9 10
Phenols only 1 2 3 4 5 6 7 8 9 10

Organic Screening Requests
Library search - Volatiles 1 2 3 4 5 6 7 8 9 10
Library search - SemiVols 1 2 3 4 5 6 7 8 9 10
Finger Print 1 2 3 4 5 6 7 8 9 10
DRO / GRO 1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

Dissolved - Total 1 2 3 4 5 6 7 8 9 10
(Ag, Al, As, B, Ba, Cd, Ca, Co, Cr, Cu, Fe, Pb, Mg, Mn, Mo, Ni, Se, Sr, Sn, Ti, V, Zn)
Mercury10 - Total 1 2 3 4 5 6 7 8 9 10
(As, Cd, Cr, Cu, Fe, Hg, Pb, Se, Zn)

MS - TOTAL METALS

Silver - Ag 1 2 3 4 5 6 7 8 9 10
Aluminum - Al 1 2 3 4 5 6 7 8 9 10
Arsenic - As 1 2 3 4 5 6 7 8 9 10
Barium - Ba 1 2 3 4 5 6 7 8 9 10
Beryllium - Be 1 2 3 4 5 6 7 8 9 10
Cadmium - Cd 1 2 3 4 5 6 7 8 9 10
Cobalt - Co 1 2 3 4 5 6 7 8 9 10
Chromium - Cr 1 2 3 4 5 6 7 8 9 10
Copper - Cu 1 2 3 4 5 6 7 8 9 10
Iron - Fe 1 2 3 4 5 6 7 8 9 10
Mercury - Hg 1 2 3 4 5 6 7 8 9 10
Lithium - Li 1 2 3 4 5 6 7 8 9 10
Manganese - Mn 1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo 1 2 3 4 5 6 7 8 9 10
Nickel - Ni 1 2 3 4 5 6 7 8 9 10
Lead - Pb 1 2 3 4 5 6 7 8 9 10
Antimony - Sb 1 2 3 4 5 6 7 8 9 10
Selenium - Se 1 2 3 4 5 6 7 8 9 10
Strontium - Sr 1 2 3 4 5 6 7 8 9 10
Thallium - Tl 1 2 3 4 5 6 7 8 9 10
Uranium - U 1 2 3 4 5 6 7 8 9 10
Vanadium - V 1 2 3 4 5 6 7 8 9 10
Zinc - Zn 1 2 3 4 5 6 7 8 9 10
Calcium - Ca 1 2 3 4 5 6 7 8 9 10
Potassium - K 1 2 3 4 5 6 7 8 9 10
Magnesium - Mg 1 2 3 4 5 6 7 8 9 10
Sodium - Na 1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GS - General Chemistry
Total Cyanide - CN 1 2 3 4 5 6 7 8 9 10
Available Cyanide - CNA 1 2 3 4 5 6 7 8 9 10
Chem Oxy Dem - COD 1 2 3 4 5 6 7 8 9 10
Total Org Carbon - TOC 1 2 3 4 5 6 7 8 9 10
Ammonia Nitrogen - NH 1 2 3 4 5 6 7 8 9 10
Total Phosphorus - TP 1 2 3 4 5 6 7 8 9 10

Chain of Custody	Relinquished by	Received By	Date / Time
	Print Name & Org. [illegible] DEQ	[illegible]	
	Signature		6/14/17 1600
	Print Name & Org.		
	Signature		
	Print Name		

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

19 October 2017

Work Order: 1709154

Price: $360.00

Amy Keranen
MDEQ-RRD-UP
1504 W. Washington St.
Marquette, MI 49855

RE: ABANDONED MINING WASTES-QMCM Ops

I certify that the analyses performed by the MDEQ Environmental Laboratory were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Sincerely,

Kirby Shane
Laboratory Director

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

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ENVIRONMENTAL LABORATORY

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FAX: (517) 335-9600

MDEQ-RRD-UP	Project: ABANDONED MINING WASTES-QMCM Ops	
1504 W. Washington St.	Site Code: 31000098	**Reported:**
Marquette MI, 49855	Project Manager: Amy Keranen	10/19/2017

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
QMCM-SG 01	1709154-01	Air	09/13/2017	09/19/2017	
QMCM-SG 02	1709154-02	Air	09/13/2017	09/19/2017	

Notes and Definitions

T	Reported value is less than the reporting limit (RL). Result is estimated.
A10	Result and reporting limit are estimated due to low initial verification standard criteria failure.
A05	Result and reporting limit are estimated due to low continuing calibration standard criteria failure.
ND	Indicates compound analyzed for but not detected
RL	Reporting Limit
NA	Not Applicable

STATE OF MICHIGAN
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P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SG 01

Lab ID: 1709154-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
71-55-6	1,1,1-Trichloroethane	ND	1.6	ug/m3	1	10/03/17	B7J0509	TO-15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/m3	1	10/03/17	B7J0509	TO-15	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ug/m3	1	10/03/17	B7J0509	TO-15	
75-34-3	1,1-Dichloroethane	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
75-35-4	1,1-Dichloroethylene	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
120-82-1	1,2,4-Trichlorobenzene	ND	2.2	ug/m3	1	10/03/17	B7J0509	TO-15	A05, A10
95-63-6	**1,2,4-Trimethylbenzene**	**2.5**	1.5	ug/m3	1	10/03/17	B7J0509	TO-15	
106-93-4	1,2-Dibromoethane	ND	2.3	ug/m3	1	10/03/17	B7J0509	TO-15	
95-50-1	1,2-Dichlorobenzene	ND	1.8	ug/m3	1	10/03/17	B7J0509	TO-15	
107-06-2	1,2-Dichloroethane	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
78-87-5	1,2-Dichloropropane	ND	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
108-67-8	1,3,5-Trimethylbenzene	ND	1.5	ug/m3	1	10/03/17	B7J0509	TO-15	
106-99-0	1,3-Butadiene	ND	0.66	ug/m3	1	10/03/17	B7J0509	TO-15	
541-73-1	1,3-Dichlorobenzene	ND	1.8	ug/m3	1	10/03/17	B7J0509	TO-15	
106-46-7	1,4-Dichlorobenzene	ND	1.8	ug/m3	1	10/03/17	B7J0509	TO-15	
540-84-1	**2,2,4-Trimethylpentane**	**7.0**	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
78-93-3	2-Butanone (MEK)	ND	15	ug/m3	1	10/03/17	B7J0509	TO-15	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	4.1	ug/m3	1	10/03/17	B7J0509	TO-15	
75-05-8	Acetonitrile	ND	1.7	ug/m3	1	10/03/17	B7J0509	TO-15	A05
107-13-1	Acrylonitrile	ND	1.1	ug/m3	1	10/03/17	B7J0509	TO-15	
71-43-2	**Benzene**	**2.3**	0.95	ug/m3	1	10/03/17	B7J0509	TO-15	
75-27-4	Bromodichloromethane	ND	2.0	ug/m3	1	10/03/17	B7J0509	TO-15	
75-25-2	Bromoform	ND	3.1	ug/m3	1	10/03/17	B7J0509	TO-15	
74-83-9	Bromomethane	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
56-23-5	Carbon tetrachloride	ND	1.9	ug/m3	1	10/03/17	B7J0509	TO-15	
108-90-7	Chlorobenzene	ND	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
75-00-3	Chloroethane	ND	0.79	ug/m3	1	10/03/17	B7J0509	TO-15	
67-66-3	Chloroform	ND	1.5	ug/m3	1	10/03/17	B7J0509	TO-15	
74-87-3	**Chloromethane**	**0.86**	0.62	ug/m3	1	10/03/17	B7J0509	TO-15	
156-59-2	cis-1,2-Dichloroethylene	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
124-48-1	Dibromochloromethane	ND	2.5	ug/m3	1	10/03/17	B7J0509	TO-15	
75-71-8	**Dichlorodifluoromethane**	**3.0**	1.5	ug/m3	1	10/03/17	B7J0509	TO-15	
100-41-4	**Ethylbenzene**	**3.0**	1.3	ug/m3	1	10/03/17	B7J0509	TO-15	
110-54-3	**Hexane**	**3.7**	3.5	ug/m3	1	10/03/17	B7J0509	TO-15	
1330-20-7	**m & p - Xylene**	**8.8**	1.3	ug/m3	1	10/03/17	B7J0509	TO-15	
75-09-2	**Methylene chloride**	**2.7**	1.0	ug/m3	1	10/03/17	B7J0509	TO-15	
1634-04-4	Methyltertiarybutylether	ND	1.8	ug/m3	1	10/03/17	B7J0509	TO-15	
95-47-6	**o-Xylene**	**3.7**	1.3	ug/m3	1	10/03/17	B7J0509	TO-15	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SG 01

Lab ID: 1709154-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
100-42-5	Styrene	ND	1.3	ug/m3	1	10/03/17	B7J0509	TO-15	
127-18-4	**Tetrachloroethylene**	**20**	2.0	ug/m3	1	10/03/17	B7J0509	TO-15	
108-88-3	**Toluene**	**10**	1.1	ug/m3	1	10/03/17	B7J0509	TO-15	
156-60-5	trans-1,2-Dichloroethylene	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
79-01-6	Trichloroethylene	ND	1.6	ug/m3	1	10/03/17	B7J0509	TO-15	
75-69-4	**Trichlorofluoromethane**	**1.4**	1.7	ug/m3	1	10/03/17	B7J0509	TO-15	T
75-01-4	Vinyl chloride	ND	0.76	ug/m3	1	10/03/17	B7J0509	TO-15	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SG 02

Lab ID: 1709154-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
71-55-6	1,1,1-Trichloroethane	ND	1.6	ug/m3	1	10/03/17	B7J0509	TO-15	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/m3	1	10/03/17	B7J0509	TO-15	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ug/m3	1	10/03/17	B7J0509	TO-15	
75-34-3	1,1-Dichloroethane	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
75-35-4	1,1-Dichloroethylene	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
120-82-1	1,2,4-Trichlorobenzene	ND	2.2	ug/m3	1	10/03/17	B7J0509	TO-15	A05, A10
95-63-6	**1,2,4-Trimethylbenzene**	**3.6**	1.5	ug/m3	1	10/03/17	B7J0509	TO-15	
106-93-4	1,2-Dibromoethane	ND	2.3	ug/m3	1	10/03/17	B7J0509	TO-15	
95-50-1	1,2-Dichlorobenzene	ND	1.8	ug/m3	1	10/03/17	B7J0509	TO-15	
107-06-2	1,2-Dichloroethane	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
78-87-5	1,2-Dichloropropane	ND	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
108-67-8	1,3,5-Trimethylbenzene	ND	1.5	ug/m3	1	10/03/17	B7J0509	TO-15	
106-99-0	1,3-Butadiene	ND	0.66	ug/m3	1	10/03/17	B7J0509	TO-15	
541-73-1	1,3-Dichlorobenzene	ND	1.8	ug/m3	1	10/03/17	B7J0509	TO-15	
106-46-7	1,4-Dichlorobenzene	ND	1.8	ug/m3	1	10/03/17	B7J0509	TO-15	
540-84-1	2,2,4-Trimethylpentane	ND	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
78-93-3	2-Butanone (MEK)	ND	15	ug/m3	1	10/03/17	B7J0509	TO-15	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	4.1	ug/m3	1	10/03/17	B7J0509	TO-15	
75-05-8	Acetonitrile	ND	1.7	ug/m3	1	10/03/17	B7J0509	TO-15	A05
107-13-1	Acrylonitrile	ND	1.1	ug/m3	1	10/03/17	B7J0509	TO-15	
71-43-2	**Benzene**	**0.83**	0.95	ug/m3	1	10/03/17	B7J0509	TO-15	T
75-27-4	Bromodichloromethane	ND	2.0	ug/m3	1	10/03/17	B7J0509	TO-15	
75-25-2	Bromoform	ND	3.1	ug/m3	1	10/03/17	B7J0509	TO-15	
74-83-9	Bromomethane	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
56-23-5	Carbon tetrachloride	ND	1.9	ug/m3	1	10/03/17	B7J0509	TO-15	
108-90-7	Chlorobenzene	ND	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
75-00-3	Chloroethane	ND	0.79	ug/m3	1	10/03/17	B7J0509	TO-15	
67-66-3	Chloroform	ND	1.5	ug/m3	1	10/03/17	B7J0509	TO-15	
74-87-3	Chloromethane	ND	0.62	ug/m3	1	10/03/17	B7J0509	TO-15	
156-59-2	cis-1,2-Dichloroethylene	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
124-48-1	Dibromochloromethane	ND	2.5	ug/m3	1	10/03/17	B7J0509	TO-15	
75-71-8	**Dichlorodifluoromethane**	**1.9**	1.5	ug/m3	1	10/03/17	B7J0509	TO-15	
100-41-4	**Ethylbenzene**	**3.6**	1.3	ug/m3	1	10/03/17	B7J0509	TO-15	
110-54-3	Hexane	ND	3.5	ug/m3	1	10/03/17	B7J0509	TO-15	
1330-20-7	**m & p - Xylene**	**9.3**	1.3	ug/m3	1	10/03/17	B7J0509	TO-15	
75-09-2	Methylene chloride	ND	1.0	ug/m3	1	10/03/17	B7J0509	TO-15	
1634-04-4	Methyltertiarybutylether	ND	1.8	ug/m3	1	10/03/17	B7J0509	TO-15	
95-47-6	**o-Xylene**	**4.3**	1.3	ug/m3	1	10/03/17	B7J0509	TO-15	
100-42-5	Styrene	ND	1.3	ug/m3	1	10/03/17	B7J0509	TO-15	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SG 02

Lab ID: 1709154-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
127-18-4	**Tetrachloroethylene**	**6.0**	2.0	ug/m3	1	10/03/17	B7J0509	TO-15	
108-88-3	**Toluene**	**7.5**	1.1	ug/m3	1	10/03/17	B7J0509	TO-15	
156-60-5	trans-1,2-Dichloroethylene	ND	1.2	ug/m3	1	10/03/17	B7J0509	TO-15	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.4	ug/m3	1	10/03/17	B7J0509	TO-15	
79-01-6	**Trichloroethylene**	**5.5**	1.6	ug/m3	1	10/03/17	B7J0509	TO-15	
75-69-4	Trichlorofluoromethane	ND	1.7	ug/m3	1	10/03/17	B7J0509	TO-15	
75-01-4	Vinyl chloride	ND	0.76	ug/m3	1	10/03/17	B7J0509	TO-15	

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
[illegible]	Abandoned Mine Lagoon Sites	AIR

Site Code/Project Number	AY	CC Email 1	Project TAT Days	Sample Collector
31000098	17	jbinkley@manniksmithgroup.com		

Dept-Division-District	Index	CC Email 2	Project Due Date	Sample Collector Phone
DEQ RRD UP District- Calumet	44251	pirrmaks		906-337-0389

State Project Manager	PCA	CC Email 3		Contract Firm
Amy Keranen	30843	shirey b		Mannik & Smith Group

State Project Manager Email	Project	Overflow Lab Choice 1	Accept Analysis hold time codes	Contract Firm Primary Contact
keranena@michigan.gov	456457			Jeff Binkley

State Project Manager Phone	Phase	Overflow Lab Choice 2		Primary Contact Phone
906-337-0389	00			906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments	Regulator ID	Canister/Bottle Vac Number
1		QMCM-SG 01	9-13-17	1441			459	1276
2		QMCM SG 02	9-13-17	1441			458	19445
3								
4								
5								
6								
7								
8								
9								
10								

ORGANIC CHEMISTRY

VOA - Volatile Organic Analysis:

Bottlevac	1	2	3	4	5	6	7	8	9	10
Canister - VOC	1	2	3	4	5	6	7	8	9	10
Canister - RRD	1	2	3	4	5	6	7	8	9	10
Tedlar - Volatile	1	2	3	4	5	6	7	8	9	10

GRCM - Methane, Ethane, Ethene:

Methane, Ethane, Ethene	1	2	3	4	5	6	7	8	9	10

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org.	Melissa Smith	
Signature:	[signature]	9/14/17 [illegible]
Print Name & Org.		
Signature:		
Print Name:		

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

18 October 2017

Work Order: 1709155

Price: $510.00

Amy Keranen
MDEQ-RRD-UP
1504 W. Washington St.
Marquette, MI 49855

RE: ABANDONED MINING WASTES-QMCM Ops

I certify that the analyses performed by the MDEQ Environmental Laboratory were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Sincerely,

Kirby Shane
Laboratory Director

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

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Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

MDEQ-RRD-UP	Project: ABANDONED MINING WASTES-QMCM Ops	
1504 W. Washington St.	Site Code: 31000098	**Reported:**
Marquette MI, 49855	Project Manager: Amy Keranen	10/18/2017

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
QMCM-GW 43 4-9'	1709155-01	Water	09/17/2017	09/19/2017	
QMCM-GW 44 4-9'	1709155-02	Water	09/17/2017	09/19/2017	

Notes and Definitions

Y17	Probable petroleum product(s) present.
Y11	Unidentified peaks present in sample.
X	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200 ºC. 2-Methylnaphthalene & naphthalene have boiling points above 200 ºC and are better suited to analysis by methods 8270 & 625 as semivolatile organics.
A11	Result is estimated due to high initial verification standard criteria failure.
A07	Result(s) and reporting limit(s) are estimated due to poor precision.
A01	Result(s) and reporting limit(s) are estimated due to low surrogate recovery.
ND	Indicates compound analyzed for but not detected
RL	Reporting Limit
NA	Not Applicable

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
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Client ID: QMCM-GW 43 4-9'

Lab ID: 1709155-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y11**
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
96-18-4	1,2,3-Trichloropropane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
526-73-8	**1,2,3-Trimethylbenzene**	**2.7**	1.0	ug/L	1	09/20/17	B7I2007	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
95-63-6	**1,2,4-Trimethylbenzene**	**9.1**	1.0	ug/L	1	09/20/17	B7I2007	8260	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
540-84-1	2,2,4-Trimethylpentane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
78-93-3	2-Butanone (MEK)	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
91-57-6	**2-Methylnaphthalene**	**22**	5.0	ug/L	1	09/20/17	B7I2007	8260	X
67-64-1	2-Propanone (acetone)	ND	20	ug/L	1	09/20/17	B7I2007	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
107-13-1	Acrylonitrile	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
71-43-2	Benzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
74-97-5	Bromochloromethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-27-4	Bromodichloromethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-25-2	Bromoform	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
74-83-9	Bromomethane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
75-15-0	Carbon disulfide	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
56-23-5	Carbon tetrachloride	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
108-90-7	Chlorobenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-00-3	Chloroethane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
67-66-3	Chloroform	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
74-87-3	**Chloromethane**	**12**	5.0	ug/L	1	09/20/17	B7I2007	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
110-82-7	Cyclohexane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
124-48-1	Dibromochloromethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
74-95-3	Dibromomethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	

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CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y11**
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
60-29-7	Diethyl ether	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
108-20-3	Diisopropyl Ether	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
100-41-4	Ethylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
637-92-3	Ethyltertiarybutylether	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
67-72-1	Hexachloroethane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
110-54-3	Hexane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
98-82-8	Isopropylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
1330-20-7	m & p - Xylene	ND	2.0	ug/L	1	09/20/17	B7I2007	8260	
75-09-2	Methylene chloride	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
1634-04-4	Methyltertiarybutylether	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
91-20-3	**Naphthalene**	**17**	5.0	ug/L	1	09/20/17	B7I2007	8260	X
104-51-8	**n-Butylbenzene**	**1.3**	1.0	ug/L	1	09/20/17	B7I2007	8260	
103-65-1	n-Propylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
95-47-6	o-Xylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
135-98-8	sec-Butylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
100-42-5	Styrene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
98-06-6	tert-Butylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-65-0	tertiary Butyl Alcohol	ND	50	ug/L	1	09/20/17	B7I2007	8260	
994-05-8	tertiaryAmylmethylether	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
127-18-4	Tetrachloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
109-99-9	Tetrahydrofuran	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
108-88-3	Toluene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
79-01-6	Trichloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-01-4	Vinyl chloride	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
Surrogate: Bromofluorobenzene			*92.6 %*	*85-115*		*09/20/17*	B7I2007	*8260*	
Surrogate: Dibromofluoromethane			*98.6 %*	*83.7-115*		*09/20/17*	B7I2007	*8260*	
Surrogate: Toluene-d8			*98.1 %*	*85-115*		*09/20/17*	B7I2007	*8260*	

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Organics-Semivolatiles									**See note A01, Y17**
91-57-6	**2-Methylnaphthalene**	**8.5**	5.0	ug/L	1	09/22/17	B7I2109	8270	
83-32-9	**Acenaphthene**	**1.1**	1.0	ug/L	1	09/22/17	B7I2109	8270	
208-96-8	Acenaphthylene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
120-12-7	Anthracene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
56-55-3	Benz[a]anthracene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
50-32-8	Benzo[a]pyrene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
205-99-2	Benzo[b]fluoranthene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
207-08-9	Benzo[k]fluoranthene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
218-01-9	Chrysene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
53-70-3	Dibenz[a,h]anthracene	ND	2.0	ug/L	1	09/22/17	B7I2109	8270	
206-44-0	Fluoranthene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
86-73-7	Fluorene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	2.0	ug/L	1	09/22/17	B7I2109	8270	
91-20-3	**Naphthalene**	**6.7**	1.0	ug/L	1	09/22/17	B7I2109	8270	
85-01-8	Phenanthrene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
129-00-0	Pyrene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
Surrogate: 2-Fluorobiphenyl			*38.7 %*	*24.1-115*		*09/22/17*	B7I2109	*8270*	
Surrogate: Nitrobenzene-d5			*45.4 %*	*17.8-115*		*09/22/17*	B7I2109	*8270*	
Surrogate: p-Terphenyl-d14			*41.7 %*	*41.8-115*		*09/22/17*	B7I2109	*8270*	

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Client ID: QMCM-GW 44 4-9'

Lab ID: 1709155-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y11**
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
71-55-6	1,1,1-Trichloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
79-00-5	1,1,2-Trichloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-35-4	1,1-Dichloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
96-18-4	1,2,3-Trichloropropane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
526-73-8	**1,2,3-Trimethylbenzene**	**5.1**	1.0	ug/L	1	09/20/17	B7I2007	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
95-63-6	**1,2,4-Trimethylbenzene**	**14**	1.0	ug/L	1	09/20/17	B7I2007	8260	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
78-87-5	1,2-Dichloropropane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
108-67-8	**1,3,5-Trimethylbenzene**	**1.8**	1.0	ug/L	1	09/20/17	B7I2007	8260	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
540-84-1	2,2,4-Trimethylpentane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
78-93-3	2-Butanone (MEK)	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
91-57-6	**2-Methylnaphthalene**	**17**	5.0	ug/L	1	09/20/17	B7I2007	8260	X
67-64-1	2-Propanone (acetone)	ND	20	ug/L	1	09/20/17	B7I2007	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
107-13-1	Acrylonitrile	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
71-43-2	Benzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
74-97-5	Bromochloromethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-27-4	Bromodichloromethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-25-2	Bromoform	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
74-83-9	Bromomethane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
75-15-0	Carbon disulfide	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
56-23-5	Carbon tetrachloride	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
108-90-7	Chlorobenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-00-3	Chloroethane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
67-66-3	Chloroform	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
74-87-3	Chloromethane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
110-82-7	Cyclohexane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
124-48-1	Dibromochloromethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
74-95-3	Dibromomethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	

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CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y11**
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
60-29-7	Diethyl ether	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
108-20-3	Diisopropyl Ether	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
100-41-4	Ethylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
637-92-3	Ethyltertiarybutylether	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
67-72-1	Hexachloroethane	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
110-54-3	Hexane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
98-82-8	Isopropylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
1330-20-7	m & p - Xylene	ND	2.0	ug/L	1	09/20/17	B7I2007	8260	
75-09-2	Methylene chloride	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
1634-04-4	Methyltertiarybutylether	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
91-20-3	**Naphthalene**	**33**	5.0	ug/L	1	09/20/17	B7I2007	8260	X
104-51-8	**n-Butylbenzene**	**1.6**	1.0	ug/L	1	09/20/17	B7I2007	8260	
103-65-1	**n-Propylbenzene**	**1.3**	1.0	ug/L	1	09/20/17	B7I2007	8260	
95-47-6	**o-Xylene**	**1.3**	1.0	ug/L	1	09/20/17	B7I2007	8260	
135-98-8	sec-Butylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
100-42-5	Styrene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
98-06-6	tert-Butylbenzene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-65-0	tertiary Butyl Alcohol	ND	50	ug/L	1	09/20/17	B7I2007	8260	
994-05-8	tertiaryAmylmethylether	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
127-18-4	Tetrachloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
109-99-9	Tetrahydrofuran	ND	5.0	ug/L	1	09/20/17	B7I2007	8260	
108-88-3	Toluene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
79-01-6	Trichloroethylene	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-69-4	Trichlorofluoromethane	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
75-01-4	Vinyl chloride	ND	1.0	ug/L	1	09/20/17	B7I2007	8260	
Surrogate: Bromofluorobenzene			*95.4 %*	*85-115*		*09/20/17*	B7I2007	*8260*	
Surrogate: Dibromofluoromethane			*96.3 %*	*82.7-115*		*09/20/17*	B7I2007	*8260*	
Surrogate: Toluene-d8			*99.1 %*	*85-115*		*09/20/17*	B7I2007	*8260*	

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Organics-Semivolatiles									**See note Y17**
91-57-6	**2-Methylnaphthalene**	**5.3**	5.0	ug/L	1	09/22/17	B7I2109	8270	
83-32-9	**Acenaphthene**	**1.4**	1.0	ug/L	1	09/22/17	B7I2109	8270	
208-96-8	Acenaphthylene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
120-12-7	Anthracene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
56-55-3	Benz[a]anthracene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
50-32-8	Benzo[a]pyrene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
205-99-2	Benzo[b]fluoranthene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
191-24-2	Benzo[g,h,i]perylene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
207-08-9	Benzo[k]fluoranthene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
218-01-9	Chrysene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
53-70-3	Dibenz[a,h]anthracene	ND	2.0	ug/L	1	09/22/17	B7I2109	8270	
206-44-0	Fluoranthene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
86-73-7	**Fluorene**	**1.1**	1.0	ug/L	1	09/22/17	B7I2109	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	2.0	ug/L	1	09/22/17	B7I2109	8270	
91-20-3	**Naphthalene**	**12**	1.0	ug/L	1	09/22/17	B7I2109	8270	
85-01-8	Phenanthrene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
129-00-0	Pyrene	ND	1.0	ug/L	1	09/22/17	B7I2109	8270	
Surrogate: 2-Fluorobiphenyl			*48.5 %*	*24.1-115*		*09/22/17*	B7I2109	*8270*	
Surrogate: Nitrobenzene-d5			*53.6 %*	*17.8-115*		*09/22/17*	B7I2109	*8270*	
Surrogate: p-Terphenyl-d14			*55.5 %*	*41.8-115*		*09/22/17*	B7I2109	*8270*	

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
[illegible]	Abandoned Mining Wastes- QMCM Ops	ground WATER

Site Code/Project Number: 31000098	AV: 17	CC Email 1: jbinkley@manniksmithgroup.com	Project TAT Days:	Sample Collector:
Dept-Division-District: DEQ RRD UP District- Calumet	Index: 44251	CC Email 2:	Project Due Date:	Sample Collector Phone:
State Project Manager: Amy Keranen	PCA: 30843	CC Email 3:		Contract Firm: Mannik & Smith Group
State Project Manager Email: keranena@michigan.gov	Project: 456457	Overflow Lab Chain 1:	Accept Analysis hold time codes:	Contract Firm Primary Contact: Jeff Binkley
State Project Manager Phone: 906-337-0389	Phase: 00	Overflow Lab Chain 2:		Primary Contact Phone: 906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1	01	QMCM-GW 43 4-9'	9-12-11			
2	02	QMCM-GW 44 4-9'	9-12-11			
3						
4						
5						
6						
7						
8						
9						
10						

ORGANIC CHEMISTRY

VOA - Volatile Organic Acids	
Volatiles - Full List	1 2 3 4 5 6 7 8 9 10
BTEX/MTBE/TMB only	1 2 3 4 5 6 7 8 9 10
Chlorinated only	1 2 3 4 5 6 7 8 9 10
GRO	1 2 3 4 5 6 7 8 9 10
LA Dioxane	1 2 3 4 5 6 7 8 9 10
METH - Methane, Ethane, Ethene	
Methane, Ethane, Ethene	1 2 3 4 5 6 7 8 9 10
ON - Pesticides, PCBs	
Pesticides W PCB	1 2 3 4 5 6 7 8 9 10
Pesticides only	1 2 3 4 5 6 7 8 9 10
PCBs only	1 2 3 4 5 6 7 8 9 10
Toxaphene	1 2 3 4 5 6 7 8 9 10
Chlordane	1 2 3 4 5 6 7 8 9 10
BNA - Base Neutral Acids	
BNAs	1 2 3 4 5 6 7 8 9 10
Dioxin/furans	1 2 3 4 5 6 7 8 9 10
PNAs only	1 2 3 4 5 6 7 8 9 10
DNT only	1 2 3 4 5 6 7 8 9 10
Acids only	1 2 3 4 5 6 7 8 9 10
Organic Specialty Requests	
Library search - Volatiles	1 2 3 4 5 6 7 8 9 10
Library search - SemiVolts	1 2 3 4 5 6 7 8 9 10
Finger Print	1 2 3 4 5 6 7 8 9 10
DRO / ORO	1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

OpMetal2 - Total	1 2 3 4 5 6 7 8 9 10
OpMetal2 - Dissolved	1 2 3 4 5 6 7 8 9 10
(Al, Sb, Arsenic, Cr, Cu, Co, Fe, Pb, Mn, Mg, Mo, Ni, Se, Ag, Tl, V, Zn)	
Michigan - Total	1 2 3 4 5 6 7 8 9 10
Michigan - Dissolved	1 2 3 4 5 6 7 8 9 10
(As, Ba, Cd, Cr, Cu, Pb, Hg, Se, Ag, Zn)	

MAD - DISSOLVED METALS

Diss - Silver - Ag	1 2 3 4 5 6 7 8 9 10
Diss - Aluminum - Al	1 2 3 4 5 6 7 8 9 10
Diss - Arsenic - As	1 2 3 4 5 6 7 8 9 10
Diss - Boron - B	1 2 3 4 5 6 7 8 9 10
Diss - Barium - Ba	1 2 3 4 5 6 7 8 9 10
Diss - Beryllium - Be	1 2 3 4 5 6 7 8 9 10
Diss - Cadmium - Cd	1 2 3 4 5 6 7 8 9 10
Diss - Cobalt - Co	1 2 3 4 5 6 7 8 9 10
Diss - Chromium - Cr	1 2 3 4 5 6 7 8 9 10
Diss - Copper - Cu	1 2 3 4 5 6 7 8 9 10
Diss - Iron - Fe	1 2 3 4 5 6 7 8 9 10
Diss - Mercury - Hg	1 2 3 4 5 6 7 8 9 10
Diss - Lithium - Li	1 2 3 4 5 6 7 8 9 10
Diss - Manganese - Mn	1 2 3 4 5 6 7 8 9 10
Diss - Molybdenum - Mo	1 2 3 4 5 6 7 8 9 10
Diss - Nickel - Ni	1 2 3 4 5 6 7 8 9 10
Diss - Lead - Pb	1 2 3 4 5 6 7 8 9 10
Diss - Antimony - Sb	1 2 3 4 5 6 7 8 9 10
Diss - Selenium - Se	1 2 3 4 5 6 7 8 9 10
Diss - Strontium - Sr	1 2 3 4 5 6 7 8 9 10
Diss - Titanium - Ti	1 2 3 4 5 6 7 8 9 10
Diss - Thallium - Tl	1 2 3 4 5 6 7 8 9 10
Diss - Uranium - U	1 2 3 4 5 6 7 8 9 10
Diss - Vanadium - V	1 2 3 4 5 6 7 8 9 10
Diss - Zinc - Zn	1 2 3 4 5 6 7 8 9 10
Diss - Calcium - Ca	1 2 3 4 5 6 7 8 9 10
Diss - Potassium - K	1 2 3 4 5 6 7 8 9 10
Diss - Magnesium - Mg	1 2 3 4 5 6 7 8 9 10
Diss - Sodium - Na	1 2 3 4 5 6 7 8 9 10
Diss - Hardness - Ca, Mg	1 2 3 4 5 6 7 8 9 10
MD - Metals Dissolved	
Lab Filtration	1 2 3 4 5 6 7 8 9 10

MA - TOTAL METALS

Silver - Ag	1 2 3 4 5 6 7 8 9 10
Aluminum - Al	1 2 3 4 5 6 7 8 9 10
Arsenic - As	1 2 3 4 5 6 7 8 9 10
Boron - B	1 2 3 4 5 6 7 8 9 10
Barium - Ba	1 2 3 4 5 6 7 8 9 10
Beryllium - Be	1 2 3 4 5 6 7 8 9 10
Cadmium - Cd	1 2 3 4 5 6 7 8 9 10
Cobalt - Co	1 2 3 4 5 6 7 8 9 10
Chromium - Cr	1 2 3 4 5 6 7 8 9 10
Copper - Cu	1 2 3 4 5 6 7 8 9 10
Iron - Fe	1 2 3 4 5 6 7 8 9 10
Mercury - Hg	1 2 3 4 5 6 7 8 9 10
Lithium - Li	1 2 3 4 5 6 7 8 9 10
Manganese - Mn	1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo	1 2 3 4 5 6 7 8 9 10
Nickel - Ni	1 2 3 4 5 6 7 8 9 10
Lead - Pb	1 2 3 4 5 6 7 8 9 10
Antimony - Sb	1 2 3 4 5 6 7 8 9 10
Selenium - Se	1 2 3 4 5 6 7 8 9 10
Strontium - Sr	1 2 3 4 5 6 7 8 9 10
Titanium - Ti	1 2 3 4 5 6 7 8 9 10
Thallium - Tl	1 2 3 4 5 6 7 8 9 10
Uranium - U	1 2 3 4 5 6 7 8 9 10
Vanadium - V	1 2 3 4 5 6 7 8 9 10
Zinc - Zn	1 2 3 4 5 6 7 8 9 10
Calcium - Ca	1 2 3 4 5 6 7 8 9 10
Potassium - K	1 2 3 4 5 6 7 8 9 10
Magnesium - Mg	1 2 3 4 5 6 7 8 9 10
Sodium - Na	1 2 3 4 5 6 7 8 9 10
Hardness - Ca, Mg	1 2 3 4 5 6 7 8 9 10
LHG - Low Level Mercury	
Mercury Low Level - Hg	1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

CN Total Cyanide - CN	1 2 3 4 5 6 7 8 9 10
CNA Available Cyanide - CN (Amenable / Weak Acid Dissociable)	1 2 3 4 5 6 7 8 9 10
CA Chlorophyll	1 2 3 4 5 6 7 8 9 10
GN Ortho Phosphate - OP	1 2 3 4 5 6 7 8 9 10
GN Nitrite - NO_2	1 2 3 4 5 6 7 8 9 10
GN Nitrate - NO_3 (Calc)	1 2 3 4 5 6 7 8 9 10
GN Suspended Solids - SS	1 2 3 4 5 6 7 8 9 10
GN Dissolved Solids - TDS	1 2 3 4 5 6 7 8 9 10
GN Turbidity	1 2 3 4 5 6 7 8 9 10
MN Total Alkalinity	1 2 3 4 5 6 7 8 9 10
MN Bicarb/Carb Alkalinity (Includes Total Alkalinity)	1 2 3 4 5 6 7 8 9 10
MN Chloride - Cl	1 2 3 4 5 6 7 8 9 10
MN Fluoride - F	1 2 3 4 5 6 7 8 9 10
MN Sulfate - SO_4	1 2 3 4 5 6 7 8 9 10
MN Chromium 6 - Cr(6)	1 2 3 4 5 6 7 8 9 10
MN Conductivity	1 2 3 4 5 6 7 8 9 10
MN pH	1 2 3 4 5 6 7 8 9 10
GN Chem Oxygen Dem - COD	1 2 3 4 5 6 7 8 9 10
GN Dis Org Carbon - DOC (Cl) (Acid - Filtered & Preserved)	1 2 3 4 5 6 7 8 9 10
GN Dis Org Carbon - DOC (Vf) (Salt - Filtered & Preserved)	1 2 3 4 5 6 7 8 9 10
GN Total Org Carbon - TOC	1 2 3 4 5 6 7 8 9 10
GN Ammonia - NH_3	1 2 3 4 5 6 7 8 9 10
GN Nitrate+Nitrite - NO_3+NO_2	1 2 3 4 5 6 7 8 9 10
GN Kjeldahl Nitrogen - KN	1 2 3 4 5 6 7 8 9 10
GN Total Phosphorus - TP	1 2 3 4 5 6 7 8 9 10

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org.: JEFF PINEMASE MDEQ	[illegible]	9/15/11 14:0
Signature: [illegible]		
Print Name & Org.:		
Signature:		
Print Name:		

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

27 October 2017

Work Order: 1709156

Price: $4,417.00

Amy Keranen
MDEQ-RRD-UP
1504 W. Washington St.
Marquette, MI 49855

RE: ABANDONED MINING WASTES-QMCM Ops

I certify that the analyses performed by the MDEQ Environmental Laboratory were conducted by methods approved by the U.S. Environmental Protection Agency and other appropriate regulatory agencies.

Sincerely,

Kirby Shane
Laboratory Director

STATE OF MICHIGAN
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MDEQ-RRD-UP	Project: ABANDONED MINING WASTES-QMCM Ops	
1504 W. Washington St.	Site Code: 31000098	**Reported:**
Marquette MI, 49855	Project Manager: Amy Keranen	10/27/2017

Analytical Report for Samples

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Qualifier
QMCM-SB-39 6"-12"	1709156-01	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SB-39 12"-4'	1709156-02	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SB-40 6"-12"	1709156-03	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SB-40 12"-24"	1709156-04	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SB-41 6"-12"	1709156-05	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SB-41 12"-3'	1709156-06	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SB-42 6"-12"	1709156-07	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SB-42 12"-24"	1709156-08	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SS 52-0"-6"	1709156-09	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SS-53-0"-6"	1709156-10	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SS-54-0"-6"	1709156-11	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SS-50-0"-6"	1709156-12	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SS-50-0"-6" FD	1709156-13	Soil/Sediment	09/17/2017	09/19/2017	
QMCM-SS-51-0"-6"	1709156-14	Soil/Sediment	09/17/2017	09/19/2017	

Notes and Definitions

Y20	Reporting Limits (RL) raised due to matrix.
Y17	Probable petroleum product(s) present.
Y15	Methanol leaked out of the vial in transit to the lab. Results and reporting limits are estimated.
Y11	Unidentified peaks present in sample.
X	Methods 8260 & 624 are used to analyze volatile organics that have boiling points below 200 °C. 2-Methylnaphthalene & naphthalene have boiling points above 200 °C and are better suited to analysis by methods 8270 & 625 as semivolatile organics.
T	Reported value is less than the reporting limit (RL). Result is estimated.
A11	Result is estimated due to high initial verification standard criteria failure.
A07	Result(s) and reporting limit(s) are estimated due to poor precision.
A05	Result and reporting limit are estimated due to low continuing calibration standard criteria failure.
A04	Result is estimated due to high matrix spike recovery.
A03	Result(s) and reporting limit(s) are estimated due to low matrix spike recovery.
100	Result was above calibration curve range. Result is not used.
ND	Indicates compound analyzed for but not detected
RL	Reporting Limit
NA	Not Applicable
dry	Sample results reported on a dry weight basis

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ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-39 6"-12"

Lab ID: 1709156-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
71-55-6	1,1,1-Trichloroethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
79-00-5	1,1,2-Trichloroethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
75-34-3	1,1-Dichloroethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
75-35-4	1,1-Dichloroethylene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
96-18-4	1,2,3-Trichloropropane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
106-93-4	1,2-Dibromoethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
95-50-1	1,2-Dichlorobenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
107-06-2	1,2-Dichloroethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
78-87-5	1,2-Dichloropropane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
541-73-1	1,3-Dichlorobenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
106-46-7	1,4-Dichlorobenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
540-84-1	2,2,4-Trimethylpentane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
78-93-3	2-Butanone (MEK)	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	X
67-64-1	2-Propanone (acetone)	ND	1500	ug/kg dry	50	09/22/17	B7I2204	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
107-13-1	Acrylonitrile	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
71-43-2	Benzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
74-97-5	Bromochloromethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
75-27-4	Bromodichloromethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
75-25-2	Bromoform	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
74-83-9	Bromomethane	ND	290	ug/kg dry	50	09/22/17	B7I2204	8260	
75-15-0	Carbon disulfide	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
56-23-5	Carbon tetrachloride	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
108-90-7	Chlorobenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
75-00-3	Chloroethane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
67-66-3	Chloroform	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
74-87-3	Chloromethane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
110-82-7	Cyclohexane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
124-48-1	Dibromochloromethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
74-95-3	Dibromomethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-39 6"-12"

Lab ID: 1709156-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
60-29-7	Diethyl ether	ND	290	ug/kg dry	50	09/22/17	B7I2204	8260	
108-20-3	Diisopropyl Ether	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
100-41-4	Ethylbenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
637-92-3	Ethyltertiarybutylether	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
67-72-1	Hexachloroethane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
110-54-3	Hexane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
98-82-8	Isopropylbenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
1330-20-7	m & p - Xylene	ND	150	ug/kg dry	50	09/22/17	B7I2204	8260	
75-09-2	Methylene chloride	ND	150	ug/kg dry	50	09/22/17	B7I2204	8260	
1634-04-4	Methyltertiarybutylether	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
91-20-3	Naphthalene	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	X
104-51-8	n-Butylbenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
103-65-1	n-Propylbenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
95-47-6	o-Xylene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
135-98-8	sec-Butylbenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
100-42-5	Styrene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
98-06-6	tert-Butylbenzene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
75-65-0	tertiary Butyl Alcohol	ND	3700	ug/kg dry	50	09/22/17	B7I2204	8260	
994-05-8	tertiaryAmylmethylether	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
127-18-4	Tetrachloroethylene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
109-99-9	Tetrahydrofuran	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
108-88-3	Toluene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
79-01-6	Trichloroethylene	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
75-69-4	Trichlorofluoromethane	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
75-01-4	Vinyl chloride	ND	73	ug/kg dry	50	09/22/17	B7I2204	8260	
Surrogate: Bromofluorobenzene			*109 %*	*40.3-194*		*09/22/17*	B7I2204	*8260*	
Surrogate: Dibromofluoromethane			*129 %*	*52.1-217*		*09/22/17*	B7I2204	*8260*	
Surrogate: Toluene-d8			*116 %*	*55.4-196*		*09/22/17*	B7I2204	*8260*	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-39 6"-12"

Lab ID: 1709156-01

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	590	ug/kg dry	1	09/26/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
120-12-7	Anthracene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
56-55-3	Benz[a]anthracene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
50-32-8	Benzo[a]pyrene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
205-99-2	Benzo[b]fluoranthene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
191-24-2	Benzo[g,h,i]perylene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
207-08-9	Benzo[k]fluoranthene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
218-01-9	Chrysene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**280**	240	ug/kg dry	1	09/26/17	B7I2401	8270	
86-73-7	Fluorene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
91-20-3	Naphthalene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
85-01-8	Phenanthrene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
129-00-0	Pyrene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*78.6 %*	*32.9-115*		*09/26/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*71.1 %*	*31.8-115*		*09/26/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*84.2 %*	*38.5-115*		*09/26/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**84.6**	0.1	%	1	09/20/17	B7I2010	2540 B	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-39 12''-4'

Lab ID: 1709156-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
71-55-6	1,1,1-Trichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
79-00-5	1,1,2-Trichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-34-3	1,1-Dichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-35-4	1,1-Dichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
96-18-4	1,2,3-Trichloropropane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
106-93-4	1,2-Dibromoethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
95-50-1	1,2-Dichlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
107-06-2	1,2-Dichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
78-87-5	1,2-Dichloropropane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
541-73-1	1,3-Dichlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
106-46-7	1,4-Dichlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
540-84-1	2,2,4-Trimethylpentane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
78-93-3	2-Butanone (MEK)	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	X
67-64-1	2-Propanone (acetone)	ND	1400	ug/kg dry	50	09/22/17	B7I2204	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
107-13-1	Acrylonitrile	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
71-43-2	Benzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-97-5	Bromochloromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-27-4	Bromodichloromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-25-2	Bromoform	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-83-9	Bromomethane	ND	270	ug/kg dry	50	09/22/17	B7I2204	8260	
75-15-0	Carbon disulfide	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
56-23-5	Carbon tetrachloride	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
108-90-7	Chlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-00-3	Chloroethane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
67-66-3	Chloroform	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-87-3	Chloromethane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
110-82-7	Cyclohexane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
124-48-1	Dibromochloromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-95-3	Dibromomethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	

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Client ID: QMCM-SB-39 12''-4'

Lab ID: 1709156-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
60-29-7	Diethyl ether	ND	270	ug/kg dry	50	09/22/17	B7I2204	8260	
108-20-3	Diisopropyl Ether	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
100-41-4	Ethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
637-92-3	Ethyltertiarybutylether	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
67-72-1	Hexachloroethane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
110-54-3	Hexane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
98-82-8	Isopropylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
1330-20-7	m & p - Xylene	ND	140	ug/kg dry	50	09/22/17	B7I2204	8260	
75-09-2	Methylene chloride	ND	140	ug/kg dry	50	09/22/17	B7I2204	8260	
1634-04-4	Methyltertiarybutylether	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
91-20-3	Naphthalene	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	X
104-51-8	n-Butylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
103-65-1	n-Propylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
95-47-6	o-Xylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
135-98-8	sec-Butylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
100-42-5	Styrene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
98-06-6	tert-Butylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-65-0	tertiary Butyl Alcohol	ND	3400	ug/kg dry	50	09/22/17	B7I2204	8260	
994-05-8	tertiaryAmylmethylether	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
127-18-4	Tetrachloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
109-99-9	Tetrahydrofuran	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
108-88-3	Toluene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
79-01-6	Trichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-69-4	Trichlorofluoromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-01-4	Vinyl chloride	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
Surrogate: Bromofluorobenzene			*106 %*	*40.3-194*		*09/22/17*	B7I2204	*8260*	
Surrogate: Dibromofluoromethane			*115 %*	*52.1-217*		*09/22/17*	B7I2204	*8260*	
Surrogate: Toluene-d8			*112 %*	*55.4-196*		*09/22/17*	B7I2204	*8260*	

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TEL: (517) 335-9800
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Client ID: QMCM-SB-39 12''-4'

Lab ID: 1709156-02

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	590	ug/kg dry	1	09/27/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
120-12-7	Anthracene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
56-55-3	**Benz[a]anthracene**	**800**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
50-32-8	**Benzo[a]pyrene**	**720**	470	ug/kg dry	1	09/27/17	B7I2401	8270	
205-99-2	**Benzo[b]fluoranthene**	**1000**	470	ug/kg dry	1	09/27/17	B7I2401	8270	
191-24-2	Benzo[g,h,i]perylene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
207-08-9	Benzo[k]fluoranthene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
218-01-9	**Chrysene**	**830**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**2100**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
86-73-7	Fluorene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
91-20-3	**Naphthalene**	**320**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**1300**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
129-00-0	**Pyrene**	**1600**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*89.1 %*	*32.9-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*79.6 %*	*31.8-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*90.0 %*	*38.5-115*		*09/27/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**84.2**	0.1	%	1	09/20/17	B7I2010	2540 B	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
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TEL: (517) 335-9800
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Client ID: QMCM-SB-40 6"-12"

Lab ID: 1709156-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
71-55-6	1,1,1-Trichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
79-00-5	1,1,2-Trichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-34-3	1,1-Dichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-35-4	1,1-Dichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
96-18-4	1,2,3-Trichloropropane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
106-93-4	1,2-Dibromoethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
95-50-1	1,2-Dichlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
107-06-2	1,2-Dichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
78-87-5	1,2-Dichloropropane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
541-73-1	1,3-Dichlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
106-46-7	1,4-Dichlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
540-84-1	2,2,4-Trimethylpentane	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
78-93-3	2-Butanone (MEK)	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
91-57-6	2-Methylnaphthalene	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	X
67-64-1	2-Propanone (acetone)	ND	1400	ug/kg dry	50	09/22/17	B7I2204	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
107-13-1	Acrylonitrile	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
71-43-2	Benzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-97-5	Bromochloromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-27-4	Bromodichloromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-25-2	Bromoform	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-83-9	Bromomethane	ND	280	ug/kg dry	50	09/22/17	B7I2204	8260	
75-15-0	Carbon disulfide	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
56-23-5	Carbon tetrachloride	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
108-90-7	Chlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-00-3	Chloroethane	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
67-66-3	Chloroform	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-87-3	Chloromethane	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
110-82-7	Cyclohexane	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
124-48-1	Dibromochloromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-95-3	Dibromomethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	

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Client ID: QMCM-SB-40 6"-12"

Lab ID: 1709156-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
60-29-7	Diethyl ether	ND	280	ug/kg dry	50	09/22/17	B7I2204	8260	
108-20-3	Diisopropyl Ether	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
100-41-4	Ethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
637-92-3	Ethyltertiarybutylether	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
67-72-1	Hexachloroethane	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
110-54-3	Hexane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
98-82-8	Isopropylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
1330-20-7	m & p - Xylene	ND	140	ug/kg dry	50	09/22/17	B7I2204	8260	
75-09-2	Methylene chloride	ND	140	ug/kg dry	50	09/22/17	B7I2204	8260	
1634-04-4	Methyltertiarybutylether	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
91-20-3	Naphthalene	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	X
104-51-8	n-Butylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
103-65-1	n-Propylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
95-47-6	o-Xylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
135-98-8	sec-Butylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
100-42-5	Styrene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
98-06-6	tert-Butylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-65-0	tertiary Butyl Alcohol	ND	3500	ug/kg dry	50	09/22/17	B7I2204	8260	
994-05-8	tertiaryAmylmethylether	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
127-18-4	Tetrachloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
109-99-9	Tetrahydrofuran	ND	350	ug/kg dry	50	09/22/17	B7I2204	8260	
108-88-3	Toluene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
79-01-6	Trichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-69-4	Trichlorofluoromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-01-4	Vinyl chloride	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
Surrogate: Bromofluorobenzene			*98.0 %*	*40.3-194*		*09/22/17*	B7I2204	*8260*	
Surrogate: Dibromofluoromethane			*105 %*	*52.1-217*		*09/22/17*	B7I2204	*8260*	
Surrogate: Toluene-d8			*102 %*	*55.4-196*		*09/22/17*	B7I2204	*8260*	

STATE OF MICHIGAN
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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-40 6"-12"

Lab ID: 1709156-03

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	590	ug/kg dry	1	09/26/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
120-12-7	Anthracene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
56-55-3	Benz[a]anthracene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
50-32-8	Benzo[a]pyrene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
205-99-2	Benzo[b]fluoranthene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
191-24-2	Benzo[g,h,i]perylene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
207-08-9	Benzo[k]fluoranthene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
218-01-9	Chrysene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**360**	240	ug/kg dry	1	09/26/17	B7I2401	8270	
86-73-7	Fluorene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	470	ug/kg dry	1	09/26/17	B7I2401	8270	
91-20-3	Naphthalene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
85-01-8	Phenanthrene	ND	240	ug/kg dry	1	09/26/17	B7I2401	8270	
129-00-0	**Pyrene**	**270**	240	ug/kg dry	1	09/26/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*75.4 %*	*32.9-115*		*09/26/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*68.9 %*	*31.8-115*		*09/26/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*88.9 %*	*38.5-115*		*09/26/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**84.8**	0.1	%	1	09/20/17	B7I2010	2540 B	

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ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-40 12"-24"

Lab ID: 1709156-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
71-55-6	1,1,1-Trichloroethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
79-00-5	1,1,2-Trichloroethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
75-34-3	1,1-Dichloroethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
75-35-4	1,1-Dichloroethylene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
96-18-4	1,2,3-Trichloropropane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
95-63-6	**1,2,4-Trimethylbenzene**	**160**	74	ug/kg dry	50	09/22/17	B7I2204	8260	
106-93-4	1,2-Dibromoethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
95-50-1	1,2-Dichlorobenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
107-06-2	1,2-Dichloroethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
78-87-5	1,2-Dichloropropane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
541-73-1	1,3-Dichlorobenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
106-46-7	1,4-Dichlorobenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
540-84-1	2,2,4-Trimethylpentane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
78-93-3	2-Butanone (MEK)	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
91-57-6	2-Methylnaphthalene	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	X
67-64-1	2-Propanone (acetone)	ND	1500	ug/kg dry	50	09/22/17	B7I2204	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
107-13-1	Acrylonitrile	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
71-43-2	Benzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
74-97-5	Bromochloromethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
75-27-4	Bromodichloromethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
75-25-2	Bromoform	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
74-83-9	Bromomethane	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
75-15-0	Carbon disulfide	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
56-23-5	Carbon tetrachloride	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
108-90-7	Chlorobenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
75-00-3	Chloroethane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
67-66-3	Chloroform	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
74-87-3	Chloromethane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
110-82-7	Cyclohexane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
124-48-1	Dibromochloromethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
74-95-3	Dibromomethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-40 12"-24"

Lab ID: 1709156-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
60-29-7	Diethyl ether	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
108-20-3	Diisopropyl Ether	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
100-41-4	Ethylbenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
637-92-3	Ethyltertiarybutylether	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
67-72-1	Hexachloroethane	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
110-54-3	Hexane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
98-82-8	Isopropylbenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
1330-20-7	**m & p - Xylene**	**180**	150	ug/kg dry	50	09/22/17	B7I2204	8260	
75-09-2	Methylene chloride	ND	150	ug/kg dry	50	09/22/17	B7I2204	8260	
1634-04-4	Methyltertiarybutylether	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
91-20-3	Naphthalene	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	X
104-51-8	n-Butylbenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
103-65-1	n-Propylbenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
95-47-6	**o-Xylene**	**190**	74	ug/kg dry	50	09/22/17	B7I2204	8260	
135-98-8	sec-Butylbenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
100-42-5	Styrene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
98-06-6	tert-Butylbenzene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
75-65-0	tertiary Butyl Alcohol	ND	3700	ug/kg dry	50	09/22/17	B7I2204	8260	
994-05-8	tertiaryAmylmethylether	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
127-18-4	Tetrachloroethylene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
109-99-9	Tetrahydrofuran	ND	370	ug/kg dry	50	09/22/17	B7I2204	8260	
108-88-3	**Toluene**	**96**	74	ug/kg dry	50	09/22/17	B7I2204	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
79-01-6	Trichloroethylene	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
75-69-4	Trichlorofluoromethane	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
75-01-4	Vinyl chloride	ND	74	ug/kg dry	50	09/22/17	B7I2204	8260	
Surrogate: Bromofluorobenzene			*107 %*	*40.3-194*		*09/22/17*	B7I2204	*8260*	
Surrogate: Dibromofluoromethane			*122 %*	*52.1-217*		*09/22/17*	B7I2204	*8260*	
Surrogate: Toluene-d8			*118 %*	*55.4-196*		*09/22/17*	B7I2204	*8260*	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-40 12"-24"

Lab ID: 1709156-04

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	630	ug/kg dry	1	09/27/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
120-12-7	Anthracene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
56-55-3	Benz[a]anthracene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
50-32-8	Benzo[a]pyrene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
205-99-2	Benzo[b]fluoranthene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
191-24-2	Benzo[g,h,i]perylene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
207-08-9	Benzo[k]fluoranthene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
218-01-9	Chrysene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**450**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
86-73-7	Fluorene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
91-20-3	**Naphthalene**	**390**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**460**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
129-00-0	**Pyrene**	**330**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*89.3 %*	*32.9-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*80.3 %*	*31.8-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*88.9 %*	*38.5-115*		*09/27/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**79.3**	0.1	%	1	09/20/17	B7I2010	2540 B	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
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Client ID: QMCM-SB-41 6"-12"

Lab ID: 1709156-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y15**
630-20-6	1,1,1,2-Tetrachloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
71-55-6	1,1,1-Trichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
79-00-5	1,1,2-Trichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-34-3	1,1-Dichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-35-4	1,1-Dichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
96-18-4	1,2,3-Trichloropropane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
106-93-4	1,2-Dibromoethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
95-50-1	1,2-Dichlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
107-06-2	1,2-Dichloroethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
78-87-5	1,2-Dichloropropane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
541-73-1	1,3-Dichlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
106-46-7	1,4-Dichlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
540-84-1	2,2,4-Trimethylpentane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
78-93-3	2-Butanone (MEK)	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
91-57-6	2-Methylnaphthalene	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	X
67-64-1	2-Propanone (acetone)	ND	1400	ug/kg dry	50	09/22/17	B7I2204	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
107-13-1	Acrylonitrile	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
71-43-2	Benzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-97-5	Bromochloromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-27-4	Bromodichloromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-25-2	Bromoform	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-83-9	Bromomethane	ND	280	ug/kg dry	50	09/22/17	B7I2204	8260	
75-15-0	Carbon disulfide	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
56-23-5	Carbon tetrachloride	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
108-90-7	Chlorobenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-00-3	Chloroethane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
67-66-3	Chloroform	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-87-3	Chloromethane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
110-82-7	Cyclohexane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
124-48-1	Dibromochloromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
74-95-3	Dibromomethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-41 6"-12"

Lab ID: 1709156-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y15**
75-71-8	Dichlorodifluoromethane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
60-29-7	Diethyl ether	ND	280	ug/kg dry	50	09/22/17	B7I2204	8260	
108-20-3	Diisopropyl Ether	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
100-41-4	Ethylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
637-92-3	Ethyltertiarybutylether	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
67-72-1	Hexachloroethane	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
110-54-3	Hexane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
98-82-8	Isopropylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
1330-20-7	m & p - Xylene	ND	140	ug/kg dry	50	09/22/17	B7I2204	8260	
75-09-2	Methylene chloride	ND	140	ug/kg dry	50	09/22/17	B7I2204	8260	
1634-04-4	Methyltertiarybutylether	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
91-20-3	Naphthalene	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	X
104-51-8	n-Butylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
103-65-1	n-Propylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
95-47-6	o-Xylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
135-98-8	sec-Butylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
100-42-5	Styrene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
98-06-6	tert-Butylbenzene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-65-0	tertiary Butyl Alcohol	ND	3400	ug/kg dry	50	09/22/17	B7I2204	8260	
994-05-8	tertiaryAmylmethylether	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
127-18-4	Tetrachloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
109-99-9	Tetrahydrofuran	ND	340	ug/kg dry	50	09/22/17	B7I2204	8260	
108-88-3	Toluene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
79-01-6	Trichloroethylene	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-69-4	Trichlorofluoromethane	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
75-01-4	Vinyl chloride	ND	69	ug/kg dry	50	09/22/17	B7I2204	8260	
Surrogate: Bromofluorobenzene			*105 %*	*40.3-194*		*09/22/17*	B7I2204	*8260*	
Surrogate: Dibromofluoromethane			*111 %*	*52.1-217*		*09/22/17*	B7I2204	*8260*	
Surrogate: Toluene-d8			*111 %*	*55.4-196*		*09/22/17*	B7I2204	*8260*	

Lab Work Order # 1709156

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
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TEL: (517) 335-9800
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Client ID: QMCM-SB-41 6"-12"

Lab ID: 1709156-05

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	590	ug/kg dry	1	09/27/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
120-12-7	Anthracene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
56-55-3	Benz[a]anthracene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
50-32-8	Benzo[a]pyrene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
205-99-2	Benzo[b]fluoranthene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
191-24-2	Benzo[g,h,i]perylene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
207-08-9	Benzo[k]fluoranthene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
218-01-9	Chrysene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
206-44-0	Fluoranthene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
86-73-7	Fluorene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
91-20-3	Naphthalene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
85-01-8	Phenanthrene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
129-00-0	Pyrene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*86.8 %*	*32.9-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*76.3 %*	*31.8-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*79.8 %*	*38.5-115*		*09/27/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**84.3**	0.1	%	1	09/20/17	B7I2010	2540 B	

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-41 12''-3'

Lab ID: 1709156-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
71-55-6	1,1,1-Trichloroethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
79-00-5	1,1,2-Trichloroethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
75-34-3	1,1-Dichloroethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
75-35-4	1,1-Dichloroethylene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
96-18-4	1,2,3-Trichloropropane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
95-63-6	**1,2,4-Trimethylbenzene**	**79**	72	ug/kg dry	50	09/25/17	B7I2609	8260	
106-93-4	1,2-Dibromoethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
95-50-1	1,2-Dichlorobenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
107-06-2	1,2-Dichloroethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
78-87-5	1,2-Dichloropropane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
541-73-1	1,3-Dichlorobenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
106-46-7	1,4-Dichlorobenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
540-84-1	2,2,4-Trimethylpentane	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
78-93-3	2-Butanone (MEK)	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
91-57-6	2-Methylnaphthalene	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	X
67-64-1	2-Propanone (acetone)	ND	1400	ug/kg dry	50	09/25/17	B7I2609	8260	A03
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
107-13-1	Acrylonitrile	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
71-43-2	Benzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
74-97-5	Bromochloromethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
75-27-4	Bromodichloromethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
75-25-2	Bromoform	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
74-83-9	Bromomethane	ND	290	ug/kg dry	50	09/25/17	B7I2609	8260	
75-15-0	Carbon disulfide	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
56-23-5	Carbon tetrachloride	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
108-90-7	Chlorobenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
75-00-3	Chloroethane	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
67-66-3	Chloroform	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
74-87-3	Chloromethane	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
110-82-7	Cyclohexane	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
124-48-1	Dibromochloromethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
74-95-3	Dibromomethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-41 12''-3'

Lab ID: 1709156-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
60-29-7	Diethyl ether	ND	290	ug/kg dry	50	09/25/17	B7I2609	8260	
108-20-3	Diisopropyl Ether	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
100-41-4	Ethylbenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
637-92-3	Ethyltertiarybutylether	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
67-72-1	Hexachloroethane	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
110-54-3	Hexane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
98-82-8	Isopropylbenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
1330-20-7	**m & p - Xylene**	**140**	140	ug/kg dry	50	09/25/17	B7I2609	8260	
75-09-2	Methylene chloride	ND	140	ug/kg dry	50	09/25/17	B7I2609	8260	
1634-04-4	Methyltertiarybutylether	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
91-20-3	Naphthalene	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	X
104-51-8	n-Butylbenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
103-65-1	n-Propylbenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
95-47-6	**o-Xylene**	**98**	72	ug/kg dry	50	09/25/17	B7I2609	8260	
135-98-8	sec-Butylbenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
100-42-5	Styrene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
98-06-6	tert-Butylbenzene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
75-65-0	tertiary Butyl Alcohol	ND	3600	ug/kg dry	50	09/25/17	B7I2609	8260	
994-05-8	tertiaryAmylmethylether	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
127-18-4	Tetrachloroethylene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
109-99-9	Tetrahydrofuran	ND	360	ug/kg dry	50	09/25/17	B7I2609	8260	
108-88-3	**Toluene**	**120**	72	ug/kg dry	50	09/25/17	B7I2609	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
79-01-6	Trichloroethylene	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
75-69-4	Trichlorofluoromethane	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
75-01-4	Vinyl chloride	ND	72	ug/kg dry	50	09/25/17	B7I2609	8260	
Surrogate: Bromofluorobenzene			*102 %*	*40.3-194*		*09/25/17*	B7I2609	*8260*	
Surrogate: Dibromofluoromethane			*112 %*	*52.1-217*		*09/25/17*	B7I2609	*8260*	
Surrogate: Toluene-d8			*110 %*	*55.4-196*		*09/25/17*	B7I2609	*8260*	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
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TEL: (517) 335-9800
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Client ID: QMCM-SB-41 12''-3'

Lab ID: 1709156-06

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y17, Y20**
91-57-6	**2-Methylnaphthalene**	**1400**	590	ug/kg dry	1	09/27/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
120-12-7	**Anthracene**	**230**	240	ug/kg dry	1	09/27/17	B7I2401	8270	T
56-55-3	**Benz[a]anthracene**	**1000**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
50-32-8	**Benzo[a]pyrene**	**860**	470	ug/kg dry	1	09/27/17	B7I2401	8270	
205-99-2	**Benzo[b]fluoranthene**	**1100**	470	ug/kg dry	1	09/27/17	B7I2401	8270	
191-24-2	**Benzo[g,h,i]perylene**	**450**	470	ug/kg dry	1	09/27/17	B7I2401	8270	T
207-08-9	Benzo[k]fluoranthene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
218-01-9	**Chrysene**	**1100**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**1800**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
86-73-7	Fluorene	ND	240	ug/kg dry	1	09/27/17	B7I2401	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	470	ug/kg dry	1	09/27/17	B7I2401	8270	
91-20-3	**Naphthalene**	**1100**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**1500**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
129-00-0	**Pyrene**	**1800**	240	ug/kg dry	1	09/27/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*89.9 %*	*32.9-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*80.0 %*	*31.8-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*88.6 %*	*38.5-115*		*09/27/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**84.3**	0.1	%	1	09/20/17	B7I2010	2540 B	

STATE OF MICHIGAN
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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-42 6"-12"

Lab ID: 1709156-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
71-55-6	1,1,1-Trichloroethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
79-00-5	1,1,2-Trichloroethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
75-34-3	1,1-Dichloroethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
75-35-4	1,1-Dichloroethylene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
96-18-4	1,2,3-Trichloropropane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
95-63-6	**1,2,4-Trimethylbenzene**	**170**	110	ug/kg dry	50	09/22/17	B7I2204	8260	
106-93-4	1,2-Dibromoethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
95-50-1	1,2-Dichlorobenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
107-06-2	1,2-Dichloroethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
78-87-5	1,2-Dichloropropane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
541-73-1	1,3-Dichlorobenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
106-46-7	1,4-Dichlorobenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
540-84-1	2,2,4-Trimethylpentane	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
78-93-3	2-Butanone (MEK)	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
91-57-6	2-Methylnaphthalene	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	X
67-64-1	2-Propanone (acetone)	ND	2200	ug/kg dry	50	09/22/17	B7I2204	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
107-13-1	Acrylonitrile	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
71-43-2	Benzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
74-97-5	Bromochloromethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
75-27-4	Bromodichloromethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
75-25-2	Bromoform	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
74-83-9	Bromomethane	ND	440	ug/kg dry	50	09/22/17	B7I2204	8260	
75-15-0	Carbon disulfide	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
56-23-5	Carbon tetrachloride	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
108-90-7	Chlorobenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
75-00-3	Chloroethane	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
67-66-3	Chloroform	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
74-87-3	Chloromethane	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
110-82-7	Cyclohexane	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
124-48-1	Dibromochloromethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
74-95-3	Dibromomethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	

STATE OF MICHIGAN
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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-42 6"-12"

Lab ID: 1709156-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
60-29-7	Diethyl ether	ND	440	ug/kg dry	50	09/22/17	B7I2204	8260	
108-20-3	Diisopropyl Ether	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
100-41-4	Ethylbenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
637-92-3	Ethyltertiarybutylether	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
67-72-1	Hexachloroethane	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
110-54-3	**Hexane**	**110**	110	ug/kg dry	50	09/22/17	B7I2204	8260	
98-82-8	Isopropylbenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
1330-20-7	**m & p - Xylene**	**310**	220	ug/kg dry	50	09/22/17	B7I2204	8260	
75-09-2	Methylene chloride	ND	220	ug/kg dry	50	09/22/17	B7I2204	8260	
1634-04-4	Methyltertiarybutylether	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
91-20-3	Naphthalene	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	X
104-51-8	n-Butylbenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
103-65-1	n-Propylbenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
95-47-6	**o-Xylene**	**220**	110	ug/kg dry	50	09/22/17	B7I2204	8260	
135-98-8	sec-Butylbenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
100-42-5	Styrene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
98-06-6	tert-Butylbenzene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
75-65-0	tertiary Butyl Alcohol	ND	5500	ug/kg dry	50	09/22/17	B7I2204	8260	
994-05-8	tertiaryAmylmethylether	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
127-18-4	Tetrachloroethylene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
109-99-9	Tetrahydrofuran	ND	550	ug/kg dry	50	09/22/17	B7I2204	8260	
108-88-3	**Toluene**	**240**	110	ug/kg dry	50	09/22/17	B7I2204	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
79-01-6	Trichloroethylene	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
75-69-4	Trichlorofluoromethane	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
75-01-4	Vinyl chloride	ND	110	ug/kg dry	50	09/22/17	B7I2204	8260	
Surrogate: Bromofluorobenzene			*106 %*	*40.3-194*		*09/22/17*	B7I2204	*8260*	
Surrogate: Dibromofluoromethane			*115 %*	*52.1-217*		*09/22/17*	B7I2204	*8260*	
Surrogate: Toluene-d8			*111 %*	*55.4-196*		*09/22/17*	B7I2204	*8260*	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

P.O. Box 30270
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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-42 6"-12"

Lab ID: 1709156-07

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y17, Y20**
91-57-6	**2-Methylnaphthalene**	**1800**	630	ug/kg dry	1	09/27/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
120-12-7	Anthracene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
56-55-3	**Benz[a]anthracene**	**250**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
50-32-8	Benzo[a]pyrene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
205-99-2	Benzo[b]fluoranthene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
191-24-2	Benzo[g,h,i]perylene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
207-08-9	Benzo[k]fluoranthene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
218-01-9	**Chrysene**	**320**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**470**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
86-73-7	Fluorene	ND	250	ug/kg dry	1	09/27/17	B7I2401	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	500	ug/kg dry	1	09/27/17	B7I2401	8270	
91-20-3	**Naphthalene**	**1200**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**940**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
129-00-0	**Pyrene**	**390**	250	ug/kg dry	1	09/27/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*91.8 %*	*32.9-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*79.3 %*	*31.8-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*92.0 %*	*38.5-115*		*09/27/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**79.2**	0.1	%	1	09/20/17	B7I2010	2540 B	

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ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
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Client ID: QMCM-SB-42 12"-24"

Lab ID: 1709156-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
71-55-6	1,1,1-Trichloroethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
79-00-5	1,1,2-Trichloroethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
75-34-3	1,1-Dichloroethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
75-35-4	1,1-Dichloroethylene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
96-18-4	1,2,3-Trichloropropane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
106-93-4	1,2-Dibromoethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
95-50-1	1,2-Dichlorobenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
107-06-2	1,2-Dichloroethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
78-87-5	1,2-Dichloropropane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
541-73-1	1,3-Dichlorobenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
106-46-7	1,4-Dichlorobenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
540-84-1	2,2,4-Trimethylpentane	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
78-93-3	2-Butanone (MEK)	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
91-57-6	2-Methylnaphthalene	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	X
67-64-1	2-Propanone (acetone)	ND	1600	ug/kg dry	50	09/22/17	B7I2204	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
107-13-1	Acrylonitrile	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
71-43-2	Benzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
74-97-5	Bromochloromethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
75-27-4	Bromodichloromethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
75-25-2	Bromoform	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
74-83-9	Bromomethane	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
75-15-0	Carbon disulfide	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
56-23-5	Carbon tetrachloride	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
108-90-7	Chlorobenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
75-00-3	Chloroethane	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
67-66-3	Chloroform	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
74-87-3	Chloromethane	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
110-82-7	Cyclohexane	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
124-48-1	Dibromochloromethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
74-95-3	Dibromomethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	

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ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SB-42 12"-24"

Lab ID: 1709156-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
60-29-7	Diethyl ether	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
108-20-3	Diisopropyl Ether	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
100-41-4	Ethylbenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
637-92-3	Ethyltertiarybutylether	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
67-72-1	Hexachloroethane	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
110-54-3	Hexane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
98-82-8	Isopropylbenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
1330-20-7	m & p - Xylene	ND	160	ug/kg dry	50	09/22/17	B7I2204	8260	
75-09-2	Methylene chloride	ND	160	ug/kg dry	50	09/22/17	B7I2204	8260	
1634-04-4	Methyltertiarybutylether	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
91-20-3	Naphthalene	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	X
104-51-8	n-Butylbenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
103-65-1	n-Propylbenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
95-47-6	o-Xylene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
135-98-8	sec-Butylbenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
100-42-5	Styrene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
98-06-6	tert-Butylbenzene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
75-65-0	tertiary Butyl Alcohol	ND	4000	ug/kg dry	50	09/22/17	B7I2204	8260	
994-05-8	tertiaryAmylmethylether	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
127-18-4	Tetrachloroethylene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
109-99-9	Tetrahydrofuran	ND	400	ug/kg dry	50	09/22/17	B7I2204	8260	
108-88-3	Toluene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
79-01-6	Trichloroethylene	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
75-69-4	Trichlorofluoromethane	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
75-01-4	Vinyl chloride	ND	80	ug/kg dry	50	09/22/17	B7I2204	8260	
Surrogate: Bromofluorobenzene			*112 %*	*40.3-194*		*09/22/17*	B7I2204	*8260*	
Surrogate: Dibromofluoromethane			*125 %*	*52.1-217*		*09/22/17*	B7I2204	*8260*	
Surrogate: Toluene-d8			*120 %*	*55.4-196*		*09/22/17*	B7I2204	*8260*	

STATE OF MICHIGAN
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ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
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Client ID: QMCM-SB-42 12"-24"

Lab ID: 1709156-08

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y17, Y20**
91-57-6	**2-Methylnaphthalene**	**1300**	640	ug/kg dry	1	09/27/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	260	ug/kg dry	1	09/27/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	260	ug/kg dry	1	09/27/17	B7I2401	8270	
120-12-7	Anthracene	ND	260	ug/kg dry	1	09/27/17	B7I2401	8270	
56-55-3	Benz[a]anthracene	ND	260	ug/kg dry	1	09/27/17	B7I2401	8270	
50-32-8	Benzo[a]pyrene	ND	510	ug/kg dry	1	09/27/17	B7I2401	8270	
205-99-2	Benzo[b]fluoranthene	ND	510	ug/kg dry	1	09/27/17	B7I2401	8270	
191-24-2	Benzo[g,h,i]perylene	ND	510	ug/kg dry	1	09/27/17	B7I2401	8270	
207-08-9	Benzo[k]fluoranthene	ND	510	ug/kg dry	1	09/27/17	B7I2401	8270	
218-01-9	Chrysene	ND	260	ug/kg dry	1	09/27/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	510	ug/kg dry	1	09/27/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**280**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
86-73-7	Fluorene	ND	260	ug/kg dry	1	09/27/17	B7I2401	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	510	ug/kg dry	1	09/27/17	B7I2401	8270	
91-20-3	**Naphthalene**	**1000**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**670**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
129-00-0	Pyrene	ND	260	ug/kg dry	1	09/27/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*84.8 %*	*32.9-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*70.1 %*	*31.8-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*78.8 %*	*38.5-115*		*09/27/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**78.1**	0.1	%	1	09/20/17	B7I2010	2540 B	

STATE OF MICHIGAN
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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

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TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SS 52-0"-6"

Lab ID: 1709156-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
71-55-6	1,1,1-Trichloroethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
79-00-5	1,1,2-Trichloroethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
75-34-3	1,1-Dichloroethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
75-35-4	1,1-Dichloroethylene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
96-18-4	1,2,3-Trichloropropane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
95-63-6	**1,2,4-Trimethylbenzene**	**90**	64	ug/kg dry	50	09/22/17	B7I2204	8260	
106-93-4	1,2-Dibromoethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
95-50-1	1,2-Dichlorobenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
107-06-2	1,2-Dichloroethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
78-87-5	1,2-Dichloropropane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
541-73-1	1,3-Dichlorobenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
106-46-7	1,4-Dichlorobenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
540-84-1	2,2,4-Trimethylpentane	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
78-93-3	2-Butanone (MEK)	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
91-57-6	2-Methylnaphthalene	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	X
67-64-1	2-Propanone (acetone)	ND	1300	ug/kg dry	50	09/22/17	B7I2204	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
107-13-1	Acrylonitrile	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
71-43-2	Benzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
74-97-5	Bromochloromethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
75-27-4	Bromodichloromethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
75-25-2	Bromoform	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
74-83-9	Bromomethane	ND	260	ug/kg dry	50	09/22/17	B7I2204	8260	
75-15-0	Carbon disulfide	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
56-23-5	Carbon tetrachloride	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
108-90-7	Chlorobenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
75-00-3	Chloroethane	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
67-66-3	Chloroform	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
74-87-3	Chloromethane	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
110-82-7	Cyclohexane	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
124-48-1	Dibromochloromethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
74-95-3	Dibromomethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	

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TEL: (517) 335-9800
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Client ID: QMCM-SS 52-0"-6"

Lab ID: 1709156-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
60-29-7	Diethyl ether	ND	260	ug/kg dry	50	09/22/17	B7I2204	8260	
108-20-3	Diisopropyl Ether	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
100-41-4	Ethylbenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
637-92-3	Ethyltertiarybutylether	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
67-72-1	Hexachloroethane	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
110-54-3	Hexane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
98-82-8	Isopropylbenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
1330-20-7	m & p - Xylene	ND	130	ug/kg dry	50	09/22/17	B7I2204	8260	
75-09-2	Methylene chloride	ND	130	ug/kg dry	50	09/22/17	B7I2204	8260	
1634-04-4	Methyltertiarybutylether	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
91-20-3	Naphthalene	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	X
104-51-8	n-Butylbenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
103-65-1	n-Propylbenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
95-47-6	**o-Xylene**	**85**	64	ug/kg dry	50	09/22/17	B7I2204	8260	
135-98-8	sec-Butylbenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
100-42-5	Styrene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
98-06-6	tert-Butylbenzene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
75-65-0	tertiary Butyl Alcohol	ND	3200	ug/kg dry	50	09/22/17	B7I2204	8260	
994-05-8	tertiaryAmylmethylether	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
127-18-4	Tetrachloroethylene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
109-99-9	Tetrahydrofuran	ND	320	ug/kg dry	50	09/22/17	B7I2204	8260	
108-88-3	**Toluene**	**87**	64	ug/kg dry	50	09/22/17	B7I2204	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
79-01-6	Trichloroethylene	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
75-69-4	Trichlorofluoromethane	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
75-01-4	Vinyl chloride	ND	64	ug/kg dry	50	09/22/17	B7I2204	8260	
Surrogate: Bromofluorobenzene			*133 %*	*40.3-194*		*09/22/17*	B7I2204	*8260*	
Surrogate: Dibromofluoromethane			*146 %*	*52.1-217*		*09/22/17*	B7I2204	*8260*	
Surrogate: Toluene-d8			*139 %*	*55.4-196*		*09/22/17*	B7I2204	*8260*	

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Client ID: QMCM-SS 52-0"-6"

Lab ID: 1709156-09

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y11, Y20**
91-57-6	2-Methylnaphthalene	ND	550	ug/kg dry	1	09/26/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	220	ug/kg dry	1	09/26/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	220	ug/kg dry	1	09/26/17	B7I2401	8270	
120-12-7	**Anthracene**	**440**	220	ug/kg dry	1	09/26/17	B7I2401	8270	
56-55-3	**Benz[a]anthracene**	**2600**	220	ug/kg dry	1	09/26/17	B7I2401	8270	A07
50-32-8	**Benzo[a]pyrene**	**2500**	440	ug/kg dry	1	09/26/17	B7I2401	8270	
205-99-2	**Benzo[b]fluoranthene**	**3700**	440	ug/kg dry	1	09/26/17	B7I2401	8270	A07
191-24-2	**Benzo[g,h,i]perylene**	**1400**	440	ug/kg dry	1	09/26/17	B7I2401	8270	
207-08-9	**Benzo[k]fluoranthene**	**1200**	440	ug/kg dry	1	09/26/17	B7I2401	8270	
218-01-9	**Chrysene**	**2800**	220	ug/kg dry	1	09/26/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	440	ug/kg dry	1	09/26/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**6300**	220	ug/kg dry	1	09/26/17	B7I2401	8270	A07
86-73-7	**Fluorene**	**210**	220	ug/kg dry	1	09/26/17	B7I2401	8270	T
193-39-5	**Indeno(1,2,3-c,d)pyrene**	**1300**	440	ug/kg dry	1	09/26/17	B7I2401	8270	
91-20-3	**Naphthalene**	**430**	220	ug/kg dry	1	09/26/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**3600**	220	ug/kg dry	1	09/26/17	B7I2401	8270	A07
129-00-0	**Pyrene**	**4500**	220	ug/kg dry	1	09/26/17	B7I2401	8270	A07
Surrogate: 2-Fluorobiphenyl			*81.7 %*	*32.9-115*		*09/26/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*80.9 %*	*31.8-115*		*09/26/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*78.8 %*	*38.5-115*		*09/26/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**91.7**	0.1	%	1	09/20/17	B7I2010	2540 B	

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Client ID: QMCM-SS-53-0"-6"

Lab ID: 1709156-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
71-55-6	1,1,1-Trichloroethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
79-00-5	1,1,2-Trichloroethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
75-34-3	1,1-Dichloroethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
75-35-4	1,1-Dichloroethylene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
96-18-4	1,2,3-Trichloropropane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
526-73-8	1,2,3-Trimethylbenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
106-93-4	1,2-Dibromoethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
95-50-1	1,2-Dichlorobenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
107-06-2	1,2-Dichloroethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
78-87-5	1,2-Dichloropropane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
541-73-1	1,3-Dichlorobenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
106-46-7	1,4-Dichlorobenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
540-84-1	2,2,4-Trimethylpentane	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
78-93-3	2-Butanone (MEK)	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
91-57-6	2-Methylnaphthalene	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	X
67-64-1	2-Propanone (acetone)	ND	1200	ug/kg dry	50	09/22/17	B7I2204	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
107-13-1	Acrylonitrile	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
71-43-2	Benzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
74-97-5	Bromochloromethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
75-27-4	Bromodichloromethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
75-25-2	Bromoform	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
74-83-9	Bromomethane	ND	240	ug/kg dry	50	09/22/17	B7I2204	8260	
75-15-0	Carbon disulfide	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
56-23-5	Carbon tetrachloride	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
108-90-7	Chlorobenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
75-00-3	Chloroethane	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
67-66-3	Chloroform	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
74-87-3	Chloromethane	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
110-82-7	Cyclohexane	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
124-48-1	Dibromochloromethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
74-95-3	Dibromomethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	

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Client ID: QMCM-SS-53-0"-6"

Lab ID: 1709156-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
60-29-7	Diethyl ether	ND	240	ug/kg dry	50	09/22/17	B7I2204	8260	
108-20-3	Diisopropyl Ether	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
100-41-4	Ethylbenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
637-92-3	Ethyltertiarybutylether	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
67-72-1	Hexachloroethane	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
110-54-3	Hexane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
98-82-8	Isopropylbenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
1330-20-7	m & p - Xylene	ND	120	ug/kg dry	50	09/22/17	B7I2204	8260	
75-09-2	Methylene chloride	ND	120	ug/kg dry	50	09/22/17	B7I2204	8260	
1634-04-4	Methyltertiarybutylether	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
91-20-3	Naphthalene	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	X
104-51-8	n-Butylbenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
103-65-1	n-Propylbenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
95-47-6	o-Xylene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
135-98-8	sec-Butylbenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
100-42-5	Styrene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
98-06-6	tert-Butylbenzene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
75-65-0	tertiary Butyl Alcohol	ND	3000	ug/kg dry	50	09/22/17	B7I2204	8260	
994-05-8	tertiaryAmylmethylether	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
127-18-4	Tetrachloroethylene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
109-99-9	Tetrahydrofuran	ND	300	ug/kg dry	50	09/22/17	B7I2204	8260	
108-88-3	Toluene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
79-01-6	Trichloroethylene	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
75-69-4	Trichlorofluoromethane	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
75-01-4	Vinyl chloride	ND	60	ug/kg dry	50	09/22/17	B7I2204	8260	
Surrogate: Bromofluorobenzene			*117 %*	*40.3-194*		*09/22/17*	B7I2204	*8260*	
Surrogate: Dibromofluoromethane			*125 %*	*52.1-217*		*09/22/17*	B7I2204	*8260*	
Surrogate: Toluene-d8			*123 %*	*55.4-196*		*09/22/17*	B7I2204	*8260*	

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Client ID: QMCM-SS-53-0"-6"

Lab ID: 1709156-10

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	530	ug/kg dry	1	09/27/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	210	ug/kg dry	1	09/27/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	210	ug/kg dry	1	09/27/17	B7I2401	8270	
120-12-7	**Anthracene**	**310**	210	ug/kg dry	1	09/27/17	B7I2401	8270	
56-55-3	**Benz[a]anthracene**	**1600**	210	ug/kg dry	1	09/27/17	B7I2401	8270	
50-32-8	**Benzo[a]pyrene**	**1500**	430	ug/kg dry	1	09/27/17	B7I2401	8270	
205-99-2	**Benzo[b]fluoranthene**	**2100**	430	ug/kg dry	1	09/27/17	B7I2401	8270	
191-24-2	**Benzo[g,h,i]perylene**	**850**	430	ug/kg dry	1	09/27/17	B7I2401	8270	
207-08-9	**Benzo[k]fluoranthene**	**760**	430	ug/kg dry	1	09/27/17	B7I2401	8270	
218-01-9	**Chrysene**	**1700**	210	ug/kg dry	1	09/27/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	430	ug/kg dry	1	09/27/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**3900**	210	ug/kg dry	1	09/27/17	B7I2401	8270	
86-73-7	Fluorene	ND	210	ug/kg dry	1	09/27/17	B7I2401	8270	
193-39-5	**Indeno(1,2,3-c,d)pyrene**	**760**	430	ug/kg dry	1	09/27/17	B7I2401	8270	
91-20-3	Naphthalene	ND	210	ug/kg dry	1	09/27/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**2000**	210	ug/kg dry	1	09/27/17	B7I2401	8270	
129-00-0	**Pyrene**	**2900**	210	ug/kg dry	1	09/27/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*91.4 %*	*32.9-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*82.9 %*	*31.8-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*86.0 %*	*38.5-115*		*09/27/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**93.5**	0.1	%	1	09/20/17	B7I2010	2540 B	

STATE OF MICHIGAN
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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

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Client ID: QMCM-SS-54-0"-6"

Lab ID: 1709156-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y15**
630-20-6	1,1,1,2-Tetrachloroethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
71-55-6	1,1,1-Trichloroethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
79-00-5	1,1,2-Trichloroethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
75-34-3	1,1-Dichloroethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
75-35-4	1,1-Dichloroethylene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
96-18-4	1,2,3-Trichloropropane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	A05
526-73-8	1,2,3-Trimethylbenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
106-93-4	1,2-Dibromoethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
95-50-1	1,2-Dichlorobenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
107-06-2	1,2-Dichloroethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
78-87-5	1,2-Dichloropropane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
541-73-1	1,3-Dichlorobenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
106-46-7	1,4-Dichlorobenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
540-84-1	2,2,4-Trimethylpentane	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
78-93-3	2-Butanone (MEK)	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
91-57-6	2-Methylnaphthalene	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	X
67-64-1	2-Propanone (acetone)	ND	1300	ug/kg dry	50	09/22/17	B7I2217	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
107-13-1	Acrylonitrile	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
71-43-2	Benzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
74-97-5	Bromochloromethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
75-27-4	Bromodichloromethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
75-25-2	Bromoform	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	A05
74-83-9	Bromomethane	ND	250	ug/kg dry	50	09/22/17	B7I2217	8260	
75-15-0	Carbon disulfide	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
56-23-5	Carbon tetrachloride	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
108-90-7	Chlorobenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
75-00-3	Chloroethane	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	A05
67-66-3	Chloroform	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
74-87-3	Chloromethane	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
110-82-7	Cyclohexane	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
124-48-1	Dibromochloromethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
74-95-3	Dibromomethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	

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Client ID: QMCM-SS-54-0"-6"

Lab ID: 1709156-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y15**
75-71-8	Dichlorodifluoromethane	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
60-29-7	Diethyl ether	ND	250	ug/kg dry	50	09/22/17	B7I2217	8260	
108-20-3	Diisopropyl Ether	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
100-41-4	Ethylbenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
637-92-3	Ethyltertiarybutylether	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
67-72-1	Hexachloroethane	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
110-54-3	Hexane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
98-82-8	Isopropylbenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
1330-20-7	m & p - Xylene	ND	130	ug/kg dry	50	09/22/17	B7I2217	8260	
75-09-2	Methylene chloride	ND	130	ug/kg dry	50	09/22/17	B7I2217	8260	
1634-04-4	Methyltertiarybutylether	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
91-20-3	Naphthalene	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	X
104-51-8	n-Butylbenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
103-65-1	n-Propylbenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
95-47-6	o-Xylene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
135-98-8	sec-Butylbenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
100-42-5	Styrene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
98-06-6	tert-Butylbenzene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
75-65-0	tertiary Butyl Alcohol	ND	3100	ug/kg dry	50	09/22/17	B7I2217	8260	
994-05-8	tertiaryAmylmethylether	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
127-18-4	Tetrachloroethylene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
109-99-9	Tetrahydrofuran	ND	310	ug/kg dry	50	09/22/17	B7I2217	8260	
108-88-3	Toluene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
79-01-6	Trichloroethylene	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
75-69-4	Trichlorofluoromethane	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
75-01-4	Vinyl chloride	ND	63	ug/kg dry	50	09/22/17	B7I2217	8260	
Surrogate: Bromofluorobenzene			*129 %*	*40.3-194*		*09/22/17*	B7I2217	*8260*	
Surrogate: Dibromofluoromethane			*123 %*	*52.1-217*		*09/22/17*	B7I2217	*8260*	
Surrogate: Toluene-d8			*127 %*	*55.4-196*		*09/22/17*	B7I2217	*8260*	

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Client ID: QMCM-SS-54-0"-6"

Lab ID: 1709156-11

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y20**
91-57-6	2-Methylnaphthalene	ND	550	ug/kg dry	1	09/27/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	220	ug/kg dry	1	09/27/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	220	ug/kg dry	1	09/27/17	B7I2401	8270	
120-12-7	Anthracene	ND	220	ug/kg dry	1	09/27/17	B7I2401	8270	
56-55-3	**Benz[a]anthracene**	**310**	220	ug/kg dry	1	09/27/17	B7I2401	8270	
50-32-8	Benzo[a]pyrene	ND	440	ug/kg dry	1	09/27/17	B7I2401	8270	
205-99-2	**Benzo[b]fluoranthene**	**440**	440	ug/kg dry	1	09/27/17	B7I2401	8270	
191-24-2	Benzo[g,h,i]perylene	ND	440	ug/kg dry	1	09/27/17	B7I2401	8270	
207-08-9	Benzo[k]fluoranthene	ND	440	ug/kg dry	1	09/27/17	B7I2401	8270	
218-01-9	**Chrysene**	**350**	220	ug/kg dry	1	09/27/17	B7I2401	8270	
53-70-3	Dibenz[a,h]anthracene	ND	440	ug/kg dry	1	09/27/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**770**	220	ug/kg dry	1	09/27/17	B7I2401	8270	
86-73-7	Fluorene	ND	220	ug/kg dry	1	09/27/17	B7I2401	8270	
193-39-5	Indeno(1,2,3-c,d)pyrene	ND	440	ug/kg dry	1	09/27/17	B7I2401	8270	
91-20-3	Naphthalene	ND	220	ug/kg dry	1	09/27/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**530**	220	ug/kg dry	1	09/27/17	B7I2401	8270	
129-00-0	**Pyrene**	**610**	220	ug/kg dry	1	09/27/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*84.8 %*	*32.9-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*72.6 %*	*31.8-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*92.0 %*	*38.5-115*		*09/27/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**91.2**	0.1	%	1	09/20/17	B7I2010	2540 B	

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Client ID: QMCM-SS-50-0"-6"

Lab ID: 1709156-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
71-55-6	1,1,1-Trichloroethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
79-00-5	1,1,2-Trichloroethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
75-34-3	1,1-Dichloroethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
75-35-4	1,1-Dichloroethylene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
96-18-4	1,2,3-Trichloropropane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	A05
526-73-8	1,2,3-Trimethylbenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
106-93-4	1,2-Dibromoethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
95-50-1	1,2-Dichlorobenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
107-06-2	1,2-Dichloroethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
78-87-5	1,2-Dichloropropane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
541-73-1	1,3-Dichlorobenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
106-46-7	1,4-Dichlorobenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
540-84-1	2,2,4-Trimethylpentane	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
78-93-3	2-Butanone (MEK)	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
91-57-6	2-Methylnaphthalene	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	X
67-64-1	2-Propanone (acetone)	ND	1700	ug/kg dry	50	09/22/17	B7I2217	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
107-13-1	Acrylonitrile	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
71-43-2	Benzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
74-97-5	Bromochloromethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
75-27-4	Bromodichloromethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
75-25-2	Bromoform	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	A05
74-83-9	Bromomethane	ND	350	ug/kg dry	50	09/22/17	B7I2217	8260	
75-15-0	Carbon disulfide	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
56-23-5	Carbon tetrachloride	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
108-90-7	Chlorobenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
75-00-3	Chloroethane	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	A05
67-66-3	Chloroform	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
74-87-3	Chloromethane	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
110-82-7	Cyclohexane	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
124-48-1	Dibromochloromethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
74-95-3	Dibromomethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	

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Client ID: QMCM-SS-50-0"-6"

Lab ID: 1709156-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
60-29-7	Diethyl ether	ND	350	ug/kg dry	50	09/22/17	B7I2217	8260	
108-20-3	Diisopropyl Ether	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
100-41-4	Ethylbenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
637-92-3	Ethyltertiarybutylether	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
67-72-1	Hexachloroethane	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
110-54-3	Hexane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
98-82-8	Isopropylbenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
1330-20-7	m & p - Xylene	ND	170	ug/kg dry	50	09/22/17	B7I2217	8260	
75-09-2	Methylene chloride	ND	170	ug/kg dry	50	09/22/17	B7I2217	8260	
1634-04-4	Methyltertiarybutylether	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
91-20-3	**Naphthalene**	**760**	430	ug/kg dry	50	09/22/17	B7I2217	8260	X
104-51-8	n-Butylbenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
103-65-1	n-Propylbenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
95-47-6	o-Xylene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
135-98-8	sec-Butylbenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
100-42-5	Styrene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
98-06-6	tert-Butylbenzene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
75-65-0	tertiary Butyl Alcohol	ND	4300	ug/kg dry	50	09/22/17	B7I2217	8260	
994-05-8	tertiaryAmylmethylether	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
127-18-4	Tetrachloroethylene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
109-99-9	Tetrahydrofuran	ND	430	ug/kg dry	50	09/22/17	B7I2217	8260	
108-88-3	Toluene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
79-01-6	Trichloroethylene	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
75-69-4	Trichlorofluoromethane	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
75-01-4	Vinyl chloride	ND	86	ug/kg dry	50	09/22/17	B7I2217	8260	
Surrogate: Bromofluorobenzene			*144 %*	*40.3-194*		*09/22/17*	B7I2217	*8260*	
Surrogate: Dibromofluoromethane			*143 %*	*52.1-217*		*09/22/17*	B7I2217	*8260*	
Surrogate: Toluene-d8			*147 %*	*55.4-196*		*09/22/17*	B7I2217	*8260*	

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TEL: (517) 335-9800
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Client ID: QMCM-SS-50-0"-6"

Lab ID: 1709156-12

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y17, Y20**
91-57-6	2-Methylnaphthalene	ND	6500	ug/kg dry	10	09/29/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
120-12-7	**Anthracene**	**12000**	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
56-55-3	**Benz[a]anthracene**	**100000**	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
50-32-8	**Benzo[a]pyrene**	**140000**	5200	ug/kg dry	10	09/29/17	B7I2401	8270	
205-99-2	**Benzo[b]fluoranthene**	**180000**	52000	ug/kg dry	100	10/02/17	B7I2401	8270	
191-24-2	**Benzo[g,h,i]perylene**	**89000**	5200	ug/kg dry	10	09/29/17	B7I2401	8270	
207-08-9	**Benzo[k]fluoranthene**	**70000**	5200	ug/kg dry	10	09/29/17	B7I2401	8270	
218-01-9	**Chrysene**	**110000**	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
53-70-3	**Dibenz[a,h]anthracene**	**28000**	5200	ug/kg dry	10	09/29/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**140000**	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
86-73-7	Fluorene	ND	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
193-39-5	**Indeno(1,2,3-c,d)pyrene**	**81000**	5200	ug/kg dry	10	09/29/17	B7I2401	8270	
91-20-3	**Naphthalene**	**4800**	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**59000**	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
129-00-0	**Pyrene**	**120000**	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*101 %*	*32.9-115*		*09/29/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*77.0 %*	*31.8-115*		*09/29/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*102 %*	*38.5-115*		*09/29/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**77.0**	0.1	%	1	09/20/17	B7I2010	2540 B	

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Client ID: QMCM-SS-50-0''-6'' FD

Lab ID: 1709156-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
630-20-6	1,1,1,2-Tetrachloroethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
71-55-6	1,1,1-Trichloroethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
79-00-5	1,1,2-Trichloroethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
75-34-3	1,1-Dichloroethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
75-35-4	1,1-Dichloroethylene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
96-18-4	1,2,3-Trichloropropane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	A05
526-73-8	1,2,3-Trimethylbenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
106-93-4	1,2-Dibromoethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
95-50-1	1,2-Dichlorobenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
107-06-2	1,2-Dichloroethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
78-87-5	1,2-Dichloropropane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
541-73-1	1,3-Dichlorobenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
106-46-7	1,4-Dichlorobenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
540-84-1	2,2,4-Trimethylpentane	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
78-93-3	2-Butanone (MEK)	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
91-57-6	**2-Methylnaphthalene**	**2900**	420	ug/kg dry	50	09/22/17	B7I2217	8260	X
67-64-1	2-Propanone (acetone)	ND	1700	ug/kg dry	50	09/22/17	B7I2217	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
107-13-1	Acrylonitrile	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
71-43-2	Benzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
74-97-5	Bromochloromethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
75-27-4	Bromodichloromethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
75-25-2	Bromoform	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	A05
74-83-9	Bromomethane	ND	340	ug/kg dry	50	09/22/17	B7I2217	8260	
75-15-0	Carbon disulfide	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
56-23-5	Carbon tetrachloride	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
108-90-7	Chlorobenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
75-00-3	Chloroethane	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	A05
67-66-3	Chloroform	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
74-87-3	Chloromethane	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
110-82-7	Cyclohexane	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
124-48-1	Dibromochloromethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
74-95-3	Dibromomethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	

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Client ID: QMCM-SS-50-0"-6" FD

Lab ID: 1709156-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									
75-71-8	Dichlorodifluoromethane	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
60-29-7	Diethyl ether	ND	340	ug/kg dry	50	09/22/17	B7I2217	8260	
108-20-3	Diisopropyl Ether	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
100-41-4	Ethylbenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
637-92-3	Ethyltertiarybutylether	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
67-72-1	Hexachloroethane	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
110-54-3	Hexane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
98-82-8	Isopropylbenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
1330-20-7	m & p - Xylene	ND	170	ug/kg dry	50	09/22/17	B7I2217	8260	
75-09-2	Methylene chloride	ND	170	ug/kg dry	50	09/22/17	B7I2217	8260	
1634-04-4	Methyltertiarybutylether	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
91-20-3	**Naphthalene**	**4000**	420	ug/kg dry	50	09/22/17	B7I2217	8260	X
104-51-8	n-Butylbenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
103-65-1	n-Propylbenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
95-47-6	o-Xylene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
135-98-8	sec-Butylbenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
100-42-5	Styrene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
98-06-6	tert-Butylbenzene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
75-65-0	tertiary Butyl Alcohol	ND	4200	ug/kg dry	50	09/22/17	B7I2217	8260	
994-05-8	tertiaryAmylmethylether	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
127-18-4	Tetrachloroethylene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
109-99-9	Tetrahydrofuran	ND	420	ug/kg dry	50	09/22/17	B7I2217	8260	
108-88-3	Toluene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
79-01-6	Trichloroethylene	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
75-69-4	Trichlorofluoromethane	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
75-01-4	Vinyl chloride	ND	85	ug/kg dry	50	09/22/17	B7I2217	8260	
Surrogate: Bromofluorobenzene			*143 %*	*40.3-194*		*09/22/17*	B7I2217	*8260*	
Surrogate: Dibromofluoromethane			*136 %*	*52.1-217*		*09/22/17*	B7I2217	*8260*	
Surrogate: Toluene-d8			*144 %*	*55.4-196*		*09/22/17*	B7I2217	*8260*	

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Client ID: QMCM-SS-50-0"-6" FD

Lab ID: 1709156-13

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y17, Y20**
91-57-6	2-Methylnaphthalene	ND	6000	ug/kg dry	10	09/29/17	B7I2401	8270	
83-32-9	Acenaphthene	ND	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
120-12-7	**Anthracene**	**8900**	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
56-55-3	**Benz[a]anthracene**	**55000**	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
50-32-8	**Benzo[a]pyrene**	**76000**	4800	ug/kg dry	10	09/29/17	B7I2401	8270	
205-99-2	**Benzo[b]fluoranthene**	**100000**	4800	ug/kg dry	10	09/29/17	B7I2401	8270	
191-24-2	**Benzo[g,h,i]perylene**	**53000**	4800	ug/kg dry	10	09/29/17	B7I2401	8270	
207-08-9	**Benzo[k]fluoranthene**	**34000**	4800	ug/kg dry	10	09/29/17	B7I2401	8270	
218-01-9	**Chrysene**	**60000**	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
53-70-3	**Dibenz[a,h]anthracene**	**15000**	4800	ug/kg dry	10	09/29/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**76000**	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
86-73-7	Fluorene	ND	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
193-39-5	**Indeno(1,2,3-c,d)pyrene**	**46000**	4800	ug/kg dry	10	09/29/17	B7I2401	8270	
91-20-3	Naphthalene	ND	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**43000**	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
129-00-0	**Pyrene**	**72000**	2400	ug/kg dry	10	09/29/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*95.8 %*	*32.9-115*		*09/29/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*70.6 %*	*31.8-115*		*09/29/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*98.5 %*	*38.5-115*		*09/29/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**82.7**	0.1	%	1	09/20/17	B7I2010	2540 B	

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Client ID: QMCM-SS-51-0"-6"

Lab ID: 1709156-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y11**
630-20-6	1,1,1,2-Tetrachloroethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
71-55-6	1,1,1-Trichloroethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
79-34-5	1,1,2,2-Tetrachloroethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
79-00-5	1,1,2-Trichloroethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
75-34-3	1,1-Dichloroethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
75-35-4	1,1-Dichloroethylene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
87-61-6	1,2,3-Trichlorobenzene	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
96-18-4	1,2,3-Trichloropropane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	A05
526-73-8	1,2,3-Trimethylbenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
120-82-1	1,2,4-Trichlorobenzene	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
95-63-6	1,2,4-Trimethylbenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
106-93-4	1,2-Dibromoethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
95-50-1	1,2-Dichlorobenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
107-06-2	1,2-Dichloroethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
78-87-5	1,2-Dichloropropane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
108-67-8	1,3,5-Trimethylbenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
541-73-1	1,3-Dichlorobenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
106-46-7	1,4-Dichlorobenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
540-84-1	2,2,4-Trimethylpentane	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
78-93-3	2-Butanone (MEK)	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
91-57-6	2-Methylnaphthalene	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	X
67-64-1	2-Propanone (acetone)	ND	1800	ug/kg dry	50	09/22/17	B7I2217	8260	
108-10-1	4-Methyl-2-pentanone (MIBK)	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
107-13-1	Acrylonitrile	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
71-43-2	Benzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
74-97-5	Bromochloromethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
75-27-4	Bromodichloromethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
75-25-2	Bromoform	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	A05
74-83-9	Bromomethane	ND	350	ug/kg dry	50	09/22/17	B7I2217	8260	
75-15-0	Carbon disulfide	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
56-23-5	Carbon tetrachloride	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
108-90-7	Chlorobenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
75-00-3	Chloroethane	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	A05
67-66-3	Chloroform	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
74-87-3	Chloromethane	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
156-59-2	cis-1,2-Dichloroethylene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
10061-01-5	cis-1,3-Dichloropropylene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
110-82-7	Cyclohexane	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
124-48-1	Dibromochloromethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
74-95-3	Dibromomethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	

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Client ID: QMCM-SS-51-0"-6"

Lab ID: 1709156-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Volatiles									**See note Y11**
75-71-8	Dichlorodifluoromethane	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
60-29-7	Diethyl ether	ND	350	ug/kg dry	50	09/22/17	B7I2217	8260	
108-20-3	Diisopropyl Ether	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
100-41-4	Ethylbenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
637-92-3	Ethyltertiarybutylether	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
67-72-1	Hexachloroethane	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
110-54-3	Hexane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
98-82-8	Isopropylbenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
1330-20-7	m & p - Xylene	ND	180	ug/kg dry	50	09/22/17	B7I2217	8260	
75-09-2	Methylene chloride	ND	180	ug/kg dry	50	09/22/17	B7I2217	8260	
1634-04-4	Methyltertiarybutylether	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
91-20-3	Naphthalene	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	X
104-51-8	n-Butylbenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
103-65-1	n-Propylbenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
95-47-6	o-Xylene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
135-98-8	sec-Butylbenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
100-42-5	Styrene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
98-06-6	tert-Butylbenzene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
75-65-0	tertiary Butyl Alcohol	ND	4400	ug/kg dry	50	09/22/17	B7I2217	8260	
994-05-8	tertiaryAmylmethylether	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
127-18-4	Tetrachloroethylene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
109-99-9	Tetrahydrofuran	ND	440	ug/kg dry	50	09/22/17	B7I2217	8260	
108-88-3	Toluene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
156-60-5	trans-1,2-Dichloroethylene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
10061-02-6	trans-1,3-Dichloropropylene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
79-01-6	Trichloroethylene	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
75-69-4	Trichlorofluoromethane	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
75-01-4	Vinyl chloride	ND	88	ug/kg dry	50	09/22/17	B7I2217	8260	
Surrogate: Bromofluorobenzene			*183 %*	*40.3-194*		*09/22/17*	B7I2217	*8260*	
Surrogate: Dibromofluoromethane			*176 %*	*52.1-217*		*09/22/17*	B7I2217	*8260*	
Surrogate: Toluene-d8			*186 %*	*55.4-196*		*09/22/17*	B7I2217	*8260*	

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL LABORATORY

P.O. Box 30270
Lansing, MI 48909
TEL: (517) 335-9800
FAX: (517) 335-9600

Client ID: QMCM-SS-51-0"-6"

Lab ID: 1709156-14

CAS #	Analyte	Result	RL	Units	Dilution	Analyzed Date	QC Batch	Method	Qualifier
Organics-Semivolatiles									**See note Y17, Y20**
91-57-6	**2-Methylnaphthalene**	**650**	660	ug/kg dry	1	09/27/17	B7I2401	8270	T
83-32-9	**Acenaphthene**	**840**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
208-96-8	Acenaphthylene	ND	260	ug/kg dry	1	09/27/17	B7I2401	8270	
120-12-7	**Anthracene**	**3400**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
56-55-3	**Benz[a]anthracene**	**13000**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
50-32-8	**Benzo[a]pyrene**	**15000**	530	ug/kg dry	1	09/27/17	B7I2401	8270	
205-99-2	**Benzo[b]fluoranthene**	**21000**	5300	ug/kg dry	10	09/29/17	B7I2401	8270	
191-24-2	**Benzo[g,h,i]perylene**	**6800**	530	ug/kg dry	1	09/27/17	B7I2401	8270	
207-08-9	**Benzo[k]fluoranthene**	**7700**	530	ug/kg dry	1	09/27/17	B7I2401	8270	
218-01-9	**Chrysene**	**13000**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
53-70-3	**Dibenz[a,h]anthracene**	**2100**	530	ug/kg dry	1	09/27/17	B7I2401	8270	
206-44-0	**Fluoranthene**	**26000**	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
86-73-7	**Fluorene**	**1500**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
193-39-5	**Indeno(1,2,3-c,d)pyrene**	**6600**	530	ug/kg dry	1	09/27/17	B7I2401	8270	
91-20-3	**Naphthalene**	**1400**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
85-01-8	**Phenanthrene**	**14000**	260	ug/kg dry	1	09/27/17	B7I2401	8270	
129-00-0	**Pyrene**	**27000**	2600	ug/kg dry	10	09/29/17	B7I2401	8270	
Surrogate: 2-Fluorobiphenyl			*89.5 %*	*32.9-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: Nitrobenzene-d5			*70.9 %*	*31.8-115*		*09/27/17*	B7I2401	*8270*	
Surrogate: p-Terphenyl-d14			*91.1 %*	*38.5-115*		*09/27/17*	B7I2401	*8270*	
Inorganics-General Chemistry									
TS	**% Total Solids**	**75.9**	0.1	%	1	09/20/17	B7I2010	2540 B	

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
1709156	Abandoned Mining Wastes- QMCM Ops	SOIL

Site Code/Project Number	AY	CC Email 1	Project TAT Days	Sample Collector
31000098	17	jbinkley@manniksmithgroup.com		
Dept-Division-District	**Index**	**CC Email 2**	**Project Due Date**	**Sample Collector Phone**
DEQ RRD UP District- Calumet	44251			
State Project Manager	**PCA**	**CC Email 3**		**Contract Firm**
Amy Keranen	30843			Mannik & Smith Group
State Project Manager Email	**Project**	**Overflow Lab Choice 1**	**Accept Analysis hold time codes**	**Contract Firm Primary Contact**
keranena@michigan.gov	456457			Jeff Binkley
State Project Manager Phone	**Phase**	**Overflow Lab Choice 2**		**Primary Contact Phone**
906-337-0389	00			906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1	01	QMCM-SB - 39 6"-12"	9-17-17			
2	02	QMCM-SB - 39 12"-4'				
3	03	QMCM-SB - 40 6"-12"				
4	04	QMCM-SB - 40 12"-24"				
5	05	QMCM-SB - 41 6"-12"				
6	06	QMCM-SB - 41 12"-3'				
7	07	QMCM-SB - 42 6"-12"				
8	08	QMCM-SB - 42 12"-24"				
9						
10						

ORGANIC CHEMISTRY

VOA - Volatile Organic Acidic

Volatiles - full List	1 2 3 4 5 6 7 8 9 10
BTEX/MTBE/TMB only	1 2 3 4 5 6 7 8 9 10
Chlorinated only	1 2 3 4 5 6 7 8 9 10
GRO	1 2 3 4 5 6 7 8 9 10
1,4 dioxane	1 2 3 4 5 6 7 8 9 10

OS - Pesticides, PCBs

Pesticides & PCBs	1 2 3 4 5 6 7 8 9 10
Pesticides only	1 2 3 4 5 6 7 8 9 10
PCBs only	1 2 3 4 5 6 7 8 9 10
Toxaphene	1 2 3 4 5 6 7 8 9 10

BNA - Base Neutral Acids

BNAs	1 2 3 4 5 6 7 8 9 10
PNAs only	1 2 3 4 5 6 7 8 9 10
BNs only	1 2 3 4 5 6 7 8 9 10

Organic Specialty Requests

Library search - Volatiles	1 2 3 4 5 6 7 8 9 10
Library search - Semi/Volt	1 2 3 4 5 6 7 8 9 10
Finger Print	1 2 3 4 5 6 7 8 9 10
DRO / ORO	1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

TypMetals2 - Total (Al,As,Ba,Be,Cd,Cr,Co,Cu,Fe,Pb,Mn,Hg,Mo,Ni,Se,Ag,Tl,V,Zn)	1 2 3 4 5 6 7 8 9 10
Michigan10 - Total (As,Ba,Cd,Cr,Cu,Pb,Hg,Se,Ag,Zn)	1 2 3 4 5 6 7 8 9 10

MS - TOTAL METALS

Silver - Ag	1 2 3 4 5 6 7 8 9 10
Aluminum - Al	1 2 3 4 5 6 7 8 9 10
Arsenic - As	1 2 3 4 5 6 7 8 9 10
Barium - Ba	1 2 3 4 5 6 7 8 9 10
Beryllium - Be	1 2 3 4 5 6 7 8 9 10
Cadmium - Cd	1 2 3 4 5 6 7 8 9 10
Cobalt - Co	1 2 3 4 5 6 7 8 9 10
Chromium - Cr	1 2 3 4 5 6 7 8 9 10
Copper - Cu	1 2 3 4 5 6 7 8 9 10
Iron - Fe	1 2 3 4 5 6 7 8 9 10
Mercury - Hg	1 2 3 4 5 6 7 8 9 10
Lithium - Li	1 2 3 4 5 6 7 8 9 10
Manganese - Mn	1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo	1 2 3 4 5 6 7 8 9 10
Nickel - Ni	1 2 3 4 5 6 7 8 9 10
Lead - Pb	1 2 3 4 5 6 7 8 9 10
Antimony - Sb	1 2 3 4 5 6 7 8 9 10
Selenium - Se	1 2 3 4 5 6 7 8 9 10
Strontium - Sr	1 2 3 4 5 6 7 8 9 10
Titanium - Ti	1 2 3 4 5 6 7 8 9 10
Thallium - Tl	1 2 3 4 5 6 7 8 9 10
Uranium - U	1 2 3 4 5 6 7 8 9 10
Vanadium - V	1 2 3 4 5 6 7 8 9 10
Zinc - Zn	1 2 3 4 5 6 7 8 9 10
Calcium - Ca	1 2 3 4 5 6 7 8 9 10
Potassium - K	1 2 3 4 5 6 7 8 9 10
Magnesium - Mg	1 2 3 4 5 6 7 8 9 10
Sodium - Na	1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GS - General Chemistry

Total Cyanide - CN	1 2 3 4 5 6 7 8 9 10
Available Cyanide - CN	1 2 3 4 5 6 7 8 9 10
Chem Oxygen Dem - COD	1 2 3 4 5 6 7 8 9 10
Total Org Carbon - TOC	1 2 3 4 5 6 7 8 9 10
Kjeldahl Nitrogen - KN	1 2 3 4 5 6 7 8 9 10
Total Phosphorus - TP	1 2 3 4 5 6 7 8 9 10

Chain of Custody

	Relinquished by	Received By	Date / Time
Print Name & Org.	JEFF PIRCWARE/ MDEQ	Melissa Smith	
Signature:	[signature]	[signature]	9/19/17 1410
Print Name & Org.			
Signature:			
Print Name			

Michigan Department of Environmental Quality
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
[illegible]	Abandoned Mining Wastes- QMCM Ops	surface SOIL

Site Code/Project Number	AY	CC Email 1	Project TAT Days	Sample Collector
31000098	17	jbinkley@manniksmithgroup.com		
Department/District	**Index**	**CC Email 2**	**Project Due Date**	**Sample Collector Phone**
DEQ RRD UP District- Calumet	44251			
State Project Manager	**RCA**	**CC Email 3**		**Contract Firm**
Amy Keranen	30843			Mannik & Smith Group
State Project Manager Email	**Project**	**Overflow Lab Choice 1**	**Round Analysis Hold Time Dates**	**Contract Firm Primary Contact**
keranena@michigan.gov	456457	Test America- asbestos		Jeff Binkley
State Project Manager Phone	**Phase**	**Overflow Lab Choice 2**		**Primary Contact Phone**
906-337-0389	00	ALS for waste characterization		906-281-3404

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Container Count	Comments
1		QMCM-SS 52 -0"-6"	09/17/17	1030	2	
2		QMCM-SS 53-0"-6"	09/17/17	1045	2	
3		QMCM-SS 54-0"-6"	09/17/17	1055	2	
4		QMCM-SS 50 0"-6"	09/17/17	1105	2	
5		QMCM-SS 50-0"-6" FD	09/17/17	1105	2	
6		QMCM-SS51 0"-6"	09/17/17	1120	2	
7						
8						
9						
10						

ORGANIC CHEMISTRY

VOA - Volatile Organic Acids

Volatiles - Full TCL	1 2 3 4 5 6 7 8 9 10
BTEX/MTBE/TMB only	1 2 3 4 5 6 7 8 9 10
Chlorinated only	1 2 3 4 5 6 7 8 9 10
GRO	1 2 3 4 5 6 7 8 9 10
1,4 Dioxane	1 2 3 4 5 6 7 8 9 10

OS - Pesticides, PCBs

Pesticides & PCBs	1 2 3 4 5 6 7 8 9 10
Pesticides only	1 2 3 4 5 6 7 8 9 10
PCBs only	1 2 3 4 5 6 7 8 9 10
Toxaphene	1 2 3 4 5 6 7 8 9 10

BNA - Base Neutral Acids

BNAs	1 2 3 4 5 6 7 8 9 10
PNAs only	1 2 3 4 5 6 7 8 9 10
BNAs only	1 2 3 4 5 6 7 8 9 10

Organic Specialty Requests

Library search - Volatiles	1 2 3 4 5 6 7 8 9 10
Library search - Semivols	1 2 3 4 5 6 7 8 9 10
Liquid Fuel	1 2 3 4 5 6 7 8 9 10
DRO / ORO	1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

OpMetals2 - Total	1 2 3 4 5 6 7 8 9 10
(10 Al Sb Ba Be Cd Ca Cr Co Cu Fe Pb Mn Hg Mo Ni Se K Ag Na Tl V Zn)	
MetalsMD - Total	1 2 3 4 5 6 7 8 9 10
(Sb Ba Cd Ca Cr Cu Fe Pb Mg Mn Hg Ni Se K Na Tl Zn)	

MS - TOTAL METALS

Silver - Ag	1 2 3 4 5 6 7 8 9 10
Aluminum - Al	1 2 3 4 5 6 7 8 9 10
Arsenic - As	1 2 3 4 5 6 7 8 9 10
Barium - Ba	1 2 3 4 5 6 7 8 9 10
Beryllium - Be	1 2 3 4 5 6 7 8 9 10
Cadmium - Cd	1 2 3 4 5 6 7 8 9 10
Cobalt - Co	1 2 3 4 5 6 7 8 9 10
Chromium - Cr	1 2 3 4 5 6 7 8 9 10
Copper - Cu	1 2 3 4 5 6 7 8 9 10
Iron - Fe	1 2 3 4 5 6 7 8 9 10
Mercury - Hg	1 2 3 4 5 6 7 8 9 10
Lithium - Li	1 2 3 4 5 6 7 8 9 10
Manganese - Mn	1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo	1 2 3 4 5 6 7 8 9 10
Nickel - Ni	1 2 3 4 5 6 7 8 9 10
Lead - Pb	1 2 3 4 5 6 7 8 9 10
Antimony - Sb	1 2 3 4 5 6 7 8 9 10
Selenium - Se	1 2 3 4 5 6 7 8 9 10
Strontium - Sr	1 2 3 4 5 6 7 8 9 10
Titanium - Ti	1 2 3 4 5 6 7 8 9 10
Thallium - Tl	1 2 3 4 5 6 7 8 9 10
Uranium - U	1 2 3 4 5 6 7 8 9 10
Vanadium - V	1 2 3 4 5 6 7 8 9 10
Zinc - Zn	1 2 3 4 5 6 7 8 9 10
Calcium - Ca	1 2 3 4 5 6 7 8 9 10
Potassium - K	1 2 3 4 5 6 7 8 9 10
Magnesium - Mg	1 2 3 4 5 6 7 8 9 10
Sodium - Na	1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GS - General Chemistry

Total Cyanide - CN	1 2 3 4 5 6 7 8 9 10
Available Cyanide - CN	1 2 3 4 5 6 7 8 9 10
Chem Oxygen Dem - COD	1 2 3 4 5 6 7 8 9 10
Total Org Carbon - TOC	1 2 3 4 5 6 7 8 9 10
Mold/Af Millipores - MM	1 2 3 4 5 6 7 8 9 10
Total Phosphorus - TP	1 2 3 4 5 6 7 8 9 10

Chain of Custody

	Relinquished by	Received By	Date / Time
Print Name & Org.	JEFF PINCUNIAK MDEQ	[illegible]	9/18/17 1415
Signature	[illegible]		
Print Name & Org.			
Signature			
Print Name			

31-May-2017

Amy Keranen
Michigan Dept.of Environmental Quality
3350 N. Martin Luther King Jr. Blvd.
Building #44, 3rd Floor
Lansing, MI 48906

Re: **Abandoned Mining Wastes - Torch Lake 31000098** Work Order: **17051193**

Dear Amy,

ALS Environmental received 18 samples on 19-May-2017 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 139.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Alex Csaszar

Electronically approved by: Alex Csaszar

Alex Csaszar
Project Manager

Certificate No: MN 998501

Report of Laboratory Analysis

ALS Group, USA

Date: 31-May-17

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098
Work Order: **17051193**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
17051193-01	QMCM - RPM01-0"-6" (TCLP)	Tclp Extract		5/16/2017 09:04	5/19/2017 10:00	☐
17051193-02	QMCM - RPM01-0"-6"	Waste		5/19/2017	5/19/2017 10:00	☐
17051193-03	QMCM - RPM04-0"-6" (TCLP)	Tclp Extract		5/16/2017 09:31	5/19/2017 10:00	☐
17051193-04	QMCM - RPM04-0"-6"	Waste		5/16/2017 09:31	5/19/2017 10:00	☐
17051193-05	QMCM - RPM05-0"-6" (TCLP)	Tclp Extract		5/16/2017 09:17	5/19/2017 10:00	☐
17051193-06	QMCM - RPM05-0"-6"	Waste		5/16/2017 09:17	5/19/2017 10:00	☐
17051193-07	QMCM - RPM06-0"-6" (TCLP)	Tclp Extract		5/17/2017 15:27	5/19/2017 10:00	☐
17051193-08	QMCM - RPM06-0"-6"	Waste		5/16/2017 15:27	5/19/2017 10:00	☐
17051193-09	QMCM - RPM03-0"-6" (TCLP)	Tclp Extract		5/17/2017 11:27	5/19/2017 10:00	☐
17051193-10	QMCM - RPM03-0"-6"	Waste		5/17/2017 11:27	5/19/2017 10:00	☐
17051193-11	QMCM - RPM02-0"-6" (TCLP)	Tclp Extract		5/17/2017 11:43	5/19/2017 10:00	☐
17051193-12	QMCM - RPM02-0"-6"	Waste		5/17/2017 11:43	5/19/2017 10:00	☐
17051193-13	QMCM - RPM07-0"-6" (TCLP)	Tclp Extract		5/17/2017 12:12	5/19/2017 10:00	☐
17051193-14	QMCM - RPM07-0"-6"	Waste		5/17/2017 12:12	5/19/2017 10:00	☐
17051193-15	QMCM - DM03-0"-6" (TCLP)	Tclp Extract		5/17/2017 16:30	5/19/2017 10:00	☐
17051193-16	QMCM - DM03-0"-6"	Waste		5/17/2017 16:30	5/19/2017 10:00	☐
17051193-17	QMCM - DM02-0"-6" (TCLP)	Tclp Extract		5/17/2017 16:50	5/19/2017 10:00	☐
17051193-18	QMCM - DM02-0"-6"	Waste		5/17/2017 16:50	5/19/2017 10:00	☐

Case Narrative

Samples for the above noted Work Order were received on 05/19/2017. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

No other deviations or anomalies were noted.

Extractable Organics:

Batch 102236, Method PESTLVI_8081_S, Samples 17051193-06A, -12A, -14A and -18A: The reporting limits are elevated due to dilutions needed to eliminate matrix-related interference for this analyte.

Batch 102351, Method SVO_8270_S, Samples 17051193-06A, -12A, -14A and-18A: The surrogate recoveries are unavailable due to dilutions below the calibration range.

Batch 102398, Method TCPST_8081_S, Sample 17051193-03B: Surrogate high due to matrix interference.

Batch 102398, Method TCPST_8081_S, Sample 17051193-03B: Due to matrix interference, DCB and TCMX were reported from the confirmation column.

Batch 102398, Method TCPST_8081_S, Samples 17051193-05B, -09B, -11B, -13B, -15B and -17B: One or more surrogate recoveries were below the lower control limits. The sample results may be biased low.

Batch 102421, Method PEST_8081_S, Samples 17051193-04A and -10A: The reporting

limits are elevated due to dilutions needed to eliminate matrix-related interference for this analyte.

Batch 102421, Method PEST_8081_S, Samples 17051193-04A and -10A: The surrogate recoveries are unavailable due to dilution below the calibration range.

Batch 102584, Method SVO_8270_O, Samples 17051193-04A and -10A: The surrogate recoveries are unavailable due to dilution below the calibration range.

Metals:

Batch 102308, Method ICP_6010_S, Samples 17051193-02A, -08A and -10A: The reporting limits are elevated due to internal standard failure in the undiluted run for these analytes.

Batch 102427, Method ICP_6010_S, Sample 17051193-14A MS: The MS recoveries were above the upper control limits for several analytes (See QC Report). The reported results in the parent sample may be biased high for these analytes.

Batch 102427, Method ICP_6010_S, Sample 17051193-14A MSD: The RPD between the MS and MSD were outside the control limits Arsenic and Chromium. The reported results in the parent sample should be considered estimated for these analytes.

Batch 102427, Method ICP_6010_S, Sample 17051193-14AMSD: The MSD recovery was above the upper control limits Barium. The reported result in the parent sample may be biased high for this analyte

Wet Chemistry:

Batch R212546, Method MOISTURE, Sample 17051193-08A DUP: RPD is outside of test defined limits. Results should be considered estimated

.

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
% of sample	Percent of Sample
°F	Degrees Fahrenheit
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
none	

s.u.	Standard Units

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM01-0"-6" (TCLP) **Lab ID:** 17051193-01
Collection Date: 5/16/2017 09:04 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 15:14	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	5/26/2017 10:07 PM
2,4-D	ND		5.0	µg/L	1	5/26/2017 10:07 PM
Surr: DCAA	*102*		*30-150*	*%REC*	1	5/26/2017 10:07 PM
TCLP PESTICIDES			**SW8081**		Prep: SW3511 5/25/17 19:20	Analyst: **JF**
Chlordane, Technical	ND		0.50	µg/L	1	5/26/2017 12:18 PM
Endrin	ND		0.020	µg/L	1	5/26/2017 12:18 PM
gamma-BHC (Lindane)	ND		0.010	µg/L	1	5/26/2017 12:18 PM
Heptachlor	**0.012**		**0.010**	µg/L	1	5/26/2017 12:18 PM
Heptachlor epoxide	ND		0.010	µg/L	1	5/26/2017 12:18 PM
Methoxychlor	ND		0.040	µg/L	1	5/26/2017 12:18 PM
Toxaphene	ND		2.0	µg/L	1	5/26/2017 12:18 PM
Surr: Decachlorobiphenyl	*53.4*		*50-150*	*%REC*	1	5/26/2017 12:18 PM
Surr: Tetrachloro-m-xylene	*59.9*		*50-150*	*%REC*	1	5/26/2017 12:18 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/25/17 16:06	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	5/25/2017 04:09 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 5/25/17 16:47	Analyst: **CC**
Arsenic	ND		0.50	mg/L	10	5/26/2017 05:25 AM
Barium	ND		0.50	mg/L	10	5/26/2017 05:25 AM
Cadmium	ND		1.0	mg/L	10	5/26/2017 05:25 AM
Chromium	ND		0.50	mg/L	10	5/26/2017 05:25 AM
Lead	ND		0.50	mg/L	10	5/26/2017 05:25 AM
Selenium	ND		1.0	mg/L	10	5/26/2017 05:25 AM
Silver	ND		0.50	mg/L	10	5/26/2017 05:25 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 5/25/17 19:20	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	5/25/2017 11:52 PM
2,4,5-Trichlorophenol	ND		100	µg/L	1	5/25/2017 11:52 PM
2,4,6-Trichlorophenol	ND		100	µg/L	1	5/25/2017 11:52 PM
2,4-Dinitrotoluene	ND		100	µg/L	1	5/25/2017 11:52 PM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	5/25/2017 11:52 PM
Hexachlorobenzene	ND		100	µg/L	1	5/25/2017 11:52 PM
Hexachloroethane	ND		100	µg/L	1	5/25/2017 11:52 PM
m-Cresol	ND		100	µg/L	1	5/25/2017 11:52 PM
Nitrobenzene	ND		100	µg/L	1	5/25/2017 11:52 PM
o-Cresol	ND		100	µg/L	1	5/25/2017 11:52 PM
p-Cresol	ND		100	µg/L	1	5/25/2017 11:52 PM
Pentachlorophenol	ND		100	µg/L	1	5/25/2017 11:52 PM
Pyridine	ND		200	µg/L	1	5/25/2017 11:52 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM01-0"-6" (TCLP) **Lab ID:** 17051193-01
Collection Date: 5/16/2017 09:04 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*62.9*		*38-115*	*%REC*	1	5/25/2017 11:52 PM
Surr: 2-Fluorobiphenyl	*54.2*		*32-100*	*%REC*	1	5/25/2017 11:52 PM
Surr: 2-Fluorophenol	*38.2*		*22-59*	*%REC*	1	5/25/2017 11:52 PM
Surr: 4-Terphenyl-d14	*62.8*		*23-112*	*%REC*	1	5/25/2017 11:52 PM
Surr: Nitrobenzene-d5	*51.8*		*31-93*	*%REC*	1	5/25/2017 11:52 PM
Surr: Phenol-d6	*22.5*		*13-36*	*%REC*	1	5/25/2017 11:52 PM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 5/25/17	Analyst: **LSY**
1,1-Dichloroethene	ND		20	µg/L	20	5/26/2017 06:05 AM
1,2-Dichloroethane	ND		20	µg/L	20	5/26/2017 06:05 AM
2-Butanone	ND		100	µg/L	20	5/26/2017 06:05 AM
Benzene	ND		20	µg/L	20	5/26/2017 06:05 AM
Carbon tetrachloride	ND		20	µg/L	20	5/26/2017 06:05 AM
Chlorobenzene	ND		20	µg/L	20	5/26/2017 06:05 AM
Chloroform	ND		20	µg/L	20	5/26/2017 06:05 AM
Tetrachloroethene	ND		20	µg/L	20	5/26/2017 06:05 AM
Trichloroethene	ND		20	µg/L	20	5/26/2017 06:05 AM
Vinyl chloride	ND		20	µg/L	20	5/26/2017 06:05 AM
Surr: 1,2-Dichloroethane-d4	*99.5*		*70-130*	*%REC*	20	5/26/2017 06:05 AM
Surr: 4-Bromofluorobenzene	*98.2*		*70-130*	*%REC*	20	5/26/2017 06:05 AM
Surr: Dibromofluoromethane	*88.4*		*70-130*	*%REC*	20	5/26/2017 06:05 AM
Surr: Toluene-d8	*106*		*70-130*	*%REC*	20	5/26/2017 06:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM01-0"-6" **Lab ID:** 17051193-02
Collection Date: 5/19/2017 **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**	Prep: SW8151M 5/26/17 10:35		Analyst: **KYM**
2,4,5-T	ND		11	µg/Kg-dry	1	5/27/2017 06:56 AM
2,4,5-TP (Silvex)	ND		11	µg/Kg-dry	1	5/27/2017 06:56 AM
2,4-D	ND		11	µg/Kg-dry	1	5/27/2017 06:56 AM
Surr: DCAA	*88.8*		*10-150*	*%REC*	1	5/27/2017 06:56 AM
PCBS			**SW8082**	Prep: SW3546 5/22/17 15:58		Analyst: **EB**
Aroclor 1016	ND		73	µg/Kg-dry	1	5/23/2017 01:35 PM
Aroclor 1221	ND		73	µg/Kg-dry	1	5/23/2017 01:35 PM
Aroclor 1232	ND		73	µg/Kg-dry	1	5/23/2017 01:35 PM
Aroclor 1242	ND		73	µg/Kg-dry	1	5/23/2017 01:35 PM
Aroclor 1248	ND		73	µg/Kg-dry	1	5/23/2017 01:35 PM
Aroclor 1254	ND		73	µg/Kg-dry	1	5/23/2017 01:35 PM
Aroclor 1260	ND		73	µg/Kg-dry	1	5/23/2017 01:35 PM
Surr: Decachlorobiphenyl	*102*		*40-140*	*%REC*	1	5/23/2017 01:35 PM
Surr: Tetrachloro-m-xylene	*84.2*		*45-124*	*%REC*	1	5/23/2017 01:35 PM
PESTICIDES			**SW8081A**	Prep: SW3546 5/22/17 15:58		Analyst: **JF**
4,4'-DDD	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
4,4'-DDE	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
4,4'-DDT	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Aldrin	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
alpha-BHC	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
alpha-Chlordane	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
beta-BHC	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Chlordane, Technical	ND		27	µg/Kg-dry	1	5/23/2017 02:54 PM
delta-BHC	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Dieldrin	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Endosulfan I	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Endosulfan II	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Endosulfan sulfate	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Endrin	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Endrin aldehyde	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Endrin ketone	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
gamma-BHC (Lindane)	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
gamma-Chlordane	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Heptachlor	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Heptachlor epoxide	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Methoxychlor	ND		11	µg/Kg-dry	1	5/23/2017 02:54 PM
Toxaphene	ND		66	µg/Kg-dry	1	5/23/2017 02:54 PM
Surr: Decachlorobiphenyl	*74.2*		*50-150*	*%REC*	1	5/23/2017 02:54 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM01-0"-6" **Lab ID:** 17051193-02
Collection Date: 5/19/2017 **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*74.2*		*50-150*	*%REC*	1	5/23/2017 02:54 PM
MERCURY BY CVAA			**SW7471B**	Prep: SW7471 5/24/17 12:08		Analyst: **JJB**
Mercury	**0.79**		**0.16**	**mg/Kg-dry**	10	5/25/2017 10:10 AM
METALS ANALYSIS BY ICP			**SW846 6010C**	Prep: SW3050B 5/23/17 13:18		Analyst: **CC**
Arsenic	ND		4.4	mg/Kg-dry	10	5/25/2017 10:34 PM
Barium	**12**		**4.4**	**mg/Kg-dry**	10	5/25/2017 10:34 PM
Cadmium	ND		8.8	mg/Kg-dry	10	5/25/2017 10:34 PM
Chromium	**31**		**4.4**	**mg/Kg-dry**	10	5/25/2017 10:34 PM
Hardness (Calculation)	**170,000**		**15**	**mg/L-dry**	10	5/25/2017 10:34 PM
Lead	**14**		**4.4**	**mg/Kg-dry**	10	5/25/2017 10:34 PM
Selenium	**13**		**8.8**	**mg/Kg-dry**	10	5/25/2017 10:34 PM
Silver	**11**		**4.4**	**mg/Kg-dry**	10	5/25/2017 10:34 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**	Prep: SW3546 5/24/17 17:10		Analyst: **RM**
1,1`-Biphenyl	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2,2`-Oxybis(1-chloropropane)	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2,4,5-Trichlorophenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2,4,6-Trichlorophenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2,4-Dichlorophenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2,4-Dimethylphenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2,4-Dinitrophenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2,4-Dinitrotoluene	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2,6-Dinitrotoluene	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2-Chloronaphthalene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
2-Chlorophenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2-Methylnaphthalene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
2-Methylphenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2-Nitroaniline	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
2-Nitrophenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
3&4-Methylphenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
3,3`-Dichlorobenzidine	ND		180	µg/Kg-dry	1	5/25/2017 08:51 PM
3-Nitroaniline	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
4,6-Dinitro-2-methylphenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
4-Bromophenyl phenyl ether	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
4-Chloro-3-methylphenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
4-Chloroaniline	ND		74	µg/Kg-dry	1	5/25/2017 08:51 PM
4-Chlorophenyl phenyl ether	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
4-Nitroaniline	ND		180	µg/Kg-dry	1	5/25/2017 08:51 PM
4-Nitrophenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Acenaphthene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM01-0"-6" **Lab ID:** 17051193-02
Collection Date: 5/19/2017 **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acenaphthylene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Acetophenone	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Anthracene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Atrazine	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Benzaldehyde	ND		74	µg/Kg-dry	1	5/25/2017 08:51 PM
Benzo(a)anthracene	**16**		**7.3**	**µg/Kg-dry**	1	5/25/2017 08:51 PM
Benzo(a)pyrene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Benzo(b)fluoranthene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Benzo(g,h,i)perylene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Benzo(k)fluoranthene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Bis(2-chloroethoxy)methane	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Bis(2-chloroethyl)ether	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Bis(2-ethylhexyl)phthalate	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Butyl benzyl phthalate	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Caprolactam	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Carbazole	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Chrysene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Dibenzo(a,h)anthracene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Dibenzofuran	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Diethyl phthalate	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Dimethyl phthalate	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Di-n-butyl phthalate	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Di-n-octyl phthalate	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Fluoranthene	**14**		**7.3**	**µg/Kg-dry**	1	5/25/2017 08:51 PM
Fluorene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Hexachlorobenzene	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Hexachlorobutadiene	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Hexachlorocyclopentadiene	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Hexachloroethane	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Indeno(1,2,3-cd)pyrene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Isophorone	ND		180	µg/Kg-dry	1	5/25/2017 08:51 PM
Naphthalene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Nitrobenzene	ND		180	µg/Kg-dry	1	5/25/2017 08:51 PM
N-Nitrosodimethylamine	ND		180	µg/Kg-dry	1	5/25/2017 08:51 PM
N-Nitrosodi-n-propylamine	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Pentachlorophenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Phenanthrene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Phenol	ND		36	µg/Kg-dry	1	5/25/2017 08:51 PM
Pyrene	ND		7.3	µg/Kg-dry	1	5/25/2017 08:51 PM
Surr: 2,4,6-Tribromophenol	*58.1*		*34-140*	*%REC*	1	5/25/2017 08:51 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM01-0"-6" **Lab ID:** 17051193-02
Collection Date: 5/19/2017 **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorobiphenyl	*52.3*		*12-100*	*%REC*	1	5/25/2017 08:51 PM
Surr: 2-Fluorophenol	*56.3*		*33-117*	*%REC*	1	5/25/2017 08:51 PM
Surr: 4-Terphenyl-d14	*73.7*		*25-137*	*%REC*	1	5/25/2017 08:51 PM
Surr: Nitrobenzene-d5	*49.2*		*37-107*	*%REC*	1	5/25/2017 08:51 PM
Surr: Phenol-d6	*55.7*		*40-106*	*%REC*	1	5/25/2017 08:51 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 5/22/17 16:33	Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,1,1-Trichloroethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,1,2,2-Tetrachloroethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,1,2-Trichloroethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,1,2-Trichlorotrifluoroethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,1-Dichloroethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,1-Dichloroethene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,2,3-Trichloropropane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,2,4-Trichlorobenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,2,4-Trimethylbenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,2-Dibromo-3-chloropropane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,2-Dibromoethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,2-Dichlorobenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,2-Dichloroethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,2-Dichloropropane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,3,5-Trimethylbenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,3-Dichlorobenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
1,4-Dichlorobenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
2-Butanone	ND		270	µg/Kg	1	5/24/2017 04:12 PM
2-Hexanone	ND		40	µg/Kg	1	5/24/2017 04:12 PM
2-Methylnaphthalene	ND		130	µg/Kg	1	5/24/2017 04:12 PM
4-Methyl-2-pentanone	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Acetone	ND		130	µg/Kg	1	5/24/2017 04:12 PM
Acrylonitrile	ND		130	µg/Kg	1	5/24/2017 04:12 PM
Benzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Bromochloromethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Bromodichloromethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Bromoform	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Bromomethane	ND		100	µg/Kg	1	5/24/2017 04:12 PM
Carbon disulfide	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Carbon tetrachloride	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Chlorobenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Chloroethane	ND		130	µg/Kg	1	5/24/2017 04:12 PM
Chloroform	ND		40	µg/Kg	1	5/24/2017 04:12 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM01-0"-6" **Lab ID:** 17051193-02
Collection Date: 5/19/2017 **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloromethane	ND		130	µg/Kg	1	5/24/2017 04:12 PM
cis-1,2-Dichloroethene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
cis-1,3-Dichloropropene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Dibromochloromethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Dibromomethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Dichlorodifluoromethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Diethyl ether	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Ethylbenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Hexachloroethane	ND		130	µg/Kg	1	5/24/2017 04:12 PM
Isopropylbenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
m,p-Xylene	ND		81	µg/Kg	1	5/24/2017 04:12 PM
Methyl iodide	ND		100	µg/Kg	1	5/24/2017 04:12 PM
Methyl tert-butyl ether	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Methylene chloride	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Naphthalene	ND		130	µg/Kg	1	5/24/2017 04:12 PM
n-Propylbenzene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
o-Xylene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Styrene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Tetrachloroethene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Toluene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
trans-1,2-Dichloroethene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
trans-1,3-Dichloropropene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
trans-1,4-Dichloro-2-butene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Trichloroethene	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Trichlorofluoromethane	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Vinyl acetate	ND		340	µg/Kg	1	5/24/2017 04:12 PM
Vinyl chloride	ND		40	µg/Kg	1	5/24/2017 04:12 PM
Xylenes, Total	ND		120	µg/Kg	1	5/24/2017 04:12 PM
Surr: 1,2-Dichloroethane-d4	*101*		*70-130*	*%REC*	1	5/24/2017 04:12 PM
Surr: 4-Bromofluorobenzene	*105*		*70-130*	*%REC*	1	5/24/2017 04:12 PM
Surr: Dibromofluoromethane	*85.2*		*70-130*	*%REC*	1	5/24/2017 04:12 PM
Surr: Toluene-d8	*101*		*70-130*	*%REC*	1	5/24/2017 04:12 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 12:50 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	5/25/2017 11:05 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	5/24/2017 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM01-0"-6" **Lab ID:** 17051193-02
Collection Date: 5/19/2017 **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**9.4**		**0.050**	**% of sample**	1	5/23/2017 12:17 PM
PH			**SW9045D**	Prep: EXTRACT 5/23/17 11:32		Analyst: **JB**
pH	**7.81**		**0.100**	**s.u.**	1	5/24/2017 12:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM04-0"-6" (TCLP) **Lab ID:** 17051193-03
Collection Date: 5/16/2017 09:31 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 15:14	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	5/26/2017 10:24 PM
2,4-D	ND		5.0	µg/L	1	5/26/2017 10:24 PM
Surr: DCAA	*106*		*30-150*	*%REC*	1	5/26/2017 10:24 PM
TCLP PESTICIDES			**SW8081**		Prep: SW3511 5/25/17 19:20	Analyst: **JF**
Chlordane, Technical	ND		0.50	µg/L	1	5/26/2017 12:31 PM
Endrin	**0.12**		**0.020**	**µg/L**	1	5/26/2017 12:31 PM
gamma-BHC (Lindane)	ND		0.010	µg/L	1	5/26/2017 12:31 PM
Heptachlor	ND		0.010	µg/L	1	5/26/2017 12:31 PM
Heptachlor epoxide	ND		0.010	µg/L	1	5/26/2017 12:31 PM
Methoxychlor	ND		0.040	µg/L	1	5/26/2017 12:31 PM
Toxaphene	ND		2.0	µg/L	1	5/26/2017 12:31 PM
Surr: Decachlorobiphenyl	*211*	S	*50-150*	*%REC*	1	5/26/2017 12:31 PM
Surr: Tetrachloro-m-xylene	*91.2*		*50-150*	*%REC*	1	5/26/2017 12:31 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/25/17 16:06	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	5/25/2017 04:29 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 5/25/17 16:47	Analyst: **CC**
Arsenic	ND		0.50	mg/L	10	5/26/2017 05:31 AM
Barium	ND		0.50	mg/L	10	5/26/2017 05:31 AM
Cadmium	ND		1.0	mg/L	10	5/26/2017 05:31 AM
Chromium	ND		0.50	mg/L	10	5/26/2017 05:31 AM
Lead	**1.1**		**0.50**	**mg/L**	10	5/26/2017 05:31 AM
Selenium	ND		1.0	mg/L	10	5/26/2017 05:31 AM
Silver	ND		0.50	mg/L	10	5/26/2017 05:31 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 5/25/17 19:20	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	5/26/2017 12:12 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	5/26/2017 12:12 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	5/26/2017 12:12 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	5/26/2017 12:12 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	5/26/2017 12:12 AM
Hexachlorobenzene	ND		100	µg/L	1	5/26/2017 12:12 AM
Hexachloroethane	ND		100	µg/L	1	5/26/2017 12:12 AM
m-Cresol	ND		100	µg/L	1	5/26/2017 12:12 AM
Nitrobenzene	ND		100	µg/L	1	5/26/2017 12:12 AM
o-Cresol	ND		100	µg/L	1	5/26/2017 12:12 AM
p-Cresol	ND		100	µg/L	1	5/26/2017 12:12 AM
Pentachlorophenol	ND		100	µg/L	1	5/26/2017 12:12 AM
Pyridine	ND		200	µg/L	1	5/26/2017 12:12 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM04-0"-6" (TCLP) **Lab ID:** 17051193-03
Collection Date: 5/16/2017 09:31 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*71.4*		*38-115*	*%REC*	1	5/26/2017 12:12 AM
Surr: 2-Fluorobiphenyl	*63.1*		*32-100*	*%REC*	1	5/26/2017 12:12 AM
Surr: 2-Fluorophenol	*41.7*		*22-59*	*%REC*	1	5/26/2017 12:12 AM
Surr: 4-Terphenyl-d14	*64.2*		*23-112*	*%REC*	1	5/26/2017 12:12 AM
Surr: Nitrobenzene-d5	*60.0*		*31-93*	*%REC*	1	5/26/2017 12:12 AM
Surr: Phenol-d6	*23.9*		*13-36*	*%REC*	1	5/26/2017 12:12 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 5/25/17	Analyst: **LSY**
1,1-Dichloroethene	ND		20	µg/L	20	5/26/2017 05:19 AM
1,2-Dichloroethane	ND		20	µg/L	20	5/26/2017 05:19 AM
2-Butanone	ND		100	µg/L	20	5/26/2017 05:19 AM
Benzene	ND		20	µg/L	20	5/26/2017 05:19 AM
Carbon tetrachloride	ND		20	µg/L	20	5/26/2017 05:19 AM
Chlorobenzene	ND		20	µg/L	20	5/26/2017 05:19 AM
Chloroform	ND		20	µg/L	20	5/26/2017 05:19 AM
Tetrachloroethene	ND		20	µg/L	20	5/26/2017 05:19 AM
Trichloroethene	ND		20	µg/L	20	5/26/2017 05:19 AM
Vinyl chloride	ND		20	µg/L	20	5/26/2017 05:19 AM
Surr: 1,2-Dichloroethane-d4	*100*		*70-130*	*%REC*	20	5/26/2017 05:19 AM
Surr: 4-Bromofluorobenzene	*97.5*		*70-130*	*%REC*	20	5/26/2017 05:19 AM
Surr: Dibromofluoromethane	*87.2*		*70-130*	*%REC*	20	5/26/2017 05:19 AM
Surr: Toluene-d8	*104*		*70-130*	*%REC*	20	5/26/2017 05:19 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM04-0"-6" **Lab ID:** 17051193-04
Collection Date: 5/16/2017 09:31 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 10:35	Analyst: **KYM**
2,4,5-T	ND		31	µg/Kg-dry	1	5/27/2017 07:13 AM
2,4,5-TP (Silvex)	ND		31	µg/Kg-dry	1	5/27/2017 07:13 AM
2,4-D	ND		31	µg/Kg-dry	1	5/27/2017 07:13 AM
Surr: DCAA	*94.4*		*10-150*	*%REC*	1	5/27/2017 07:13 AM
PCBS			**SW8082**			Analyst: **IT**
Aroclor 1016	ND		470	µg/Kg-dry	1	5/26/2017 01:15 AM
Aroclor 1221	ND		470	µg/Kg-dry	1	5/26/2017 01:15 AM
Aroclor 1232	ND		470	µg/Kg-dry	1	5/26/2017 01:15 AM
Aroclor 1242	ND		470	µg/Kg-dry	1	5/26/2017 01:15 AM
Aroclor 1248	ND		470	µg/Kg-dry	1	5/26/2017 01:15 AM
Aroclor 1254	ND		470	µg/Kg-dry	1	5/26/2017 01:15 AM
Aroclor 1260	ND		470	µg/Kg-dry	1	5/26/2017 01:15 AM
Surr: Decachlorobiphenyl	*76.1*		*40-140*	*%REC*	1	5/26/2017 01:15 AM
Surr: Tetrachloro-m-xylene	*88.1*		*45-124*	*%REC*	1	5/26/2017 01:15 AM
PESTICIDES			**SW8081**		Prep: SW3541 5/25/17 17:55	Analyst: **JF**
4,4´-DDD	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
4,4´-DDE	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
4,4´-DDT	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Aldrin	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
alpha-BHC	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
alpha-Chlordane	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
beta-BHC	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Chlordane, Technical	ND		70,000	µg/Kg-dry	500	5/26/2017 06:44 PM
delta-BHC	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Dieldrin	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Endosulfan I	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Endosulfan II	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Endosulfan sulfate	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Endrin	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Endrin aldehyde	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Endrin ketone	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
gamma-BHC (Lindane)	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
gamma-Chlordane	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Heptachlor	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Heptachlor epoxide	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Methoxychlor	ND		28,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Toxaphene	ND		170,000	µg/Kg-dry	500	5/26/2017 06:44 PM
Surr: Decachlorobiphenyl	*4,000*	S	*47.5-136*	*%REC*	500	5/26/2017 06:44 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM04-0"-6" **Lab ID:** 17051193-04
Collection Date: 5/16/2017 09:31 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*0*	S	*40.3-131*	*%REC*	500	5/26/2017 06:44 PM
MERCURY BY CVAA			**SW7471B**	Prep: SW7471 5/24/17 12:08		Analyst: **JJB**
Mercury	**0.60**		**0.14**	**mg/Kg-dry**	10	5/25/2017 10:13 AM
METALS ANALYSIS BY ICP			**SW846 6010C**	Prep: SW3050B 5/23/17 13:18		Analyst: **CC**
Arsenic	**4.5**		3.5	**mg/Kg-dry**	10	5/25/2017 10:40 PM
Barium	**2,600**		3.5	**mg/Kg-dry**	10	5/25/2017 10:40 PM
Cadmium	**2.6**		**0.70**	**mg/Kg-dry**	1	5/30/2017 04:24 PM
Chromium	**8.7**		3.5	**mg/Kg-dry**	10	5/25/2017 10:40 PM
Hardness (Calculation)	**13,000**		**12**	**mg/L-dry**	10	5/25/2017 10:40 PM
Lead	**13,000**		3.5	**mg/Kg-dry**	10	5/25/2017 10:40 PM
Selenium	**0.78**		**0.70**	**mg/Kg-dry**	1	5/30/2017 04:24 PM
Silver	**1.3**		0.35	**mg/Kg-dry**	1	5/30/2017 04:24 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**	Prep: SW3580 5/30/17 09:06		Analyst: **RM**
1,1`-Biphenyl	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2,2`-Oxybis(1-chloropropane)	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2,4,5-Trichlorophenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2,4,6-Trichlorophenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2,4-Dichlorophenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2,4-Dimethylphenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2,4-Dinitrophenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2,4-Dinitrotoluene	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2,6-Dichlorophenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2-Chloronaphthalene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
2-Chlorophenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2-Methylnaphthalene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
2-Methylphenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2-Nitroaniline	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
2-Nitrophenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
3&4-Methylphenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
3,3`-Dichlorobenzidine	ND		500	mg/Kg-dry	10	5/30/2017 12:30 PM
3-Nitroaniline	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
4,6-Dinitro-2-methylphenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
4-Bromophenyl phenyl ether	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
4-Chloro-3-methylphenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
4-Chloroaniline	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
4-Chlorophenyl phenyl ether	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
4-Nitroaniline	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
4-Nitrophenol	ND		500	mg/Kg-dry	10	5/30/2017 12:30 PM
Acenaphthene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM04-0"-6" **Lab ID:** 17051193-04
Collection Date: 5/16/2017 09:31 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acenaphthylene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Acetophenone	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Anthracene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Atrazine	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Benzaldehyde	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Benzo(a)anthracene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Benzo(a)pyrene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Benzo(b)fluoranthene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Benzo(g,h,i)perylene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Benzo(k)fluoranthene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Bis(2-chloroethoxy)methane	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Bis(2-chloroethyl)ether	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Bis(2-ethylhexyl)phthalate	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Butyl benzyl phthalate	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Caprolactam	ND		500	mg/Kg-dry	10	5/30/2017 12:30 PM
Carbazole	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Chrysene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Dibenzo(a,h)anthracene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Dibenzofuran	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Diethyl phthalate	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Dimethyl phthalate	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Di-n-butyl phthalate	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Di-n-octyl phthalate	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Fluoranthene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Fluorene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Hexachlorobenzene	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Hexachlorobutadiene	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Hexachlorocyclopentadiene	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Hexachloroethane	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Indeno(1,2,3-cd)pyrene	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Isophorone	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Naphthalene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Nitrobenzene	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
N-Nitrosodimethylamine	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
N-Nitrosodi-n-propylamine	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Pentachlorophenol	ND		500	mg/Kg-dry	10	5/30/2017 12:30 PM
Phenanthrene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Phenol	ND		100	mg/Kg-dry	10	5/30/2017 12:30 PM
Pyrene	ND		10	mg/Kg-dry	10	5/30/2017 12:30 PM
Surr: 2,4,6-Tribromophenol	*0*	S	*38-115*	*%REC*	10	5/30/2017 12:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM04-0"-6" **Lab ID:** 17051193-04
Collection Date: 5/16/2017 09:31 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorobiphenyl	*0*	S	*32-100*	*%REC*	10	5/30/2017 12:30 PM
Surr: 2-Fluorophenol	*0.200*	S	*22-59*	*%REC*	10	5/30/2017 12:30 PM
Surr: 4-Terphenyl-d14	*0.600*	S	*23-112*	*%REC*	10	5/30/2017 12:30 PM
Surr: Nitrobenzene-d5	*0.600*	S	*31-93*	*%REC*	10	5/30/2017 12:30 PM
Surr: Phenol-d6	*0*	S	*13-36*	*%REC*	10	5/30/2017 12:30 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 5/22/17 16:33	Analyst: **LSY**
1,1,1,2-Tetrachloroethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,1,1-Trichloroethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,1,2,2-Tetrachloroethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,1,2-Trichloroethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,1,2-Trichlorotrifluoroethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,1-Dichloroethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,1-Dichloroethene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,2,3-Trichloropropane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,2,4-Trichlorobenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,2,4-Trimethylbenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,2-Dibromo-3-chloropropane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,2-Dibromoethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,2-Dichlorobenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,2-Dichloroethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,2-Dichloropropane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,3,5-Trimethylbenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,3-Dichlorobenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
1,4-Dichlorobenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
2-Butanone	ND		310	µg/Kg	1	5/25/2017 11:54 PM
2-Hexanone	ND		46	µg/Kg	1	5/25/2017 11:54 PM
2-Methylnaphthalene	ND		150	µg/Kg	1	5/25/2017 11:54 PM
4-Methyl-2-pentanone	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Acetone	ND		150	µg/Kg	1	5/25/2017 11:54 PM
Acrylonitrile	ND		150	µg/Kg	1	5/25/2017 11:54 PM
Benzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Bromochloromethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Bromodichloromethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Bromoform	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Bromomethane	ND		120	µg/Kg	1	5/25/2017 11:54 PM
Carbon disulfide	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Carbon tetrachloride	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Chlorobenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Chloroethane	ND		150	µg/Kg	1	5/25/2017 11:54 PM
Chloroform	ND		46	µg/Kg	1	5/25/2017 11:54 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM04-0"-6" **Lab ID:** 17051193-04
Collection Date: 5/16/2017 09:31 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloromethane	**250**		**150**	**µg/Kg**	1	5/25/2017 11:54 PM
cis-1,2-Dichloroethene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
cis-1,3-Dichloropropene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Dibromochloromethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Dibromomethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Dichlorodifluoromethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Diethyl ether	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Ethylbenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Hexachloroethane	ND		150	µg/Kg	1	5/25/2017 11:54 PM
Isopropylbenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
m,p-Xylene	ND		93	µg/Kg	1	5/25/2017 11:54 PM
Methyl iodide	ND		120	µg/Kg	1	5/25/2017 11:54 PM
Methyl tert-butyl ether	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Methylene chloride	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Naphthalene	ND		150	µg/Kg	1	5/25/2017 11:54 PM
n-Propylbenzene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
o-Xylene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Styrene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Tetrachloroethene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Toluene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
trans-1,2-Dichloroethene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
trans-1,3-Dichloropropene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
trans-1,4-Dichloro-2-butene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Trichloroethene	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Trichlorofluoromethane	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Vinyl acetate	ND		390	µg/Kg	1	5/25/2017 11:54 PM
Vinyl chloride	ND		46	µg/Kg	1	5/25/2017 11:54 PM
Xylenes, Total	ND		140	µg/Kg	1	5/25/2017 11:54 PM
Surr: 1,2-Dichloroethane-d4	*99.7*		*70-130*	*%REC*	1	5/25/2017 11:54 PM
Surr: 4-Bromofluorobenzene	*97.7*		*70-130*	*%REC*	1	5/25/2017 11:54 PM
Surr: Dibromofluoromethane	*83.4*		*70-130*	*%REC*	1	5/25/2017 11:54 PM
Surr: Toluene-d8	*106*		*70-130*	*%REC*	1	5/25/2017 11:54 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		100	mg/Kg-dry	1	5/26/2017 12:50 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	5/26/2017 09:35 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	5/24/2017 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM04-0"-6" **Lab ID:** 17051193-04
Collection Date: 5/16/2017 09:31 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**2.7**		**0.050**	**% of sample**	1	5/23/2017 12:17 PM
PH			**SW9045D**	Prep: EXTRACT 5/23/17 11:32		Analyst: **JB**
pH	**5.56**		**0.100**	**s.u.**	1	5/24/2017 12:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		100	mg/Kg-dry	1	5/26/2017 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM05-0"-6" (TCLP) **Lab ID:** 17051193-05
Collection Date: 5/16/2017 09:17 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 15:14	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	5/26/2017 10:40 PM
2,4-D	ND		5.0	µg/L	1	5/26/2017 10:40 PM
Surr: DCAA	*103*		*30-150*	*%REC*	1	5/26/2017 10:40 PM
TCLP PESTICIDES			**SW8081**		Prep: SW3511 5/25/17 19:20	Analyst: **JF**
Chlordane, Technical	ND		0.50	µg/L	1	5/26/2017 12:45 PM
Endrin	ND		0.020	µg/L	1	5/26/2017 12:45 PM
gamma-BHC (Lindane)	ND		0.010	µg/L	1	5/26/2017 12:45 PM
Heptachlor	ND		0.010	µg/L	1	5/26/2017 12:45 PM
Heptachlor epoxide	ND		0.010	µg/L	1	5/26/2017 12:45 PM
Methoxychlor	ND		0.040	µg/L	1	5/26/2017 12:45 PM
Toxaphene	ND		2.0	µg/L	1	5/26/2017 12:45 PM
Surr: Decachlorobiphenyl	*34.9*	S	*50-150*	*%REC*	1	5/26/2017 12:45 PM
Surr: Tetrachloro-m-xylene	*55.0*		*50-150*	*%REC*	1	5/26/2017 12:45 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/25/17 16:06	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	5/25/2017 04:31 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 5/25/17 16:47	Analyst: **CC**
Arsenic	ND		0.50	mg/L	10	5/26/2017 05:38 AM
Barium	**3.4**		**0.50**	**mg/L**	10	5/26/2017 05:38 AM
Cadmium	ND		1.0	mg/L	10	5/26/2017 05:38 AM
Chromium	ND		0.50	mg/L	10	5/26/2017 05:38 AM
Lead	**15**	*	**0.50**	**mg/L**	10	5/26/2017 05:38 AM
Selenium	ND		1.0	mg/L	10	5/26/2017 05:38 AM
Silver	ND		0.50	mg/L	10	5/26/2017 05:38 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 5/25/17 19:20	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	5/26/2017 12:32 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	5/26/2017 12:32 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	5/26/2017 12:32 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	5/26/2017 12:32 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	5/26/2017 12:32 AM
Hexachlorobenzene	ND		100	µg/L	1	5/26/2017 12:32 AM
Hexachloroethane	ND		100	µg/L	1	5/26/2017 12:32 AM
m-Cresol	ND		100	µg/L	1	5/26/2017 12:32 AM
Nitrobenzene	ND		100	µg/L	1	5/26/2017 12:32 AM
o-Cresol	ND		100	µg/L	1	5/26/2017 12:32 AM
p-Cresol	ND		100	µg/L	1	5/26/2017 12:32 AM
Pentachlorophenol	ND		100	µg/L	1	5/26/2017 12:32 AM
Pyridine	ND		200	µg/L	1	5/26/2017 12:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM05-0"-6" (TCLP) **Lab ID:** 17051193-05
Collection Date: 5/16/2017 09:17 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*64.3*		*38-115*	*%REC*	1	5/26/2017 12:32 AM
Surr: 2-Fluorobiphenyl	*54.9*		*32-100*	*%REC*	1	5/26/2017 12:32 AM
Surr: 2-Fluorophenol	*40.7*		*22-59*	*%REC*	1	5/26/2017 12:32 AM
Surr: 4-Terphenyl-d14	*57.8*		*23-112*	*%REC*	1	5/26/2017 12:32 AM
Surr: Nitrobenzene-d5	*51.6*		*31-93*	*%REC*	1	5/26/2017 12:32 AM
Surr: Phenol-d6	*23.4*		*13-36*	*%REC*	1	5/26/2017 12:32 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 5/25/17	Analyst: **LSY**
1,1-Dichloroethene	ND		20	µg/L	20	5/26/2017 04:56 AM
1,2-Dichloroethane	ND		20	µg/L	20	5/26/2017 04:56 AM
2-Butanone	ND		100	µg/L	20	5/26/2017 04:56 AM
Benzene	ND		20	µg/L	20	5/26/2017 04:56 AM
Carbon tetrachloride	ND		20	µg/L	20	5/26/2017 04:56 AM
Chlorobenzene	ND		20	µg/L	20	5/26/2017 04:56 AM
Chloroform	ND		20	µg/L	20	5/26/2017 04:56 AM
Tetrachloroethene	ND		20	µg/L	20	5/26/2017 04:56 AM
Trichloroethene	ND		20	µg/L	20	5/26/2017 04:56 AM
Vinyl chloride	ND		20	µg/L	20	5/26/2017 04:56 AM
Surr: 1,2-Dichloroethane-d4	*100*		*70-130*	*%REC*	20	5/26/2017 04:56 AM
Surr: 4-Bromofluorobenzene	*97.8*		*70-130*	*%REC*	20	5/26/2017 04:56 AM
Surr: Dibromofluoromethane	*87.2*		*70-130*	*%REC*	20	5/26/2017 04:56 AM
Surr: Toluene-d8	*105*		*70-130*	*%REC*	20	5/26/2017 04:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM05-0"-6" **Lab ID:** 17051193-06
Collection Date: 5/16/2017 09:17 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**	Prep: SW8151M 5/26/17 10:35		Analyst: **KYM**
2,4,5-T	ND		110	µg/Kg-dry	10	5/27/2017 10:31 AM
2,4,5-TP (Silvex)	ND		110	µg/Kg-dry	10	5/27/2017 10:31 AM
2,4-D	ND		110	µg/Kg-dry	10	5/27/2017 10:31 AM
Surr: DCAA	*80.0*		*10-150*	*%REC*	10	5/27/2017 10:31 AM
PCBS			**SW8082**	Prep: SW3546 5/22/17 15:58		Analyst: **EB**
Aroclor 1016	ND		380	µg/Kg-dry	5	5/23/2017 01:49 PM
Aroclor 1221	ND		380	µg/Kg-dry	5	5/23/2017 01:49 PM
Aroclor 1232	ND		380	µg/Kg-dry	5	5/23/2017 01:49 PM
Aroclor 1242	ND		380	µg/Kg-dry	5	5/23/2017 01:49 PM
Aroclor 1248	ND		380	µg/Kg-dry	5	5/23/2017 01:49 PM
Aroclor 1254	ND		380	µg/Kg-dry	5	5/23/2017 01:49 PM
Aroclor 1260	ND		380	µg/Kg-dry	5	5/23/2017 01:49 PM
Surr: Decachlorobiphenyl	*70.9*		*40-140*	*%REC*	5	5/23/2017 01:49 PM
Surr: Tetrachloro-m-xylene	*88.9*		*45-124*	*%REC*	5	5/23/2017 01:49 PM
PESTICIDES			**SW8081A**	Prep: SW3546 5/22/17 15:58		Analyst: **JF**
4,4'-DDD	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
4,4'-DDE	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
4,4'-DDT	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Aldrin	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
alpha-BHC	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
alpha-Chlordane	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
beta-BHC	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Chlordane, Technical	ND		1,400	µg/Kg-dry	50	5/23/2017 04:26 PM
delta-BHC	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Dieldrin	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Endosulfan I	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Endosulfan II	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Endosulfan sulfate	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Endrin	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Endrin aldehyde	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Endrin ketone	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
gamma-BHC (Lindane)	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
gamma-Chlordane	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Heptachlor	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Heptachlor epoxide	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Methoxychlor	ND		570	µg/Kg-dry	50	5/23/2017 04:26 PM
Toxaphene	ND		3,400	µg/Kg-dry	50	5/23/2017 04:26 PM
Surr: Decachlorobiphenyl	*118*		*50-150*	*%REC*	50	5/23/2017 04:26 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM05-0"-6" **Lab ID:** 17051193-06
Collection Date: 5/16/2017 09:17 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*50.1*		*50-150*	*%REC*	50	*5/23/2017 04:26 PM*
MERCURY BY CVAA			**SW7471B**		Prep: SW7471 5/24/17 12:08	Analyst: **JJB**
Mercury	**0.93**		**0.17**	**mg/Kg-dry**	10	5/25/2017 10:16 AM
METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3050B 5/23/17 13:18	Analyst: **CC**
Arsenic	**16**		**3.9**	**mg/Kg-dry**	10	5/25/2017 10:47 PM
Barium	**3,500**		**3.9**	**mg/Kg-dry**	10	5/25/2017 10:47 PM
Cadmium	**1.9**		**0.78**	**mg/Kg-dry**	1	5/30/2017 04:31 PM
Chromium	**18**		**3.9**	**mg/Kg-dry**	10	5/25/2017 10:47 PM
Hardness (Calculation)	**30,000**		**13**	**mg/L-dry**	10	5/25/2017 10:47 PM
Lead	**8,500**		**3.9**	**mg/Kg-dry**	10	5/25/2017 10:47 PM
Selenium	**2.9**		**0.78**	**mg/Kg-dry**	1	5/30/2017 04:31 PM
Silver	**6.3**		**3.9**	**mg/Kg-dry**	10	5/25/2017 10:47 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3546 5/24/17 17:10	Analyst: **RM**
1,1`-Biphenyl	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2,2`-Oxybis(1-chloropropane)	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2,4,5-Trichlorophenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2,4,6-Trichlorophenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2,4-Dichlorophenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2,4-Dimethylphenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2,4-Dinitrophenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2,4-Dinitrotoluene	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2,6-Dinitrotoluene	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2-Chloronaphthalene	ND		590	µg/Kg-dry	20	5/25/2017 11:32 PM
2-Chlorophenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2-Methylnaphthalene	**8,100**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
2-Methylphenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2-Nitroaniline	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
2-Nitrophenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
3&4-Methylphenol	**6,800**		**2,900**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
3,3`-Dichlorobenzidine	ND		15,000	µg/Kg-dry	20	5/25/2017 11:32 PM
3-Nitroaniline	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
4,6-Dinitro-2-methylphenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
4-Bromophenyl phenyl ether	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
4-Chloro-3-methylphenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
4-Chloroaniline	ND		5,900	µg/Kg-dry	20	5/25/2017 11:32 PM
4-Chlorophenyl phenyl ether	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
4-Nitroaniline	ND		15,000	µg/Kg-dry	20	5/25/2017 11:32 PM
4-Nitrophenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Acenaphthene	**1,500**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM05-0"-6" **Lab ID:** 17051193-06
Collection Date: 5/16/2017 09:17 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acenaphthylene	**31,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Acetophenone	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Anthracene	**24,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Atrazine	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Benzaldehyde	ND		5,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Benzo(a)anthracene	**100,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Benzo(a)pyrene	**100,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Benzo(b)fluoranthene	**150,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Benzo(g,h,i)perylene	**63,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Benzo(k)fluoranthene	**50,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Bis(2-chloroethoxy)methane	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Bis(2-chloroethyl)ether	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Bis(2-ethylhexyl)phthalate	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Butyl benzyl phthalate	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Caprolactam	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Carbazole	**33,000**		**2,900**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Chrysene	**120,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Dibenzo(a,h)anthracene	**18,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Dibenzofuran	**16,000**		**2,900**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Diethyl phthalate	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Dimethyl phthalate	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Di-n-butyl phthalate	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Di-n-octyl phthalate	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Fluoranthene	**270,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Fluorene	**7,400**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Hexachlorobenzene	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Hexachlorobutadiene	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Hexachlorocyclopentadiene	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Hexachloroethane	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Indeno(1,2,3-cd)pyrene	**78,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Isophorone	ND		15,000	µg/Kg-dry	20	5/25/2017 11:32 PM
Naphthalene	**24,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Nitrobenzene	ND		15,000	µg/Kg-dry	20	5/25/2017 11:32 PM
N-Nitrosodimethylamine	ND		15,000	µg/Kg-dry	20	5/25/2017 11:32 PM
N-Nitrosodi-n-propylamine	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Pentachlorophenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Phenanthrene	**230,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Phenol	ND		2,900	µg/Kg-dry	20	5/25/2017 11:32 PM
Pyrene	**210,000**		**590**	**µg/Kg-dry**	20	5/25/2017 11:32 PM
Surr: 2,4,6-Tribromophenol	*89.6*		*34-140*	*%REC*	20	5/25/2017 11:32 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM05-0"-6" **Lab ID:** 17051193-06
Collection Date: 5/16/2017 09:17 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorobiphenyl	*0*	S	*12-100*	*%REC*	20	5/25/2017 11:32 PM
Surr: 2-Fluorophenol	*0*	S	*33-117*	*%REC*	20	5/25/2017 11:32 PM
Surr: 4-Terphenyl-d14	*83.2*		*25-137*	*%REC*	20	5/25/2017 11:32 PM
Surr: Nitrobenzene-d5	*59.2*		*37-107*	*%REC*	20	5/25/2017 11:32 PM
Surr: Phenol-d6	*0*	S	*40-106*	*%REC*	20	5/25/2017 11:32 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 5/22/17 16:33	Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,1,1-Trichloroethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,1,2,2-Tetrachloroethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,1,2-Trichloroethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,1,2-Trichlorotrifluoroethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,1-Dichloroethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,1-Dichloroethene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,2,3-Trichloropropane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,2,4-Trichlorobenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,2,4-Trimethylbenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,2-Dibromo-3-chloropropane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,2-Dibromoethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,2-Dichlorobenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,2-Dichloroethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,2-Dichloropropane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,3,5-Trimethylbenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,3-Dichlorobenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
1,4-Dichlorobenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
2-Butanone	ND		4,200	µg/Kg	10	5/24/2017 04:36 PM
2-Hexanone	ND		640	µg/Kg	10	5/24/2017 04:36 PM
2-Methylnaphthalene	ND		2,100	µg/Kg	10	5/24/2017 04:36 PM
4-Methyl-2-pentanone	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Acetone	ND		2,100	µg/Kg	10	5/24/2017 04:36 PM
Acrylonitrile	ND		2,100	µg/Kg	10	5/24/2017 04:36 PM
Benzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Bromochloromethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Bromodichloromethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Bromoform	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Bromomethane	ND		1,600	µg/Kg	10	5/24/2017 04:36 PM
Carbon disulfide	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Carbon tetrachloride	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Chlorobenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Chloroethane	ND		2,100	µg/Kg	10	5/24/2017 04:36 PM
Chloroform	ND		640	µg/Kg	10	5/24/2017 04:36 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM05-0"-6" **Lab ID:** 17051193-06
Collection Date: 5/16/2017 09:17 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloromethane	ND		2,100	µg/Kg	10	5/24/2017 04:36 PM
cis-1,2-Dichloroethene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
cis-1,3-Dichloropropene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Dibromochloromethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Dibromomethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Dichlorodifluoromethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Diethyl ether	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Ethylbenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Hexachloroethane	ND		2,100	µg/Kg	10	5/24/2017 04:36 PM
Isopropylbenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
m,p-Xylene	ND		1,300	µg/Kg	10	5/24/2017 04:36 PM
Methyl iodide	ND		1,600	µg/Kg	10	5/24/2017 04:36 PM
Methyl tert-butyl ether	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Methylene chloride	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Naphthalene	**2,800**		**2,100**	**µg/Kg**	10	5/24/2017 04:36 PM
n-Propylbenzene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
o-Xylene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Styrene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Tetrachloroethene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Toluene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
trans-1,2-Dichloroethene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
trans-1,3-Dichloropropene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
trans-1,4-Dichloro-2-butene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Trichloroethene	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Trichlorofluoromethane	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Vinyl acetate	ND		5,300	µg/Kg	10	5/24/2017 04:36 PM
Vinyl chloride	ND		640	µg/Kg	10	5/24/2017 04:36 PM
Xylenes, Total	ND		1,900	µg/Kg	10	5/24/2017 04:36 PM
Surr: 1,2-Dichloroethane-d4	*101*		*70-130*	*%REC*	10	5/24/2017 04:36 PM
Surr: 4-Bromofluorobenzene	*98.6*		*70-130*	*%REC*	10	5/24/2017 04:36 PM
Surr: Dibromofluoromethane	*89.0*		*70-130*	*%REC*	10	5/24/2017 04:36 PM
Surr: Toluene-d8	*104*		*70-130*	*%REC*	10	5/24/2017 04:36 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 12:50 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	5/30/2017 09:45 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	5/24/2017 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM05-0"-6" **Lab ID:** 17051193-06
Collection Date: 5/16/2017 09:17 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**13**		**0.050**	**% of sample**	1	5/23/2017 12:17 PM
PH			**SW9045D**	Prep: EXTRACT 5/23/17 11:32		Analyst: **JB**
pH	**6.55**		**0.100**	**s.u.**	1	5/24/2017 12:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM06-0"-6" (TCLP) **Lab ID:** 17051193-07
Collection Date: 5/17/2017 03:27 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 15:14	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	5/26/2017 10:57 PM
2,4-D	ND		5.0	µg/L	1	5/26/2017 10:57 PM
Surr: DCAA	*99.2*		*30-150*	*%REC*	1	5/26/2017 10:57 PM
TCLP PESTICIDES			**SW8081**		Prep: SW3511 5/25/17 19:20	Analyst: **JF**
Chlordane, Technical	ND		0.50	µg/L	1	5/26/2017 01:24 PM
Endrin	ND		0.020	µg/L	1	5/26/2017 01:24 PM
gamma-BHC (Lindane)	ND		0.010	µg/L	1	5/26/2017 01:24 PM
Heptachlor	ND		0.010	µg/L	1	5/26/2017 01:24 PM
Heptachlor epoxide	ND		0.010	µg/L	1	5/26/2017 01:24 PM
Methoxychlor	ND		0.040	µg/L	1	5/26/2017 01:24 PM
Toxaphene	ND		2.0	µg/L	1	5/26/2017 01:24 PM
Surr: Decachlorobiphenyl	*60.9*		*50-150*	*%REC*	1	5/26/2017 01:24 PM
Surr: Tetrachloro-m-xylene	*61.2*		*50-150*	*%REC*	1	5/26/2017 01:24 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/25/17 16:06	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	5/25/2017 04:36 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 5/25/17 16:47	Analyst: **CC**
Arsenic	ND		0.50	mg/L	10	5/26/2017 06:03 AM
Barium	ND		0.50	mg/L	10	5/26/2017 06:03 AM
Cadmium	ND		1.0	mg/L	10	5/26/2017 06:03 AM
Chromium	ND		0.50	mg/L	10	5/26/2017 06:03 AM
Lead	ND		0.50	mg/L	10	5/26/2017 06:03 AM
Selenium	ND		1.0	mg/L	10	5/26/2017 06:03 AM
Silver	ND		0.50	mg/L	10	5/26/2017 06:03 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 5/25/17 19:20	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	5/26/2017 12:52 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	5/26/2017 12:52 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	5/26/2017 12:52 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	5/26/2017 12:52 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	5/26/2017 12:52 AM
Hexachlorobenzene	ND		100	µg/L	1	5/26/2017 12:52 AM
Hexachloroethane	ND		100	µg/L	1	5/26/2017 12:52 AM
m-Cresol	ND		100	µg/L	1	5/26/2017 12:52 AM
Nitrobenzene	ND		100	µg/L	1	5/26/2017 12:52 AM
o-Cresol	ND		100	µg/L	1	5/26/2017 12:52 AM
p-Cresol	ND		100	µg/L	1	5/26/2017 12:52 AM
Pentachlorophenol	ND		100	µg/L	1	5/26/2017 12:52 AM
Pyridine	ND		200	µg/L	1	5/26/2017 12:52 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM06-0"-6" (TCLP) **Lab ID:** 17051193-07
Collection Date: 5/17/2017 03:27 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*61.7*		*38-115*	*%REC*	1	5/26/2017 12:52 AM
Surr: 2-Fluorobiphenyl	*52.8*		*32-100*	*%REC*	1	5/26/2017 12:52 AM
Surr: 2-Fluorophenol	*43.6*		*22-59*	*%REC*	1	5/26/2017 12:52 AM
Surr: 4-Terphenyl-d14	*64.6*		*23-112*	*%REC*	1	5/26/2017 12:52 AM
Surr: Nitrobenzene-d5	*52.4*		*31-93*	*%REC*	1	5/26/2017 12:52 AM
Surr: Phenol-d6	*26.7*		*13-36*	*%REC*	1	5/26/2017 12:52 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 5/25/17	Analyst: **LSY**
1,1-Dichloroethene	ND		20	µg/L	20	5/26/2017 04:09 AM
1,2-Dichloroethane	ND		20	µg/L	20	5/26/2017 04:09 AM
2-Butanone	ND		100	µg/L	20	5/26/2017 04:09 AM
Benzene	ND		20	µg/L	20	5/26/2017 04:09 AM
Carbon tetrachloride	ND		20	µg/L	20	5/26/2017 04:09 AM
Chlorobenzene	ND		20	µg/L	20	5/26/2017 04:09 AM
Chloroform	ND		20	µg/L	20	5/26/2017 04:09 AM
Tetrachloroethene	ND		20	µg/L	20	5/26/2017 04:09 AM
Trichloroethene	ND		20	µg/L	20	5/26/2017 04:09 AM
Vinyl chloride	ND		20	µg/L	20	5/26/2017 04:09 AM
Surr: 1,2-Dichloroethane-d4	*104*		*70-130*	*%REC*	20	5/26/2017 04:09 AM
Surr: 4-Bromofluorobenzene	*99.9*		*70-130*	*%REC*	20	5/26/2017 04:09 AM
Surr: Dibromofluoromethane	*86.6*		*70-130*	*%REC*	20	5/26/2017 04:09 AM
Surr: Toluene-d8	*104*		*70-130*	*%REC*	20	5/26/2017 04:09 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM06-0"-6" **Lab ID:** 17051193-08
Collection Date: 5/16/2017 03:27 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**	Prep: SW8151M 5/26/17 10:35		Analyst: **KYM**
2,4,5-T	ND		8.2	µg/Kg-dry	1	5/27/2017 07:29 AM
2,4,5-TP (Silvex)	ND		8.2	µg/Kg-dry	1	5/27/2017 07:29 AM
2,4-D	ND		8.2	µg/Kg-dry	1	5/27/2017 07:29 AM
Surr: DCAA	*77.8*		*10-150*	*%REC*	1	5/27/2017 07:29 AM
PCBS			**SW8082**	Prep: SW3546 5/22/17 15:58		Analyst: **EB**
Aroclor 1016	ND		82	µg/Kg-dry	1	5/23/2017 02:04 PM
Aroclor 1221	ND		82	µg/Kg-dry	1	5/23/2017 02:04 PM
Aroclor 1232	ND		82	µg/Kg-dry	1	5/23/2017 02:04 PM
Aroclor 1242	ND		82	µg/Kg-dry	1	5/23/2017 02:04 PM
Aroclor 1248	ND		82	µg/Kg-dry	1	5/23/2017 02:04 PM
Aroclor 1254	ND		82	µg/Kg-dry	1	5/23/2017 02:04 PM
Aroclor 1260	ND		82	µg/Kg-dry	1	5/23/2017 02:04 PM
Surr: Decachlorobiphenyl	*82.4*		*40-140*	*%REC*	1	5/23/2017 02:04 PM
Surr: Tetrachloro-m-xylene	*85.9*		*45-124*	*%REC*	1	5/23/2017 02:04 PM
PESTICIDES			**SW8081A**	Prep: SW3546 5/22/17 15:58		Analyst: **JF**
4,4'-DDD	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
4,4'-DDE	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
4,4'-DDT	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Aldrin	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
alpha-BHC	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
alpha-Chlordane	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
beta-BHC	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Chlordane, Technical	ND		31	µg/Kg-dry	1	5/23/2017 03:08 PM
delta-BHC	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Dieldrin	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Endosulfan I	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Endosulfan II	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Endosulfan sulfate	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Endrin	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Endrin aldehyde	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Endrin ketone	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
gamma-BHC (Lindane)	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
gamma-Chlordane	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Heptachlor	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Heptachlor epoxide	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Methoxychlor	ND		12	µg/Kg-dry	1	5/23/2017 03:08 PM
Toxaphene	ND		74	µg/Kg-dry	1	5/23/2017 03:08 PM
Surr: Decachlorobiphenyl	*67.2*		*50-150*	*%REC*	1	5/23/2017 03:08 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM06-0"-6" **Lab ID:** 17051193-08
Collection Date: 5/16/2017 03:27 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*73.2*		*50-150*	*%REC*	1	5/23/2017 03:08 PM
MERCURY BY CVAA			**SW7471B**	Prep: SW7471 5/24/17 14:59		Analyst: **JJB**
Mercury	**0.075**		**0.021**	**mg/Kg-dry**	1	5/25/2017 10:23 AM
METALS ANALYSIS BY ICP			**SW846 6010C**	Prep: SW3050B 5/23/17 13:18		Analyst: **CC**
Arsenic	ND		4.3	mg/Kg-dry	10	5/25/2017 11:13 PM
Barium	**40**		**4.3**	**mg/Kg-dry**	10	5/25/2017 11:13 PM
Cadmium	ND		8.6	mg/Kg-dry	10	5/25/2017 11:13 PM
Chromium	**40**		**4.3**	**mg/Kg-dry**	10	5/25/2017 11:13 PM
Hardness (Calculation)	**210,000**		**14**	**mg/L-dry**	10	5/25/2017 11:13 PM
Lead	**24**		**4.3**	**mg/Kg-dry**	10	5/25/2017 11:13 PM
Selenium	**16**		**8.6**	**mg/Kg-dry**	10	5/25/2017 11:13 PM
Silver	**1.2**		**0.43**	**mg/Kg-dry**	1	5/30/2017 04:38 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**	Prep: SW3546 5/24/17 17:10		Analyst: **RM**
1,1`-Biphenyl	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2,2`-Oxybis(1-chloropropane)	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2,4,5-Trichlorophenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2,4,6-Trichlorophenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2,4-Dichlorophenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2,4-Dimethylphenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2,4-Dinitrophenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2,4-Dinitrotoluene	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2,6-Dinitrotoluene	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2-Chloronaphthalene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM
2-Chlorophenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2-Methylnaphthalene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM
2-Methylphenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2-Nitroaniline	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
2-Nitrophenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
3&4-Methylphenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
3,3`-Dichlorobenzidine	ND		210	µg/Kg-dry	1	5/25/2017 09:14 PM
3-Nitroaniline	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
4,6-Dinitro-2-methylphenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
4-Bromophenyl phenyl ether	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
4-Chloro-3-methylphenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
4-Chloroaniline	ND		83	µg/Kg-dry	1	5/25/2017 09:14 PM
4-Chlorophenyl phenyl ether	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
4-Nitroaniline	ND		210	µg/Kg-dry	1	5/25/2017 09:14 PM
4-Nitrophenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Acenaphthene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM06-0"-6" **Lab ID:** 17051193-08
Collection Date: 5/16/2017 03:27 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acenaphthylene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM
Acetophenone	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Anthracene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM
Atrazine	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Benzaldehyde	ND		83	µg/Kg-dry	1	5/25/2017 09:14 PM
Benzo(a)anthracene	**32**		**8.2**	**µg/Kg-dry**	1	5/25/2017 09:14 PM
Benzo(a)pyrene	**21**		**8.2**	**µg/Kg-dry**	1	5/25/2017 09:14 PM
Benzo(b)fluoranthene	**26**		**8.2**	**µg/Kg-dry**	1	5/25/2017 09:14 PM
Benzo(g,h,i)perylene	**11**		**8.2**	**µg/Kg-dry**	1	5/25/2017 09:14 PM
Benzo(k)fluoranthene	**9.0**		**8.2**	**µg/Kg-dry**	1	5/25/2017 09:14 PM
Bis(2-chloroethoxy)methane	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Bis(2-chloroethyl)ether	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Bis(2-ethylhexyl)phthalate	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Butyl benzyl phthalate	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Caprolactam	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Carbazole	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Chrysene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM
Dibenzo(a,h)anthracene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM
Dibenzofuran	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Diethyl phthalate	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Dimethyl phthalate	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Di-n-butyl phthalate	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Di-n-octyl phthalate	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Fluoranthene	**39**		**8.2**	**µg/Kg-dry**	1	5/25/2017 09:14 PM
Fluorene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM
Hexachlorobenzene	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Hexachlorobutadiene	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Hexachlorocyclopentadiene	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Hexachloroethane	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Indeno(1,2,3-cd)pyrene	**17**		**8.2**	**µg/Kg-dry**	1	5/25/2017 09:14 PM
Isophorone	ND		210	µg/Kg-dry	1	5/25/2017 09:14 PM
Naphthalene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM
Nitrobenzene	ND		210	µg/Kg-dry	1	5/25/2017 09:14 PM
N-Nitrosodimethylamine	ND		210	µg/Kg-dry	1	5/25/2017 09:14 PM
N-Nitrosodi-n-propylamine	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Pentachlorophenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Phenanthrene	ND		8.2	µg/Kg-dry	1	5/25/2017 09:14 PM
Phenol	ND		41	µg/Kg-dry	1	5/25/2017 09:14 PM
Pyrene	**28**		**8.2**	**µg/Kg-dry**	1	5/25/2017 09:14 PM
Surr: 2,4,6-Tribromophenol	*64.4*		*34-140*	*%REC*	1	5/25/2017 09:14 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM06-0"-6" **Lab ID:** 17051193-08
Collection Date: 5/16/2017 03:27 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorobiphenyl	*62.5*		*12-100*	*%REC*	1	5/25/2017 09:14 PM
Surr: 2-Fluorophenol	*66.7*		*33-117*	*%REC*	1	5/25/2017 09:14 PM
Surr: 4-Terphenyl-d14	*72.7*		*25-137*	*%REC*	1	5/25/2017 09:14 PM
Surr: Nitrobenzene-d5	*59.0*		*37-107*	*%REC*	1	5/25/2017 09:14 PM
Surr: Phenol-d6	*65.1*		*40-106*	*%REC*	1	5/25/2017 09:14 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 5/22/17 16:33	Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,1,1-Trichloroethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,1,2,2-Tetrachloroethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,1,2-Trichloroethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,1,2-Trichlorotrifluoroethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,1-Dichloroethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,1-Dichloroethene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,2,3-Trichloropropane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,2,4-Trichlorobenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,2,4-Trimethylbenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,2-Dibromo-3-chloropropane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,2-Dibromoethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,2-Dichlorobenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,2-Dichloroethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,2-Dichloropropane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,3,5-Trimethylbenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,3-Dichlorobenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
1,4-Dichlorobenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
2-Butanone	ND		300	µg/Kg	1	5/24/2017 04:59 PM
2-Hexanone	ND		45	µg/Kg	1	5/24/2017 04:59 PM
2-Methylnaphthalene	ND		150	µg/Kg	1	5/24/2017 04:59 PM
4-Methyl-2-pentanone	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Acetone	ND		150	µg/Kg	1	5/24/2017 04:59 PM
Acrylonitrile	ND		150	µg/Kg	1	5/24/2017 04:59 PM
Benzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Bromochloromethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Bromodichloromethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Bromoform	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Bromomethane	ND		110	µg/Kg	1	5/24/2017 04:59 PM
Carbon disulfide	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Carbon tetrachloride	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Chlorobenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Chloroethane	ND		150	µg/Kg	1	5/24/2017 04:59 PM
Chloroform	ND		45	µg/Kg	1	5/24/2017 04:59 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM06-0"-6" **Lab ID:** 17051193-08
Collection Date: 5/16/2017 03:27 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloromethane	ND		150	µg/Kg	1	5/24/2017 04:59 PM
cis-1,2-Dichloroethene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
cis-1,3-Dichloropropene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Dibromochloromethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Dibromomethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Dichlorodifluoromethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Diethyl ether	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Ethylbenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Hexachloroethane	ND		150	µg/Kg	1	5/24/2017 04:59 PM
Isopropylbenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
m,p-Xylene	ND		90	µg/Kg	1	5/24/2017 04:59 PM
Methyl iodide	ND		110	µg/Kg	1	5/24/2017 04:59 PM
Methyl tert-butyl ether	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Methylene chloride	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Naphthalene	ND		150	µg/Kg	1	5/24/2017 04:59 PM
n-Propylbenzene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
o-Xylene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Styrene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Tetrachloroethene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Toluene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
trans-1,2-Dichloroethene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
trans-1,3-Dichloropropene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
trans-1,4-Dichloro-2-butene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Trichloroethene	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Trichlorofluoromethane	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Vinyl acetate	ND		380	µg/Kg	1	5/24/2017 04:59 PM
Vinyl chloride	ND		45	µg/Kg	1	5/24/2017 04:59 PM
Xylenes, Total	ND		140	µg/Kg	1	5/24/2017 04:59 PM
Surr: 1,2-Dichloroethane-d4	*101*		*70-130*	*%REC*	1	5/24/2017 04:59 PM
Surr: 4-Bromofluorobenzene	*105*		*70-130*	*%REC*	1	5/24/2017 04:59 PM
Surr: Dibromofluoromethane	*85.2*		*70-130*	*%REC*	1	5/24/2017 04:59 PM
Surr: Toluene-d8	*99.9*		*70-130*	*%REC*	1	5/24/2017 04:59 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		120	mg/Kg-dry	1	5/26/2017 12:50 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	5/30/2017 09:45 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	5/24/2017 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM06-0"-6" **Lab ID:** 17051193-08
Collection Date: 5/16/2017 03:27 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**20**		**0.050**	**% of sample**	1	5/23/2017 12:17 PM
PH			**SW9045D**	Prep: EXTRACT 5/23/17 11:32		Analyst: **JB**
pH	**8.04**		**0.100**	**s.u.**	1	5/24/2017 12:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		120	mg/Kg-dry	1	5/26/2017 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM03-0"-6" (TCLP) **Lab ID:** 17051193-09
Collection Date: 5/17/2017 11:27 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 15:14	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	5/26/2017 11:14 PM
2,4-D	ND		5.0	µg/L	1	5/26/2017 11:14 PM
Surr: DCAA	*96.4*		*30-150*	*%REC*	1	5/26/2017 11:14 PM
TCLP PESTICIDES			**SW8081**		Prep: SW3511 5/25/17 19:20	Analyst: **JF**
Chlordane, Technical	ND		0.50	µg/L	1	5/26/2017 01:38 PM
Endrin	ND		0.020	µg/L	1	5/26/2017 01:38 PM
gamma-BHC (Lindane)	ND		0.010	µg/L	1	5/26/2017 01:38 PM
Heptachlor	ND		0.010	µg/L	1	5/26/2017 01:38 PM
Heptachlor epoxide	ND		0.010	µg/L	1	5/26/2017 01:38 PM
Methoxychlor	ND		0.040	µg/L	1	5/26/2017 01:38 PM
Toxaphene	ND		2.0	µg/L	1	5/26/2017 01:38 PM
Surr: Decachlorobiphenyl	*34.8*	S	*50-150*	*%REC*	1	5/26/2017 01:38 PM
Surr: Tetrachloro-m-xylene	*57.0*		*50-150*	*%REC*	1	5/26/2017 01:38 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/25/17 16:06	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	5/25/2017 04:38 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 5/25/17 16:47	Analyst: **CC**
Arsenic	ND		0.50	mg/L	10	5/26/2017 06:09 AM
Barium	ND		0.50	mg/L	10	5/26/2017 06:09 AM
Cadmium	ND		1.0	mg/L	10	5/26/2017 06:09 AM
Chromium	ND		0.50	mg/L	10	5/26/2017 06:09 AM
Lead	**0.53**		**0.50**	**mg/L**	10	5/26/2017 06:09 AM
Selenium	ND		1.0	mg/L	10	5/26/2017 06:09 AM
Silver	ND		0.50	mg/L	10	5/26/2017 06:09 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 5/25/17 19:20	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	5/26/2017 01:12 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	5/26/2017 01:12 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	5/26/2017 01:12 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	5/26/2017 01:12 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	5/26/2017 01:12 AM
Hexachlorobenzene	ND		100	µg/L	1	5/26/2017 01:12 AM
Hexachloroethane	ND		100	µg/L	1	5/26/2017 01:12 AM
m-Cresol	ND		100	µg/L	1	5/26/2017 01:12 AM
Nitrobenzene	ND		100	µg/L	1	5/26/2017 01:12 AM
o-Cresol	ND		100	µg/L	1	5/26/2017 01:12 AM
p-Cresol	ND		100	µg/L	1	5/26/2017 01:12 AM
Pentachlorophenol	ND		100	µg/L	1	5/26/2017 01:12 AM
Pyridine	ND		200	µg/L	1	5/26/2017 01:12 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM03-0"-6" (TCLP) **Lab ID:** 17051193-09
Collection Date: 5/17/2017 11:27 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*61.6*		*38-115*	*%REC*	1	5/26/2017 01:12 AM
Surr: 2-Fluorobiphenyl	*49.2*		*32-100*	*%REC*	1	5/26/2017 01:12 AM
Surr: 2-Fluorophenol	*34.6*		*22-59*	*%REC*	1	5/26/2017 01:12 AM
Surr: 4-Terphenyl-d14	*59.6*		*23-112*	*%REC*	1	5/26/2017 01:12 AM
Surr: Nitrobenzene-d5	*45.2*		*31-93*	*%REC*	1	5/26/2017 01:12 AM
Surr: Phenol-d6	*20.9*		*13-36*	*%REC*	1	5/26/2017 01:12 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 5/25/17	Analyst: **LSY**
1,1-Dichloroethene	ND		20	µg/L	20	5/26/2017 03:23 AM
1,2-Dichloroethane	ND		20	µg/L	20	5/26/2017 03:23 AM
2-Butanone	ND		100	µg/L	20	5/26/2017 03:23 AM
Benzene	ND		20	µg/L	20	5/26/2017 03:23 AM
Carbon tetrachloride	ND		20	µg/L	20	5/26/2017 03:23 AM
Chlorobenzene	ND		20	µg/L	20	5/26/2017 03:23 AM
Chloroform	ND		20	µg/L	20	5/26/2017 03:23 AM
Tetrachloroethene	ND		20	µg/L	20	5/26/2017 03:23 AM
Trichloroethene	ND		20	µg/L	20	5/26/2017 03:23 AM
Vinyl chloride	ND		20	µg/L	20	5/26/2017 03:23 AM
Surr: 1,2-Dichloroethane-d4	*100*		*70-130*	*%REC*	20	5/26/2017 03:23 AM
Surr: 4-Bromofluorobenzene	*102*		*70-130*	*%REC*	20	5/26/2017 03:23 AM
Surr: Dibromofluoromethane	*87.3*		*70-130*	*%REC*	20	5/26/2017 03:23 AM
Surr: Toluene-d8	*105*		*70-130*	*%REC*	20	5/26/2017 03:23 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM03-0"-6" **Lab ID:** 17051193-10
Collection Date: 5/17/2017 11:27 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 10:35	Analyst: **KYM**
2,4,5-T	ND		22	µg/Kg-dry	1	5/27/2017 07:46 AM
2,4,5-TP (Silvex)	ND		22	µg/Kg-dry	1	5/27/2017 07:46 AM
2,4-D	ND		22	µg/Kg-dry	1	5/27/2017 07:46 AM
Surr: DCAA	*74.2*		*10-150*	*%REC*	1	5/27/2017 07:46 AM
PCBS			**SW8082**			Analyst: **IT**
Aroclor 1016	ND		360	µg/Kg-dry	1	5/26/2017 01:30 AM
Aroclor 1221	ND		360	µg/Kg-dry	1	5/26/2017 01:30 AM
Aroclor 1232	ND		360	µg/Kg-dry	1	5/26/2017 01:30 AM
Aroclor 1242	ND		360	µg/Kg-dry	1	5/26/2017 01:30 AM
Aroclor 1248	ND		360	µg/Kg-dry	1	5/26/2017 01:30 AM
Aroclor 1254	ND		360	µg/Kg-dry	1	5/26/2017 01:30 AM
Aroclor 1260	ND		360	µg/Kg-dry	1	5/26/2017 01:30 AM
Surr: Decachlorobiphenyl	*62.1*		*40-140*	*%REC*	1	5/26/2017 01:30 AM
Surr: Tetrachloro-m-xylene	*84.1*		*45-124*	*%REC*	1	5/26/2017 01:30 AM
PESTICIDES			**SW8081**		Prep: SW3541 5/25/17 17:55	Analyst: **JF**
4,4'-DDD	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
4,4'-DDE	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
4,4'-DDT	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Aldrin	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
alpha-BHC	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
alpha-Chlordane	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
beta-BHC	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Chlordane, Technical	ND		55,000	µg/Kg-dry	500	5/26/2017 06:57 PM
delta-BHC	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Dieldrin	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Endosulfan I	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Endosulfan II	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Endosulfan sulfate	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Endrin	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Endrin aldehyde	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Endrin ketone	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
gamma-BHC (Lindane)	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
gamma-Chlordane	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Heptachlor	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Heptachlor epoxide	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Methoxychlor	ND		22,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Toxaphene	ND		130,000	µg/Kg-dry	500	5/26/2017 06:57 PM
Surr: Decachlorobiphenyl	*0*	S	*47.5-136*	*%REC*	500	5/26/2017 06:57 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM03-0"-6" **Lab ID:** 17051193-10
Collection Date: 5/17/2017 11:27 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*0*	S	*40.3-131*	*%REC*	500	5/26/2017 06:57 PM
MERCURY BY CVAA			**SW7471B**	Prep: SW7471 5/24/17 14:59		Analyst: **JJB**
Mercury	**0.70**		**0.087**	**mg/Kg-dry**	5	5/25/2017 11:47 AM
METALS ANALYSIS BY ICP			**SW846 6010C**	Prep: SW3050B 5/23/17 13:18		Analyst: **CC**
Arsenic	ND		4.1	mg/Kg-dry	10	5/25/2017 11:19 PM
Barium	**130**		**0.41**	**mg/Kg-dry**	1	5/30/2017 04:45 PM
Cadmium	ND		8.3	mg/Kg-dry	10	5/25/2017 11:19 PM
Chromium	**52**		**4.1**	**mg/Kg-dry**	10	5/25/2017 11:19 PM
Hardness (Calculation)	**110,000**		**14**	**mg/L-dry**	10	5/25/2017 11:19 PM
Lead	**440**		**4.1**	**mg/Kg-dry**	10	5/25/2017 11:19 PM
Selenium	**2.8**		**0.83**	**mg/Kg-dry**	1	5/30/2017 04:45 PM
Silver	**24**		**4.1**	**mg/Kg-dry**	10	5/25/2017 11:19 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**	Prep: SW3580 5/30/17 09:06		Analyst: **RM**
1,1`-Biphenyl	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2,2`-Oxybis(1-chloropropane)	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2,4,5-Trichlorophenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2,4,6-Trichlorophenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2,4-Dichlorophenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2,4-Dimethylphenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2,4-Dinitrophenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2,4-Dinitrotoluene	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2,6-Dichlorophenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2-Chloronaphthalene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
2-Chlorophenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2-Methylnaphthalene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
2-Methylphenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2-Nitroaniline	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
2-Nitrophenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
3&4-Methylphenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
3,3`-Dichlorobenzidine	ND		530	mg/Kg-dry	10	5/30/2017 12:50 PM
3-Nitroaniline	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
4,6-Dinitro-2-methylphenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
4-Bromophenyl phenyl ether	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
4-Chloro-3-methylphenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
4-Chloroaniline	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
4-Chlorophenyl phenyl ether	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
4-Nitroaniline	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
4-Nitrophenol	ND		530	mg/Kg-dry	10	5/30/2017 12:50 PM
Acenaphthene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM03-0"-6" **Lab ID:** 17051193-10
Collection Date: 5/17/2017 11:27 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acenaphthylene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Acetophenone	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Anthracene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Atrazine	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Benzaldehyde	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Benzo(a)anthracene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Benzo(a)pyrene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Benzo(b)fluoranthene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Benzo(g,h,i)perylene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Benzo(k)fluoranthene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Bis(2-chloroethoxy)methane	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Bis(2-chloroethyl)ether	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Bis(2-ethylhexyl)phthalate	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Butyl benzyl phthalate	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Caprolactam	ND		530	mg/Kg-dry	10	5/30/2017 12:50 PM
Carbazole	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Chrysene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Dibenzo(a,h)anthracene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Dibenzofuran	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Diethyl phthalate	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Dimethyl phthalate	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Di-n-butyl phthalate	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Di-n-octyl phthalate	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Fluoranthene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Fluorene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Hexachlorobenzene	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Hexachlorobutadiene	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Hexachlorocyclopentadiene	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Hexachloroethane	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Indeno(1,2,3-cd)pyrene	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Isophorone	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Naphthalene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Nitrobenzene	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
N-Nitrosodimethylamine	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
N-Nitrosodi-n-propylamine	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Pentachlorophenol	ND		530	mg/Kg-dry	10	5/30/2017 12:50 PM
Phenanthrene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Phenol	ND		110	mg/Kg-dry	10	5/30/2017 12:50 PM
Pyrene	ND		11	mg/Kg-dry	10	5/30/2017 12:50 PM
Surr: 2,4,6-Tribromophenol	*0.200*	S	*38-115*	*%REC*	10	5/30/2017 12:50 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM03-0"-6" **Lab ID:** 17051193-10
Collection Date: 5/17/2017 11:27 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorobiphenyl	*0*	S	*32-100*	*%REC*	10	5/30/2017 12:50 PM
Surr: 2-Fluorophenol	*0*	S	*22-59*	*%REC*	10	5/30/2017 12:50 PM
Surr: 4-Terphenyl-d14	*0*	S	*23-112*	*%REC*	10	5/30/2017 12:50 PM
Surr: Nitrobenzene-d5	*0.200*	S	*31-93*	*%REC*	10	5/30/2017 12:50 PM
Surr: Phenol-d6	*3.00*	S	*13-36*	*%REC*	10	5/30/2017 12:50 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 5/22/17 16:33	Analyst: **LSY**
1,1,1,2-Tetrachloroethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,1,1-Trichloroethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,1,2,2-Tetrachloroethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,1,2-Trichloroethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,1,2-Trichlorotrifluoroethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,1-Dichloroethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,1-Dichloroethene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,2,3-Trichloropropane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,2,4-Trichlorobenzene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,2,4-Trimethylbenzene	**120**		**47**	**µg/Kg**	1	5/26/2017 12:40 PM
1,2-Dibromo-3-chloropropane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,2-Dibromoethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,2-Dichlorobenzene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,2-Dichloroethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,2-Dichloropropane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,3,5-Trimethylbenzene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,3-Dichlorobenzene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
1,4-Dichlorobenzene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
2-Butanone	ND		310	µg/Kg	1	5/26/2017 12:40 PM
2-Hexanone	ND		47	µg/Kg	1	5/26/2017 12:40 PM
2-Methylnaphthalene	ND		160	µg/Kg	1	5/26/2017 12:40 PM
4-Methyl-2-pentanone	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Acetone	ND		160	µg/Kg	1	5/26/2017 12:40 PM
Acrylonitrile	ND		160	µg/Kg	1	5/26/2017 12:40 PM
Benzene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Bromochloromethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Bromodichloromethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Bromoform	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Bromomethane	ND		120	µg/Kg	1	5/26/2017 12:40 PM
Carbon disulfide	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Carbon tetrachloride	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Chlorobenzene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Chloroethane	ND		160	µg/Kg	1	5/26/2017 12:40 PM
Chloroform	ND		47	µg/Kg	1	5/26/2017 12:40 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM03-0"-6" **Lab ID:** 17051193-10
Collection Date: 5/17/2017 11:27 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloromethane	ND		160	µg/Kg	1	5/26/2017 12:40 PM
cis-1,2-Dichloroethene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
cis-1,3-Dichloropropene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Dibromochloromethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Dibromomethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Dichlorodifluoromethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Diethyl ether	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Ethylbenzene	**94**		**47**	**µg/Kg**	1	5/26/2017 12:40 PM
Hexachloroethane	ND		160	µg/Kg	1	5/26/2017 12:40 PM
Isopropylbenzene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
m,p-Xylene	**370**		**94**	**µg/Kg**	1	5/26/2017 12:40 PM
Methyl iodide	ND		120	µg/Kg	1	5/26/2017 12:40 PM
Methyl tert-butyl ether	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Methylene chloride	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Naphthalene	ND		160	µg/Kg	1	5/26/2017 12:40 PM
n-Propylbenzene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
o-Xylene	**140**		**47**	**µg/Kg**	1	5/26/2017 12:40 PM
Styrene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Tetrachloroethene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Toluene	**390**		**47**	**µg/Kg**	1	5/26/2017 12:40 PM
trans-1,2-Dichloroethene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
trans-1,3-Dichloropropene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
trans-1,4-Dichloro-2-butene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Trichloroethene	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Trichlorofluoromethane	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Vinyl acetate	ND		390	µg/Kg	1	5/26/2017 12:40 PM
Vinyl chloride	ND		47	µg/Kg	1	5/26/2017 12:40 PM
Xylenes, Total	**510**		**140**	**µg/Kg**	1	5/26/2017 12:40 PM
Surr: 1,2-Dichloroethane-d4	*102*		*70-130*	*%REC*	1	5/26/2017 12:40 PM
Surr: 4-Bromofluorobenzene	*102*		*70-130*	*%REC*	1	5/26/2017 12:40 PM
Surr: Dibromofluoromethane	*86.2*		*70-130*	*%REC*	1	5/26/2017 12:40 PM
Surr: Toluene-d8	*105*		*70-130*	*%REC*	1	5/26/2017 12:40 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 12:50 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	5/30/2017 09:45 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	5/24/2017 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM03-0"-6" **Lab ID:** 17051193-10
Collection Date: 5/17/2017 11:27 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			**SW3550C**			Analyst: **EDL**
Moisture	**6.1**		**0.050**	**% of sample**	1	5/23/2017 12:17 PM
PH			**SW9045D**	Prep: EXTRACT 5/23/17 11:32		Analyst: **JB**
pH	**8.20**		**0.100**	**s.u.**	1	5/24/2017 12:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM02-0"-6" (TCLP) **Lab ID:** 17051193-11
Collection Date: 5/17/2017 11:43 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 15:14	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	5/26/2017 11:30 PM
2,4-D	ND		5.0	µg/L	1	5/26/2017 11:30 PM
Surr: DCAA	*97.6*		*30-150*	*%REC*	1	5/26/2017 11:30 PM
TCLP PESTICIDES			**SW8081**		Prep: SW3511 5/25/17 19:20	Analyst: **JF**
Chlordane, Technical	ND		0.50	µg/L	1	5/26/2017 01:51 PM
Endrin	ND		0.020	µg/L	1	5/26/2017 01:51 PM
gamma-BHC (Lindane)	ND		0.010	µg/L	1	5/26/2017 01:51 PM
Heptachlor	ND		0.010	µg/L	1	5/26/2017 01:51 PM
Heptachlor epoxide	ND		0.010	µg/L	1	5/26/2017 01:51 PM
Methoxychlor	ND		0.040	µg/L	1	5/26/2017 01:51 PM
Toxaphene	ND		2.0	µg/L	1	5/26/2017 01:51 PM
Surr: Decachlorobiphenyl	*38.9*	S	*50-150*	*%REC*	1	5/26/2017 01:51 PM
Surr: Tetrachloro-m-xylene	*65.8*		*50-150*	*%REC*	1	5/26/2017 01:51 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/25/17 16:06	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	5/25/2017 04:49 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 5/25/17 16:47	Analyst: **CC**
Arsenic	ND		0.50	mg/L	10	5/26/2017 06:16 AM
Barium	**1.6**		**0.50**	**mg/L**	10	5/26/2017 06:16 AM
Cadmium	ND		1.0	mg/L	10	5/26/2017 06:16 AM
Chromium	ND		0.50	mg/L	10	5/26/2017 06:16 AM
Lead	**4.9**		**0.50**	**mg/L**	10	5/26/2017 06:16 AM
Selenium	ND		1.0	mg/L	10	5/26/2017 06:16 AM
Silver	ND		0.50	mg/L	10	5/26/2017 06:16 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 5/25/17 19:20	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	5/26/2017 01:32 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	5/26/2017 01:32 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	5/26/2017 01:32 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	5/26/2017 01:32 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	5/26/2017 01:32 AM
Hexachlorobenzene	ND		100	µg/L	1	5/26/2017 01:32 AM
Hexachloroethane	ND		100	µg/L	1	5/26/2017 01:32 AM
m-Cresol	ND		100	µg/L	1	5/26/2017 01:32 AM
Nitrobenzene	ND		100	µg/L	1	5/26/2017 01:32 AM
o-Cresol	ND		100	µg/L	1	5/26/2017 01:32 AM
p-Cresol	ND		100	µg/L	1	5/26/2017 01:32 AM
Pentachlorophenol	ND		100	µg/L	1	5/26/2017 01:32 AM
Pyridine	ND		200	µg/L	1	5/26/2017 01:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM02-0"-6" (TCLP) **Lab ID:** 17051193-11
Collection Date: 5/17/2017 11:43 AM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*62.0*		*38-115*	*%REC*	1	5/26/2017 01:32 AM
Surr: 2-Fluorobiphenyl	*55.5*		*32-100*	*%REC*	1	5/26/2017 01:32 AM
Surr: 2-Fluorophenol	*39.3*		*22-59*	*%REC*	1	5/26/2017 01:32 AM
Surr: 4-Terphenyl-d14	*59.1*		*23-112*	*%REC*	1	5/26/2017 01:32 AM
Surr: Nitrobenzene-d5	*51.5*		*31-93*	*%REC*	1	5/26/2017 01:32 AM
Surr: Phenol-d6	*23.0*		*13-36*	*%REC*	1	5/26/2017 01:32 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 5/25/17	Analyst: **LSY**
1,1-Dichloroethene	ND		20	µg/L	20	5/26/2017 03:46 AM
1,2-Dichloroethane	ND		20	µg/L	20	5/26/2017 03:46 AM
2-Butanone	ND		100	µg/L	20	5/26/2017 03:46 AM
Benzene	ND		20	µg/L	20	5/26/2017 03:46 AM
Carbon tetrachloride	ND		20	µg/L	20	5/26/2017 03:46 AM
Chlorobenzene	ND		20	µg/L	20	5/26/2017 03:46 AM
Chloroform	ND		20	µg/L	20	5/26/2017 03:46 AM
Tetrachloroethene	ND		20	µg/L	20	5/26/2017 03:46 AM
Trichloroethene	ND		20	µg/L	20	5/26/2017 03:46 AM
Vinyl chloride	ND		20	µg/L	20	5/26/2017 03:46 AM
Surr: 1,2-Dichloroethane-d4	*99.1*		*70-130*	*%REC*	20	5/26/2017 03:46 AM
Surr: 4-Bromofluorobenzene	*99.4*		*70-130*	*%REC*	20	5/26/2017 03:46 AM
Surr: Dibromofluoromethane	*88.5*		*70-130*	*%REC*	20	5/26/2017 03:46 AM
Surr: Toluene-d8	*105*		*70-130*	*%REC*	20	5/26/2017 03:46 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM02-0"-6" **Lab ID:** 17051193-12
Collection Date: 5/17/2017 11:43 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**	Prep: SW8151M 5/26/17 10:35		Analyst: **KYM**
2,4,5-T	ND		8.7	µg/Kg-dry	1	5/27/2017 08:35 AM
2,4,5-TP (Silvex)	ND		8.7	µg/Kg-dry	1	5/27/2017 08:35 AM
2,4-D	ND		8.7	µg/Kg-dry	1	5/27/2017 08:35 AM
Surr: DCAA	*97.0*		*10-150*	*%REC*	1	5/27/2017 08:35 AM
PCBS			**SW8082**	Prep: SW3546 5/22/17 15:58		Analyst: **EB**
Aroclor 1016	ND		370	µg/Kg-dry	5	5/23/2017 03:01 PM
Aroclor 1221	ND		370	µg/Kg-dry	5	5/23/2017 03:01 PM
Aroclor 1232	ND		370	µg/Kg-dry	5	5/23/2017 03:01 PM
Aroclor 1242	ND		370	µg/Kg-dry	5	5/23/2017 03:01 PM
Aroclor 1248	ND		370	µg/Kg-dry	5	5/23/2017 03:01 PM
Aroclor 1254	ND		370	µg/Kg-dry	5	5/23/2017 03:01 PM
Aroclor 1260	ND		370	µg/Kg-dry	5	5/23/2017 03:01 PM
Surr: Decachlorobiphenyl	*125*		*40-140*	*%REC*	5	5/23/2017 03:01 PM
Surr: Tetrachloro-m-xylene	*57.5*		*45-124*	*%REC*	5	5/23/2017 03:01 PM
PESTICIDES			**SW8081A**	Prep: SW3546 5/22/17 15:58		Analyst: **JF**
4,4'-DDD	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
4,4'-DDE	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
4,4'-DDT	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Aldrin	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
alpha-BHC	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
alpha-Chlordane	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
beta-BHC	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Chlordane, Technical	ND		1,400	µg/Kg-dry	50	5/23/2017 04:13 PM
delta-BHC	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Dieldrin	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Endosulfan I	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Endosulfan II	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Endosulfan sulfate	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Endrin	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Endrin aldehyde	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Endrin ketone	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
gamma-BHC (Lindane)	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
gamma-Chlordane	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Heptachlor	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Heptachlor epoxide	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Methoxychlor	ND		550	µg/Kg-dry	50	5/23/2017 04:13 PM
Toxaphene	ND		3,300	µg/Kg-dry	50	5/23/2017 04:13 PM
Surr: Decachlorobiphenyl	*85.8*		*50-150*	*%REC*	50	5/23/2017 04:13 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM02-0"-6" **Lab ID:** 17051193-12
Collection Date: 5/17/2017 11:43 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*80.8*		*50-150*	*%REC*	50	5/23/2017 04:13 PM
MERCURY BY CVAA			**SW7471B**		Prep: SW7471 5/24/17 14:59	Analyst: **JJB**
Mercury	**1.3**		**0.19**	**mg/Kg-dry**	10	5/25/2017 11:50 AM
METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3050B 5/25/17 15:05	Analyst: **CC**
Arsenic	**5.0**		**0.43**	**mg/Kg-dry**	1	5/26/2017 09:42 AM
Barium	**240**		**0.43**	**mg/Kg-dry**	1	5/26/2017 09:42 AM
Cadmium	**1.4**		**0.87**	**mg/Kg-dry**	1	5/26/2017 09:42 AM
Chromium	**31**		**0.43**	**mg/Kg-dry**	1	5/26/2017 09:42 AM
Lead	**1,100**		**0.43**	**mg/Kg-dry**	1	5/26/2017 09:42 AM
Selenium	**2.9**		**0.87**	**mg/Kg-dry**	1	5/26/2017 09:42 AM
Silver	**9.5**		**0.43**	**mg/Kg-dry**	1	5/26/2017 09:42 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3546 5/24/17 17:10	Analyst: **RM**
1,1`-Biphenyl	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2,2`-Oxybis(1-chloropropane)	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2,4,5-Trichlorophenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2,4,6-Trichlorophenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2,4-Dichlorophenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2,4-Dimethylphenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2,4-Dinitrophenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2,4-Dinitrotoluene	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2,6-Dinitrotoluene	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2-Chloronaphthalene	ND		140	µg/Kg-dry	20	5/26/2017 01:04 AM
2-Chlorophenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2-Methylnaphthalene	ND		140	µg/Kg-dry	20	5/26/2017 01:04 AM
2-Methylphenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2-Nitroaniline	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
2-Nitrophenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
3&4-Methylphenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
3,3´-Dichlorobenzidine	ND		3,600	µg/Kg-dry	20	5/26/2017 01:04 AM
3-Nitroaniline	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
4,6-Dinitro-2-methylphenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
4-Bromophenyl phenyl ether	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
4-Chloro-3-methylphenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
4-Chloroaniline	ND		1,400	µg/Kg-dry	20	5/26/2017 01:04 AM
4-Chlorophenyl phenyl ether	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
4-Nitroaniline	ND		3,600	µg/Kg-dry	20	5/26/2017 01:04 AM
4-Nitrophenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Acenaphthene	ND		140	µg/Kg-dry	20	5/26/2017 01:04 AM
Acenaphthylene	ND		140	µg/Kg-dry	20	5/26/2017 01:04 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM02-0"-6" **Lab ID:** 17051193-12
Collection Date: 5/17/2017 11:43 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acetophenone	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Anthracene	ND		140	µg/Kg-dry	20	5/26/2017 01:04 AM
Atrazine	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Benzaldehyde	ND		1,400	µg/Kg-dry	20	5/26/2017 01:04 AM
Benzo(a)anthracene	**1,000**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Benzo(a)pyrene	**880**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Benzo(b)fluoranthene	**1,400**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Benzo(g,h,i)perylene	**720**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Benzo(k)fluoranthene	**430**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Bis(2-chloroethoxy)methane	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Bis(2-chloroethyl)ether	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Bis(2-ethylhexyl)phthalate	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Butyl benzyl phthalate	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Caprolactam	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Carbazole	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Chrysene	**520**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Dibenzo(a,h)anthracene	**240**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Dibenzofuran	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Diethyl phthalate	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Dimethyl phthalate	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Di-n-butyl phthalate	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Di-n-octyl phthalate	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Fluoranthene	**1,500**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Fluorene	ND		140	µg/Kg-dry	20	5/26/2017 01:04 AM
Hexachlorobenzene	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Hexachlorobutadiene	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Hexachlorocyclopentadiene	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Hexachloroethane	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Indeno(1,2,3-cd)pyrene	**760**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Isophorone	ND		3,600	µg/Kg-dry	20	5/26/2017 01:04 AM
Naphthalene	ND		140	µg/Kg-dry	20	5/26/2017 01:04 AM
Nitrobenzene	ND		3,600	µg/Kg-dry	20	5/26/2017 01:04 AM
N-Nitrosodimethylamine	ND		3,600	µg/Kg-dry	20	5/26/2017 01:04 AM
N-Nitrosodi-n-propylamine	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Pentachlorophenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Phenanthrene	ND		140	µg/Kg-dry	20	5/26/2017 01:04 AM
Phenol	ND		710	µg/Kg-dry	20	5/26/2017 01:04 AM
Pyrene	**1,300**		**140**	**µg/Kg-dry**	20	5/26/2017 01:04 AM
Surr: 2,4,6-Tribromophenol	*55.6*		*34-140*	*%REC*	20	5/26/2017 01:04 AM
Surr: 2-Fluorobiphenyl	*31.6*		*12-100*	*%REC*	20	5/26/2017 01:04 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM02-0"-6" **Lab ID:** 17051193-12
Collection Date: 5/17/2017 11:43 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	*22.8*	S	*33-117*	*%REC*	20	5/26/2017 01:04 AM
Surr: 4-Terphenyl-d14	*60.8*		*25-137*	*%REC*	20	5/26/2017 01:04 AM
Surr: Nitrobenzene-d5	*42.4*		*37-107*	*%REC*	20	5/26/2017 01:04 AM
Surr: Phenol-d6	*19.2*	S	*40-106*	*%REC*	20	5/26/2017 01:04 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 5/22/17 16:33	Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,1,1-Trichloroethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,1,2,2-Tetrachloroethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,1,2-Trichloroethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,1,2-Trichlorotrifluoroethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,1-Dichloroethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,1-Dichloroethene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,2,3-Trichloropropane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,2,4-Trichlorobenzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,2,4-Trimethylbenzene	**82**		**47**	**µg/Kg**	1	5/24/2017 05:45 PM
1,2-Dibromo-3-chloropropane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,2-Dibromoethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,2-Dichlorobenzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,2-Dichloroethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,2-Dichloropropane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,3,5-Trimethylbenzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,3-Dichlorobenzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
1,4-Dichlorobenzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
2-Butanone	ND		310	µg/Kg	1	5/24/2017 05:45 PM
2-Hexanone	ND		47	µg/Kg	1	5/24/2017 05:45 PM
2-Methylnaphthalene	ND		160	µg/Kg	1	5/24/2017 05:45 PM
4-Methyl-2-pentanone	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Acetone	ND		160	µg/Kg	1	5/24/2017 05:45 PM
Acrylonitrile	ND		160	µg/Kg	1	5/24/2017 05:45 PM
Benzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Bromochloromethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Bromodichloromethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Bromoform	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Bromomethane	ND		120	µg/Kg	1	5/24/2017 05:45 PM
Carbon disulfide	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Carbon tetrachloride	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Chlorobenzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Chloroethane	ND		160	µg/Kg	1	5/24/2017 05:45 PM
Chloroform	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Chloromethane	ND		160	µg/Kg	1	5/24/2017 05:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM02-0"-6" **Lab ID:** 17051193-12
Collection Date: 5/17/2017 11:43 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
cis-1,2-Dichloroethene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
cis-1,3-Dichloropropene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Dibromochloromethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Dibromomethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Dichlorodifluoromethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Diethyl ether	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Ethylbenzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Hexachloroethane	ND		160	µg/Kg	1	5/24/2017 05:45 PM
Isopropylbenzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
m,p-Xylene	**180**		**93**	**µg/Kg**	1	5/24/2017 05:45 PM
Methyl iodide	ND		120	µg/Kg	1	5/24/2017 05:45 PM
Methyl tert-butyl ether	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Methylene chloride	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Naphthalene	**170**		**160**	**µg/Kg**	1	5/24/2017 05:45 PM
n-Propylbenzene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
o-Xylene	**120**		**47**	**µg/Kg**	1	5/24/2017 05:45 PM
Styrene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Tetrachloroethene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Toluene	**180**		**47**	**µg/Kg**	1	5/24/2017 05:45 PM
trans-1,2-Dichloroethene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
trans-1,3-Dichloropropene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
trans-1,4-Dichloro-2-butene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Trichloroethene	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Trichlorofluoromethane	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Vinyl acetate	ND		390	µg/Kg	1	5/24/2017 05:45 PM
Vinyl chloride	ND		47	µg/Kg	1	5/24/2017 05:45 PM
Xylenes, Total	**300**		**140**	**µg/Kg**	1	5/24/2017 05:45 PM
Surr: 1,2-Dichloroethane-d4	*101*		*70-130*	*%REC*	1	5/24/2017 05:45 PM
Surr: 4-Bromofluorobenzene	*104*		*70-130*	*%REC*	1	5/24/2017 05:45 PM
Surr: Dibromofluoromethane	*86.6*		*70-130*	*%REC*	1	5/24/2017 05:45 PM
Surr: Toluene-d8	*102*		*70-130*	*%REC*	1	5/24/2017 05:45 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 12:50 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	5/30/2017 09:45 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	5/24/2017 01:00 PM
MOISTURE			**SW3550C**			Analyst: **EDL**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM02-0"-6" **Lab ID:** 17051193-12
Collection Date: 5/17/2017 11:43 AM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Moisture	**11**		**0.050**	**% of sample**	1	5/23/2017 12:17 PM
PH			**SW9045D**	Prep: EXTRACT 5/23/17 11:32		Analyst: **JB**
pH	**7.51**		**0.100**	**s.u.**	1	5/24/2017 12:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM07-0"-6" (TCLP) **Lab ID:** 17051193-13
Collection Date: 5/17/2017 12:12 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 15:14	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	5/30/2017 09:28 AM
2,4-D	**7.4**		**5.0**	**µg/L**	1	5/30/2017 09:28 AM
Surr: DCAA	*106*		*30-150*	*%REC*	1	5/30/2017 09:28 AM
TCLP PESTICIDES			**SW8081**		Prep: SW3511 5/25/17 19:20	Analyst: **JF**
Chlordane, Technical	ND		0.50	µg/L	1	5/26/2017 02:04 PM
Endrin	ND		0.020	µg/L	1	5/26/2017 02:04 PM
gamma-BHC (Lindane)	ND		0.010	µg/L	1	5/26/2017 02:04 PM
Heptachlor	ND		0.010	µg/L	1	5/26/2017 02:04 PM
Heptachlor epoxide	ND		0.010	µg/L	1	5/26/2017 02:04 PM
Methoxychlor	ND		0.040	µg/L	1	5/26/2017 02:04 PM
Toxaphene	ND		2.0	µg/L	1	5/26/2017 02:04 PM
Surr: Decachlorobiphenyl	*29.0*	S	*50-150*	*%REC*	1	5/26/2017 02:04 PM
Surr: Tetrachloro-m-xylene	*55.4*		*50-150*	*%REC*	1	5/26/2017 02:04 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/25/17 16:06	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	5/25/2017 04:51 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 5/25/17 16:47	Analyst: **CC**
Arsenic	ND		0.50	mg/L	10	5/26/2017 06:22 AM
Barium	ND		0.50	mg/L	10	5/26/2017 06:22 AM
Cadmium	ND		1.0	mg/L	10	5/26/2017 06:22 AM
Chromium	ND		0.50	mg/L	10	5/26/2017 06:22 AM
Lead	**0.65**		**0.50**	**mg/L**	10	5/26/2017 06:22 AM
Selenium	ND		1.0	mg/L	10	5/26/2017 06:22 AM
Silver	ND		0.50	mg/L	10	5/26/2017 06:22 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 5/25/17 19:20	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	5/26/2017 01:52 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	5/26/2017 01:52 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	5/26/2017 01:52 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	5/26/2017 01:52 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	5/26/2017 01:52 AM
Hexachlorobenzene	ND		100	µg/L	1	5/26/2017 01:52 AM
Hexachloroethane	ND		100	µg/L	1	5/26/2017 01:52 AM
m-Cresol	ND		100	µg/L	1	5/26/2017 01:52 AM
Nitrobenzene	ND		100	µg/L	1	5/26/2017 01:52 AM
o-Cresol	ND		100	µg/L	1	5/26/2017 01:52 AM
p-Cresol	ND		100	µg/L	1	5/26/2017 01:52 AM
Pentachlorophenol	ND		100	µg/L	1	5/26/2017 01:52 AM
Pyridine	ND		200	µg/L	1	5/26/2017 01:52 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM07-0"-6" (TCLP) **Lab ID:** 17051193-13
Collection Date: 5/17/2017 12:12 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*67.2*		*38-115*	*%REC*	1	5/26/2017 01:52 AM
Surr: 2-Fluorobiphenyl	*48.4*		*32-100*	*%REC*	1	5/26/2017 01:52 AM
Surr: 2-Fluorophenol	*32.2*		*22-59*	*%REC*	1	5/26/2017 01:52 AM
Surr: 4-Terphenyl-d14	*62.0*		*23-112*	*%REC*	1	5/26/2017 01:52 AM
Surr: Nitrobenzene-d5	*44.1*		*31-93*	*%REC*	1	5/26/2017 01:52 AM
Surr: Phenol-d6	*19.7*		*13-36*	*%REC*	1	5/26/2017 01:52 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 5/25/17	Analyst: **LSY**
1,1-Dichloroethene	ND		20	µg/L	20	5/26/2017 04:32 AM
1,2-Dichloroethane	ND		20	µg/L	20	5/26/2017 04:32 AM
2-Butanone	ND		100	µg/L	20	5/26/2017 04:32 AM
Benzene	ND		20	µg/L	20	5/26/2017 04:32 AM
Carbon tetrachloride	ND		20	µg/L	20	5/26/2017 04:32 AM
Chlorobenzene	ND		20	µg/L	20	5/26/2017 04:32 AM
Chloroform	ND		20	µg/L	20	5/26/2017 04:32 AM
Tetrachloroethene	ND		20	µg/L	20	5/26/2017 04:32 AM
Trichloroethene	ND		20	µg/L	20	5/26/2017 04:32 AM
Vinyl chloride	ND		20	µg/L	20	5/26/2017 04:32 AM
Surr: 1,2-Dichloroethane-d4	*100*		*70-130*	*%REC*	20	5/26/2017 04:32 AM
Surr: 4-Bromofluorobenzene	*98.7*		*70-130*	*%REC*	20	5/26/2017 04:32 AM
Surr: Dibromofluoromethane	*87.4*		*70-130*	*%REC*	20	5/26/2017 04:32 AM
Surr: Toluene-d8	*106*		*70-130*	*%REC*	20	5/26/2017 04:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM07-0"-6" **Lab ID:** 17051193-14
Collection Date: 5/17/2017 12:12 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**	Prep: SW8151M 5/26/17 10:35		Analyst: **KYM**
2,4,5-T	ND		8.1	µg/Kg-dry	1	5/27/2017 08:52 AM
2,4,5-TP (Silvex)	ND		8.1	µg/Kg-dry	1	5/27/2017 08:52 AM
2,4-D	ND		8.1	µg/Kg-dry	1	5/27/2017 08:52 AM
Surr: DCAA	*132*		*10-150*	*%REC*	1	5/27/2017 08:52 AM
PCBS			**SW8082**	Prep: SW3546 5/22/17 15:58		Analyst: **EB**
Aroclor 1016	ND		350	µg/Kg-dry	5	5/23/2017 03:15 PM
Aroclor 1221	ND		350	µg/Kg-dry	5	5/23/2017 03:15 PM
Aroclor 1232	ND		350	µg/Kg-dry	5	5/23/2017 03:15 PM
Aroclor 1242	ND		350	µg/Kg-dry	5	5/23/2017 03:15 PM
Aroclor 1248	ND		350	µg/Kg-dry	5	5/23/2017 03:15 PM
Aroclor 1254	ND		350	µg/Kg-dry	5	5/23/2017 03:15 PM
Aroclor 1260	ND		350	µg/Kg-dry	5	5/23/2017 03:15 PM
Surr: Decachlorobiphenyl	*56.4*		*40-140*	*%REC*	5	5/23/2017 03:15 PM
Surr: Tetrachloro-m-xylene	*58.9*		*45-124*	*%REC*	5	5/23/2017 03:15 PM
PESTICIDES			**SW8081A**	Prep: SW3546 5/22/17 15:58		Analyst: **JF**
4,4'-DDD	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
4,4'-DDE	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
4,4'-DDT	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Aldrin	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
alpha-BHC	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
alpha-Chlordane	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
beta-BHC	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Chlordane, Technical	ND		1,300	µg/Kg-dry	50	5/23/2017 04:39 PM
delta-BHC	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Dieldrin	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Endosulfan I	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Endosulfan II	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Endosulfan sulfate	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Endrin	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Endrin aldehyde	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Endrin ketone	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
gamma-BHC (Lindane)	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
gamma-Chlordane	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Heptachlor	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Heptachlor epoxide	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Methoxychlor	ND		520	µg/Kg-dry	50	5/23/2017 04:39 PM
Toxaphene	ND		3,100	µg/Kg-dry	50	5/23/2017 04:39 PM
Surr: Decachlorobiphenyl	*83.8*		*50-150*	*%REC*	50	5/23/2017 04:39 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM07-0"-6" **Lab ID:** 17051193-14
Collection Date: 5/17/2017 12:12 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*86.6*		*50-150*	*%REC*	50	5/23/2017 04:39 PM
MERCURY BY CVAA			**SW7471B**	Prep: SW7471 5/24/17 14:59		Analyst: **JJB**
Mercury	**0.48**		**0.080**	**mg/Kg-dry**	5	5/25/2017 11:52 AM
METALS ANALYSIS BY ICP			**SW846 6010C**	Prep: SW3050B 5/25/17 15:05		Analyst: **CC**
Arsenic	**5.0**		**4.0**	**mg/Kg-dry**	10	5/31/2017 09:18 AM
Barium	**11**		**0.40**	**mg/Kg-dry**	1	5/26/2017 09:55 AM
Cadmium	ND		8.1	mg/Kg-dry	10	5/31/2017 09:18 AM
Chromium	**25**		**4.0**	**mg/Kg-dry**	10	5/31/2017 09:18 AM
Lead	**260**		**4.0**	**mg/Kg-dry**	10	5/31/2017 09:18 AM
Selenium	**2.5**		**0.81**	**mg/Kg-dry**	1	5/26/2017 09:55 AM
Silver	**4.0**		**0.40**	**mg/Kg-dry**	1	5/26/2017 09:55 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**	Prep: SW3546 5/24/17 17:10		Analyst: **RM**
1,1`-Biphenyl	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2,2`-Oxybis(1-chloropropane)	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2,4,5-Trichlorophenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2,4,6-Trichlorophenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2,4-Dichlorophenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2,4-Dimethylphenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2,4-Dinitrophenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2,4-Dinitrotoluene	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2,6-Dinitrotoluene	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2-Chloronaphthalene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
2-Chlorophenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2-Methylnaphthalene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
2-Methylphenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2-Nitroaniline	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
2-Nitrophenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
3&4-Methylphenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
3,3´-Dichlorobenzidine	ND		14,000	µg/Kg-dry	20	5/25/2017 11:55 PM
3-Nitroaniline	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
4,6-Dinitro-2-methylphenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
4-Bromophenyl phenyl ether	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
4-Chloro-3-methylphenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
4-Chloroaniline	ND		5,500	µg/Kg-dry	20	5/25/2017 11:55 PM
4-Chlorophenyl phenyl ether	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
4-Nitroaniline	ND		14,000	µg/Kg-dry	20	5/25/2017 11:55 PM
4-Nitrophenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Acenaphthene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Acenaphthylene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM07-0"-6" **Lab ID:** 17051193-14
Collection Date: 5/17/2017 12:12 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acetophenone	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Anthracene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Atrazine	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Benzaldehyde	ND		5,500	µg/Kg-dry	20	5/25/2017 11:55 PM
Benzo(a)anthracene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Benzo(a)pyrene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Benzo(b)fluoranthene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Benzo(g,h,i)perylene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Benzo(k)fluoranthene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Bis(2-chloroethoxy)methane	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Bis(2-chloroethyl)ether	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Bis(2-ethylhexyl)phthalate	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Butyl benzyl phthalate	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Caprolactam	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Carbazole	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Chrysene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Dibenzo(a,h)anthracene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Dibenzofuran	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Diethyl phthalate	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Dimethyl phthalate	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Di-n-butyl phthalate	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Di-n-octyl phthalate	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Fluoranthene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Fluorene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Hexachlorobenzene	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Hexachlorobutadiene	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Hexachlorocyclopentadiene	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Hexachloroethane	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Indeno(1,2,3-cd)pyrene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Isophorone	ND		14,000	µg/Kg-dry	20	5/25/2017 11:55 PM
Naphthalene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Nitrobenzene	ND		14,000	µg/Kg-dry	20	5/25/2017 11:55 PM
N-Nitrosodimethylamine	ND		14,000	µg/Kg-dry	20	5/25/2017 11:55 PM
N-Nitrosodi-n-propylamine	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Pentachlorophenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Phenanthrene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Phenol	ND		2,700	µg/Kg-dry	20	5/25/2017 11:55 PM
Pyrene	ND		550	µg/Kg-dry	20	5/25/2017 11:55 PM
Surr: 2,4,6-Tribromophenol	*94.4*		*34-140*	*%REC*	20	5/25/2017 11:55 PM
Surr: 2-Fluorobiphenyl	*0*	S	*12-100*	*%REC*	20	5/25/2017 11:55 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM07-0"-6" **Lab ID:** 17051193-14
Collection Date: 5/17/2017 12:12 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	*0*	S	*33-117*	*%REC*	20	5/25/2017 11:55 PM
Surr: 4-Terphenyl-d14	*83.2*		*25-137*	*%REC*	20	5/25/2017 11:55 PM
Surr: Nitrobenzene-d5	*84.8*		*37-107*	*%REC*	20	5/25/2017 11:55 PM
Surr: Phenol-d6	*0*	S	*40-106*	*%REC*	20	5/25/2017 11:55 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 5/22/17 16:33	Analyst: **LSY**
1,1,1,2-Tetrachloroethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,1,1-Trichloroethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,1,2,2-Tetrachloroethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,1,2-Trichloroethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,1,2-Trichlorotrifluoroethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,1-Dichloroethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,1-Dichloroethene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,2,3-Trichloropropane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,2,4-Trichlorobenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,2,4-Trimethylbenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,2-Dibromo-3-chloropropane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,2-Dibromoethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,2-Dichlorobenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,2-Dichloroethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,2-Dichloropropane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,3,5-Trimethylbenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,3-Dichlorobenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
1,4-Dichlorobenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
2-Butanone	ND		280	µg/Kg	1	5/26/2017 01:03 AM
2-Hexanone	ND		41	µg/Kg	1	5/26/2017 01:03 AM
2-Methylnaphthalene	ND		140	µg/Kg	1	5/26/2017 01:03 AM
4-Methyl-2-pentanone	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Acetone	ND		140	µg/Kg	1	5/26/2017 01:03 AM
Acrylonitrile	ND		140	µg/Kg	1	5/26/2017 01:03 AM
Benzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Bromochloromethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Bromodichloromethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Bromoform	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Bromomethane	ND		100	µg/Kg	1	5/26/2017 01:03 AM
Carbon disulfide	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Carbon tetrachloride	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Chlorobenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Chloroethane	ND		140	µg/Kg	1	5/26/2017 01:03 AM
Chloroform	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Chloromethane	ND		140	µg/Kg	1	5/26/2017 01:03 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM07-0"-6" **Lab ID:** 17051193-14
Collection Date: 5/17/2017 12:12 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
cis-1,2-Dichloroethene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
cis-1,3-Dichloropropene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Dibromochloromethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Dibromomethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Dichlorodifluoromethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Diethyl ether	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Ethylbenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Hexachloroethane	ND		140	µg/Kg	1	5/26/2017 01:03 AM
Isopropylbenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
m,p-Xylene	ND		83	µg/Kg	1	5/26/2017 01:03 AM
Methyl iodide	ND		100	µg/Kg	1	5/26/2017 01:03 AM
Methyl tert-butyl ether	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Methylene chloride	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Naphthalene	ND		140	µg/Kg	1	5/26/2017 01:03 AM
n-Propylbenzene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
o-Xylene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Styrene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Tetrachloroethene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Toluene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
trans-1,2-Dichloroethene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
trans-1,3-Dichloropropene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
trans-1,4-Dichloro-2-butene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Trichloroethene	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Trichlorofluoromethane	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Vinyl acetate	ND		350	µg/Kg	1	5/26/2017 01:03 AM
Vinyl chloride	ND		41	µg/Kg	1	5/26/2017 01:03 AM
Xylenes, Total	ND		120	µg/Kg	1	5/26/2017 01:03 AM
Surr: 1,2-Dichloroethane-d4	*102*		*70-130*	*%REC*	1	5/26/2017 01:03 AM
Surr: 4-Bromofluorobenzene	*101*		*70-130*	*%REC*	1	5/26/2017 01:03 AM
Surr: Dibromofluoromethane	*87.8*		*70-130*	*%REC*	1	5/26/2017 01:03 AM
Surr: Toluene-d8	*103*		*70-130*	*%REC*	1	5/26/2017 01:03 AM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 12:50 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	5/30/2017 09:45 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	5/24/2017 01:00 PM
MOISTURE			**SW3550C**			Analyst: **EDL**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - RPM07-0"-6" **Lab ID:** 17051193-14
Collection Date: 5/17/2017 12:12 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Moisture	**4.8**		**0.050**	**% of sample**	1	5/23/2017 03:34 PM
PH			**SW9045D**	Prep: EXTRACT 5/23/17 11:32		Analyst: **JB**
pH	**6.45**		**0.100**	**s.u.**	1	5/24/2017 12:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM03-0"-6" (TCLP) **Lab ID:** 17051193-15
Collection Date: 5/17/2017 04:30 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 15:14	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	5/30/2017 09:44 AM
2,4-D	**7.4**		**5.0**	**µg/L**	1	5/30/2017 09:44 AM
Surr: DCAA	*98.6*		*30-150*	*%REC*	1	5/30/2017 09:44 AM
TCLP PESTICIDES			**SW8081**		Prep: SW3511 5/25/17 19:20	Analyst: **JF**
Chlordane, Technical	ND		0.50	µg/L	1	5/26/2017 02:18 PM
Endrin	ND		0.020	µg/L	1	5/26/2017 02:18 PM
gamma-BHC (Lindane)	ND		0.010	µg/L	1	5/26/2017 02:18 PM
Heptachlor	ND		0.010	µg/L	1	5/26/2017 02:18 PM
Heptachlor epoxide	ND		0.010	µg/L	1	5/26/2017 02:18 PM
Methoxychlor	ND		0.040	µg/L	1	5/26/2017 02:18 PM
Toxaphene	ND		2.0	µg/L	1	5/26/2017 02:18 PM
Surr: Decachlorobiphenyl	*19.1*	S	*50-150*	*%REC*	1	5/26/2017 02:18 PM
Surr: Tetrachloro-m-xylene	*49.9*	S	*50-150*	*%REC*	1	5/26/2017 02:18 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/25/17 16:06	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	5/25/2017 04:54 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 5/25/17 16:47	Analyst: **CC**
Arsenic	ND		0.50	mg/L	10	5/26/2017 06:28 AM
Barium	ND		0.50	mg/L	10	5/26/2017 06:28 AM
Cadmium	ND		1.0	mg/L	10	5/26/2017 06:28 AM
Chromium	ND		0.50	mg/L	10	5/26/2017 06:28 AM
Lead	ND		0.50	mg/L	10	5/26/2017 06:28 AM
Selenium	ND		1.0	mg/L	10	5/26/2017 06:28 AM
Silver	ND		0.50	mg/L	10	5/26/2017 06:28 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 5/25/17 19:20	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	5/26/2017 02:12 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	5/26/2017 02:12 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	5/26/2017 02:12 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	5/26/2017 02:12 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	5/26/2017 02:12 AM
Hexachlorobenzene	ND		100	µg/L	1	5/26/2017 02:12 AM
Hexachloroethane	ND		100	µg/L	1	5/26/2017 02:12 AM
m-Cresol	ND		100	µg/L	1	5/26/2017 02:12 AM
Nitrobenzene	ND		100	µg/L	1	5/26/2017 02:12 AM
o-Cresol	ND		100	µg/L	1	5/26/2017 02:12 AM
p-Cresol	ND		100	µg/L	1	5/26/2017 02:12 AM
Pentachlorophenol	ND		100	µg/L	1	5/26/2017 02:12 AM
Pyridine	ND		200	µg/L	1	5/26/2017 02:12 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM03-0"-6" (TCLP) **Lab ID:** 17051193-15
Collection Date: 5/17/2017 04:30 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*64.2*		*38-115*	*%REC*	1	5/26/2017 02:12 AM
Surr: 2-Fluorobiphenyl	*60.6*		*32-100*	*%REC*	1	5/26/2017 02:12 AM
Surr: 2-Fluorophenol	*40.1*		*22-59*	*%REC*	1	5/26/2017 02:12 AM
Surr: 4-Terphenyl-d14	*65.6*		*23-112*	*%REC*	1	5/26/2017 02:12 AM
Surr: Nitrobenzene-d5	*54.4*		*31-93*	*%REC*	1	5/26/2017 02:12 AM
Surr: Phenol-d6	*23.7*		*13-36*	*%REC*	1	5/26/2017 02:12 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 5/25/17	Analyst: **LSY**
1,1-Dichloroethene	ND		20	µg/L	20	5/26/2017 06:52 AM
1,2-Dichloroethane	ND		20	µg/L	20	5/26/2017 06:52 AM
2-Butanone	ND		100	µg/L	20	5/26/2017 06:52 AM
Benzene	ND		20	µg/L	20	5/26/2017 06:52 AM
Carbon tetrachloride	ND		20	µg/L	20	5/26/2017 06:52 AM
Chlorobenzene	ND		20	µg/L	20	5/26/2017 06:52 AM
Chloroform	ND		20	µg/L	20	5/26/2017 06:52 AM
Tetrachloroethene	ND		20	µg/L	20	5/26/2017 06:52 AM
Trichloroethene	ND		20	µg/L	20	5/26/2017 06:52 AM
Vinyl chloride	ND		20	µg/L	20	5/26/2017 06:52 AM
Surr: 1,2-Dichloroethane-d4	*103*		*70-130*	*%REC*	20	5/26/2017 06:52 AM
Surr: 4-Bromofluorobenzene	*100*		*70-130*	*%REC*	20	5/26/2017 06:52 AM
Surr: Dibromofluoromethane	*88.6*		*70-130*	*%REC*	20	5/26/2017 06:52 AM
Surr: Toluene-d8	*105*		*70-130*	*%REC*	20	5/26/2017 06:52 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM03-0"-6" **Lab ID:** 17051193-16
Collection Date: 5/17/2017 04:30 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**	Prep: SW8151M 5/26/17 10:35		Analyst: **KYM**
2,4,5-T	ND		7.6	µg/Kg-dry	1	5/27/2017 09:08 AM
2,4,5-TP (Silvex)	ND		7.6	µg/Kg-dry	1	5/27/2017 09:08 AM
2,4-D	ND		7.6	µg/Kg-dry	1	5/27/2017 09:08 AM
Surr: DCAA	*101*		*10-150*	*%REC*	1	5/27/2017 09:08 AM
PCBS			**SW8082**	Prep: SW3546 5/22/17 15:58		Analyst: **EB**
Aroclor 1016	ND		77	µg/Kg-dry	1	5/23/2017 03:30 PM
Aroclor 1221	ND		77	µg/Kg-dry	1	5/23/2017 03:30 PM
Aroclor 1232	ND		77	µg/Kg-dry	1	5/23/2017 03:30 PM
Aroclor 1242	ND		77	µg/Kg-dry	1	5/23/2017 03:30 PM
Aroclor 1248	ND		77	µg/Kg-dry	1	5/23/2017 03:30 PM
Aroclor 1254	ND		77	µg/Kg-dry	1	5/23/2017 03:30 PM
Aroclor 1260	ND		77	µg/Kg-dry	1	5/23/2017 03:30 PM
Surr: Decachlorobiphenyl	*77.2*		*40-140*	*%REC*	1	5/23/2017 03:30 PM
Surr: Tetrachloro-m-xylene	*87.2*		*45-124*	*%REC*	1	5/23/2017 03:30 PM
PESTICIDES			**SW8081A**	Prep: SW3546 5/22/17 15:58		Analyst: **JF**
4,4'-DDD	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
4,4'-DDE	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
4,4'-DDT	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Aldrin	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
alpha-BHC	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
alpha-Chlordane	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
beta-BHC	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Chlordane, Technical	ND		29	µg/Kg-dry	1	5/23/2017 03:21 PM
delta-BHC	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Dieldrin	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Endosulfan I	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Endosulfan II	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Endosulfan sulfate	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Endrin	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Endrin aldehyde	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Endrin ketone	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
gamma-BHC (Lindane)	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
gamma-Chlordane	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Heptachlor	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Heptachlor epoxide	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Methoxychlor	ND		12	µg/Kg-dry	1	5/23/2017 03:21 PM
Toxaphene	ND		70	µg/Kg-dry	1	5/23/2017 03:21 PM
Surr: Decachlorobiphenyl	*77.5*		*50-150*	*%REC*	1	5/23/2017 03:21 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM03-0"-6" **Lab ID:** 17051193-16
Collection Date: 5/17/2017 04:30 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*77.2*		*50-150*	*%REC*	1	5/23/2017 03:21 PM
MERCURY BY CVAA			**SW7471B**		Prep: SW7471 5/24/17 14:59	Analyst: **JJB**
Mercury	**0.092**		**0.018**	**mg/Kg-dry**	1	5/25/2017 10:41 AM
METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3050B 5/25/17 15:05	Analyst: **CC**
Arsenic	**1.3**		**0.45**	**mg/Kg-dry**	1	5/26/2017 11:07 AM
Barium	**7.4**		**0.45**	**mg/Kg-dry**	1	5/26/2017 11:07 AM
Cadmium	ND		0.90	mg/Kg-dry	1	5/26/2017 11:07 AM
Chromium	**10**		**0.45**	**mg/Kg-dry**	1	5/26/2017 11:07 AM
Lead	**5.2**		**0.45**	**mg/Kg-dry**	1	5/26/2017 11:07 AM
Selenium	**1.4**		**0.90**	**mg/Kg-dry**	1	5/26/2017 11:07 AM
Silver	ND		0.45	mg/Kg-dry	1	5/26/2017 11:07 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3546 5/24/17 17:10	Analyst: **RM**
1,1`-Biphenyl	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2,2`-Oxybis(1-chloropropane)	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2,4,5-Trichlorophenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2,4,6-Trichlorophenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2,4-Dichlorophenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2,4-Dimethylphenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2,4-Dinitrophenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2,4-Dinitrotoluene	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2,6-Dinitrotoluene	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2-Chloronaphthalene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
2-Chlorophenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2-Methylnaphthalene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
2-Methylphenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2-Nitroaniline	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
2-Nitrophenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
3&4-Methylphenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
3,3´-Dichlorobenzidine	ND		190	µg/Kg-dry	1	5/25/2017 09:37 PM
3-Nitroaniline	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
4,6-Dinitro-2-methylphenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
4-Bromophenyl phenyl ether	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
4-Chloro-3-methylphenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
4-Chloroaniline	ND		78	µg/Kg-dry	1	5/25/2017 09:37 PM
4-Chlorophenyl phenyl ether	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
4-Nitroaniline	ND		190	µg/Kg-dry	1	5/25/2017 09:37 PM
4-Nitrophenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Acenaphthene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
Acenaphthylene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM03-0"-6" **Lab ID:** 17051193-16
Collection Date: 5/17/2017 04:30 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acetophenone	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Anthracene	**19**		**7.8**	**µg/Kg-dry**	1	5/25/2017 09:37 PM
Atrazine	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Benzaldehyde	ND		78	µg/Kg-dry	1	5/25/2017 09:37 PM
Benzo(a)anthracene	**24**		**7.8**	**µg/Kg-dry**	1	5/25/2017 09:37 PM
Benzo(a)pyrene	**18**		**7.8**	**µg/Kg-dry**	1	5/25/2017 09:37 PM
Benzo(b)fluoranthene	**14**		**7.8**	**µg/Kg-dry**	1	5/25/2017 09:37 PM
Benzo(g,h,i)perylene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
Benzo(k)fluoranthene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
Bis(2-chloroethoxy)methane	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Bis(2-chloroethyl)ether	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Bis(2-ethylhexyl)phthalate	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Butyl benzyl phthalate	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Caprolactam	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Carbazole	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Chrysene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
Dibenzo(a,h)anthracene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
Dibenzofuran	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Diethyl phthalate	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Dimethyl phthalate	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Di-n-butyl phthalate	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Di-n-octyl phthalate	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Fluoranthene	**28**		**7.8**	**µg/Kg-dry**	1	5/25/2017 09:37 PM
Fluorene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
Hexachlorobenzene	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Hexachlorobutadiene	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Hexachlorocyclopentadiene	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Hexachloroethane	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Indeno(1,2,3-cd)pyrene	**9.3**		**7.8**	**µg/Kg-dry**	1	5/25/2017 09:37 PM
Isophorone	ND		190	µg/Kg-dry	1	5/25/2017 09:37 PM
Naphthalene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
Nitrobenzene	ND		190	µg/Kg-dry	1	5/25/2017 09:37 PM
N-Nitrosodimethylamine	ND		190	µg/Kg-dry	1	5/25/2017 09:37 PM
N-Nitrosodi-n-propylamine	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Pentachlorophenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Phenanthrene	ND		7.8	µg/Kg-dry	1	5/25/2017 09:37 PM
Phenol	ND		38	µg/Kg-dry	1	5/25/2017 09:37 PM
Pyrene	**24**		**7.8**	**µg/Kg-dry**	1	5/25/2017 09:37 PM
Surr: 2,4,6-Tribromophenol	*61.0*		*34-140*	*%REC*	1	5/25/2017 09:37 PM
Surr: 2-Fluorobiphenyl	*46.8*		*12-100*	*%REC*	1	5/25/2017 09:37 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM03-0"-6" **Lab ID:** 17051193-16
Collection Date: 5/17/2017 04:30 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	*43.9*		*33-117*	*%REC*	1	5/25/2017 09:37 PM
Surr: 4-Terphenyl-d14	*75.5*		*25-137*	*%REC*	1	5/25/2017 09:37 PM
Surr: Nitrobenzene-d5	*41.3*		*37-107*	*%REC*	1	5/25/2017 09:37 PM
Surr: Phenol-d6	*44.2*		*40-106*	*%REC*	1	5/25/2017 09:37 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 5/22/17 16:33	Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,1,1-Trichloroethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,1,2,2-Tetrachloroethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,1,2-Trichloroethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,1,2-Trichlorotrifluoroethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,1-Dichloroethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,1-Dichloroethene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,2,3-Trichloropropane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,2,4-Trichlorobenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,2,4-Trimethylbenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,2-Dibromo-3-chloropropane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,2-Dibromoethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,2-Dichlorobenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,2-Dichloroethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,2-Dichloropropane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,3,5-Trimethylbenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,3-Dichlorobenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
1,4-Dichlorobenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
2-Butanone	ND		280	µg/Kg	1	5/24/2017 06:32 PM
2-Hexanone	ND		41	µg/Kg	1	5/24/2017 06:32 PM
2-Methylnaphthalene	ND		140	µg/Kg	1	5/24/2017 06:32 PM
4-Methyl-2-pentanone	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Acetone	ND		140	µg/Kg	1	5/24/2017 06:32 PM
Acrylonitrile	ND		140	µg/Kg	1	5/24/2017 06:32 PM
Benzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Bromochloromethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Bromodichloromethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Bromoform	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Bromomethane	ND		100	µg/Kg	1	5/24/2017 06:32 PM
Carbon disulfide	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Carbon tetrachloride	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Chlorobenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Chloroethane	ND		140	µg/Kg	1	5/24/2017 06:32 PM
Chloroform	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Chloromethane	ND		140	µg/Kg	1	5/24/2017 06:32 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM03-0"-6" **Lab ID:** 17051193-16
Collection Date: 5/17/2017 04:30 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
cis-1,2-Dichloroethene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
cis-1,3-Dichloropropene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Dibromochloromethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Dibromomethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Dichlorodifluoromethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Diethyl ether	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Ethylbenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Hexachloroethane	ND		140	µg/Kg	1	5/24/2017 06:32 PM
Isopropylbenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
m,p-Xylene	ND		83	µg/Kg	1	5/24/2017 06:32 PM
Methyl iodide	ND		100	µg/Kg	1	5/24/2017 06:32 PM
Methyl tert-butyl ether	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Methylene chloride	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Naphthalene	ND		140	µg/Kg	1	5/24/2017 06:32 PM
n-Propylbenzene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
o-Xylene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Styrene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Tetrachloroethene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Toluene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
trans-1,2-Dichloroethene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
trans-1,3-Dichloropropene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
trans-1,4-Dichloro-2-butene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Trichloroethene	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Trichlorofluoromethane	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Vinyl acetate	ND		350	µg/Kg	1	5/24/2017 06:32 PM
Vinyl chloride	ND		41	µg/Kg	1	5/24/2017 06:32 PM
Xylenes, Total	ND		120	µg/Kg	1	5/24/2017 06:32 PM
Surr: 1,2-Dichloroethane-d4	*100*		*70-130*	*%REC*	1	5/24/2017 06:32 PM
Surr: 4-Bromofluorobenzene	*105*		*70-130*	*%REC*	1	5/24/2017 06:32 PM
Surr: Dibromofluoromethane	*83.8*		*70-130*	*%REC*	1	5/24/2017 06:32 PM
Surr: Toluene-d8	*102*		*70-130*	*%REC*	1	5/24/2017 06:32 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		120	mg/Kg-dry	1	5/26/2017 12:50 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	5/30/2017 09:45 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	5/24/2017 01:00 PM
MOISTURE			**SW3550C**			Analyst: **EDL**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM03-0"-6" **Lab ID:** 17051193-16
Collection Date: 5/17/2017 04:30 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Moisture	**16**		**0.050**	**% of sample**	1	5/23/2017 03:34 PM
PH			**SW9045D**	Prep: EXTRACT 5/23/17 11:32		Analyst: **JB**
pH	**7.10**		**0.100**	**s.u.**	1	5/24/2017 12:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		120	mg/Kg-dry	1	5/26/2017 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM02-0"-6" (TCLP) **Lab ID:** 17051193-17
Collection Date: 5/17/2017 04:50 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP HERBICIDES			**SW8151**		Prep: SW8151M 5/26/17 15:14	Analyst: **KYM**
2,4,5-TP (Silvex)	ND		5.0	µg/L	1	5/30/2017 10:01 AM
2,4-D	ND		5.0	µg/L	1	5/30/2017 10:01 AM
Surr: DCAA	*99.6*		*30-150*	*%REC*	1	5/30/2017 10:01 AM
TCLP PESTICIDES			**SW8081**		Prep: SW3511 5/25/17 19:20	Analyst: **JF**
Chlordane, Technical	ND		0.50	µg/L	1	5/26/2017 02:31 PM
Endrin	ND		0.020	µg/L	1	5/26/2017 02:31 PM
gamma-BHC (Lindane)	ND		0.010	µg/L	1	5/26/2017 02:31 PM
Heptachlor	ND		0.010	µg/L	1	5/26/2017 02:31 PM
Heptachlor epoxide	ND		0.010	µg/L	1	5/26/2017 02:31 PM
Methoxychlor	ND		0.040	µg/L	1	5/26/2017 02:31 PM
Toxaphene	ND		2.0	µg/L	1	5/26/2017 02:31 PM
Surr: Decachlorobiphenyl	*43.8*	S	*50-150*	*%REC*	1	5/26/2017 02:31 PM
Surr: Tetrachloro-m-xylene	*60.8*		*50-150*	*%REC*	1	5/26/2017 02:31 PM
TCLP MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/25/17 16:06	Analyst: **JJB**
Mercury	ND		0.0020	mg/L	1	5/25/2017 04:56 PM
TCLP METALS ANALYSIS BY ICP			**SW846 6010C**		Prep: SW3005A 5/25/17 16:47	Analyst: **CC**
Arsenic	ND		0.50	mg/L	10	5/26/2017 06:35 AM
Barium	ND		0.50	mg/L	10	5/26/2017 06:35 AM
Cadmium	ND		1.0	mg/L	10	5/26/2017 06:35 AM
Chromium	ND		0.50	mg/L	10	5/26/2017 06:35 AM
Lead	ND		0.50	mg/L	10	5/26/2017 06:35 AM
Selenium	ND		1.0	mg/L	10	5/26/2017 06:35 AM
Silver	ND		0.50	mg/L	10	5/26/2017 06:35 AM
TCLP SEMI-VOLATILE ORGANICS			**SW8270D**		Prep: SW3510 5/25/17 19:20	Analyst: **RM**
1,4-Dichlorobenzene	ND		100	µg/L	1	5/26/2017 02:32 AM
2,4,5-Trichlorophenol	ND		100	µg/L	1	5/26/2017 02:32 AM
2,4,6-Trichlorophenol	ND		100	µg/L	1	5/26/2017 02:32 AM
2,4-Dinitrotoluene	ND		100	µg/L	1	5/26/2017 02:32 AM
Hexachloro-1,3-butadiene	ND		100	µg/L	1	5/26/2017 02:32 AM
Hexachlorobenzene	ND		100	µg/L	1	5/26/2017 02:32 AM
Hexachloroethane	ND		100	µg/L	1	5/26/2017 02:32 AM
m-Cresol	ND		100	µg/L	1	5/26/2017 02:32 AM
Nitrobenzene	ND		100	µg/L	1	5/26/2017 02:32 AM
o-Cresol	ND		100	µg/L	1	5/26/2017 02:32 AM
p-Cresol	ND		100	µg/L	1	5/26/2017 02:32 AM
Pentachlorophenol	ND		100	µg/L	1	5/26/2017 02:32 AM
Pyridine	ND		200	µg/L	1	5/26/2017 02:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM02-0"-6" (TCLP) **Lab ID:** 17051193-17
Collection Date: 5/17/2017 04:50 PM **Matrix:** TCLP EXTRACT

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2,4,6-Tribromophenol	*59.1*		*38-115*	*%REC*	1	5/26/2017 02:32 AM
Surr: 2-Fluorobiphenyl	*52.7*		*32-100*	*%REC*	1	5/26/2017 02:32 AM
Surr: 2-Fluorophenol	*39.8*		*22-59*	*%REC*	1	5/26/2017 02:32 AM
Surr: 4-Terphenyl-d14	*57.2*		*23-112*	*%REC*	1	5/26/2017 02:32 AM
Surr: Nitrobenzene-d5	*50.0*		*31-93*	*%REC*	1	5/26/2017 02:32 AM
Surr: Phenol-d6	*22.6*		*13-36*	*%REC*	1	5/26/2017 02:32 AM
TCLP VOLATILE ORGANICS			**SW8260B**		Leachate: SW1311 / 5/25/17	Analyst: **LSY**
1,1-Dichloroethene	ND		20	µg/L	20	5/26/2017 05:42 AM
1,2-Dichloroethane	ND		20	µg/L	20	5/26/2017 05:42 AM
2-Butanone	ND		100	µg/L	20	5/26/2017 05:42 AM
Benzene	ND		20	µg/L	20	5/26/2017 05:42 AM
Carbon tetrachloride	ND		20	µg/L	20	5/26/2017 05:42 AM
Chlorobenzene	ND		20	µg/L	20	5/26/2017 05:42 AM
Chloroform	ND		20	µg/L	20	5/26/2017 05:42 AM
Tetrachloroethene	ND		20	µg/L	20	5/26/2017 05:42 AM
Trichloroethene	ND		20	µg/L	20	5/26/2017 05:42 AM
Vinyl chloride	ND		20	µg/L	20	5/26/2017 05:42 AM
Surr: 1,2-Dichloroethane-d4	*101*		*70-130*	*%REC*	20	5/26/2017 05:42 AM
Surr: 4-Bromofluorobenzene	*98.0*		*70-130*	*%REC*	20	5/26/2017 05:42 AM
Surr: Dibromofluoromethane	*87.4*		*70-130*	*%REC*	20	5/26/2017 05:42 AM
Surr: Toluene-d8	*104*		*70-130*	*%REC*	20	5/26/2017 05:42 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM02-0"-6" **Lab ID:** 17051193-18
Collection Date: 5/17/2017 04:50 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
HERBICIDES			**SW8151**	Prep: SW8151M 5/26/17 10:35		Analyst: **KYM**
2,4,5-T	ND		5.3	µg/Kg-dry	1	5/27/2017 09:25 AM
2,4,5-TP (Silvex)	ND		5.3	µg/Kg-dry	1	5/27/2017 09:25 AM
2,4-D	**60**		**5.3**	**µg/Kg-dry**	1	5/27/2017 09:25 AM
Surr: DCAA	*80.0*		*10-150*	*%REC*	1	5/27/2017 09:25 AM
PCBS			**SW8082**	Prep: SW3546 5/22/17 15:58		Analyst: **EB**
Aroclor 1016	ND		71	µg/Kg-dry	1	5/23/2017 03:44 PM
Aroclor 1221	ND		71	µg/Kg-dry	1	5/23/2017 03:44 PM
Aroclor 1232	ND		71	µg/Kg-dry	1	5/23/2017 03:44 PM
Aroclor 1242	ND		71	µg/Kg-dry	1	5/23/2017 03:44 PM
Aroclor 1248	ND		71	µg/Kg-dry	1	5/23/2017 03:44 PM
Aroclor 1254	ND		71	µg/Kg-dry	1	5/23/2017 03:44 PM
Aroclor 1260	ND		71	µg/Kg-dry	1	5/23/2017 03:44 PM
Surr: Decachlorobiphenyl	*88.9*		*40-140*	*%REC*	1	5/23/2017 03:44 PM
Surr: Tetrachloro-m-xylene	*86.2*		*45-124*	*%REC*	1	5/23/2017 03:44 PM
PESTICIDES			**SW8081A**	Prep: SW3546 5/22/17 15:58		Analyst: **JF**
4,4'-DDD	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
4,4'-DDE	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
4,4'-DDT	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Aldrin	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
alpha-BHC	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
alpha-Chlordane	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
beta-BHC	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Chlordane, Technical	ND		130	µg/Kg-dry	5	5/23/2017 04:00 PM
delta-BHC	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Dieldrin	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Endosulfan I	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Endosulfan II	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Endosulfan sulfate	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Endrin	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Endrin aldehyde	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Endrin ketone	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
gamma-BHC (Lindane)	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
gamma-Chlordane	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Heptachlor	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Heptachlor epoxide	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Methoxychlor	ND		53	µg/Kg-dry	5	5/23/2017 04:00 PM
Toxaphene	ND		320	µg/Kg-dry	5	5/23/2017 04:00 PM
Surr: Decachlorobiphenyl	*91.2*		*50-150*	*%REC*	5	5/23/2017 04:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM02-0"-6" **Lab ID:** 17051193-18
Collection Date: 5/17/2017 04:50 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: Tetrachloro-m-xylene	*73.3*		*50-150*	*%REC*	5	5/23/2017 04:00 PM
MERCURY BY CVAA			**SW7471B**	Prep: SW7471 5/24/17 14:59		Analyst: **JJB**
Mercury	ND		0.018	mg/Kg-dry	1	5/25/2017 10:44 AM
METALS ANALYSIS BY ICP			**SW846 6010C**	Prep: SW3050B 5/25/17 15:05		Analyst: **CC**
Arsenic	**2.1**		**0.43**	**mg/Kg-dry**	1	5/26/2017 11:01 AM
Barium	**13**		**0.43**	**mg/Kg-dry**	1	5/26/2017 11:01 AM
Cadmium	ND		0.86	mg/Kg-dry	1	5/26/2017 11:01 AM
Chromium	**2.3**		**0.43**	**mg/Kg-dry**	1	5/26/2017 11:01 AM
Lead	**5.3**		**0.43**	**mg/Kg-dry**	1	5/26/2017 11:01 AM
Selenium	**0.98**		**0.86**	**mg/Kg-dry**	1	5/26/2017 11:01 AM
Silver	ND		0.43	mg/Kg-dry	1	5/26/2017 11:01 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**	Prep: SW3546 5/24/17 17:10		Analyst: **RM**
1,1`-Biphenyl	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2,2`-Oxybis(1-chloropropane)	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2,4,5-Trichlorophenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2,4,6-Trichlorophenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2,4-Dichlorophenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2,4-Dimethylphenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2,4-Dinitrophenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2,4-Dinitrotoluene	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2,6-Dinitrotoluene	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2-Chloronaphthalene	ND		140	µg/Kg-dry	20	5/26/2017 01:27 AM
2-Chlorophenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2-Methylnaphthalene	**200**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
2-Methylphenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2-Nitroaniline	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
2-Nitrophenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
3&4-Methylphenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
3,3´-Dichlorobenzidine	ND		3,500	µg/Kg-dry	20	5/26/2017 01:27 AM
3-Nitroaniline	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
4,6-Dinitro-2-methylphenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
4-Bromophenyl phenyl ether	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
4-Chloro-3-methylphenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
4-Chloroaniline	ND		1,400	µg/Kg-dry	20	5/26/2017 01:27 AM
4-Chlorophenyl phenyl ether	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
4-Nitroaniline	ND		3,500	µg/Kg-dry	20	5/26/2017 01:27 AM
4-Nitrophenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Acenaphthene	ND		140	µg/Kg-dry	20	5/26/2017 01:27 AM
Acenaphthylene	ND		140	µg/Kg-dry	20	5/26/2017 01:27 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM02-0"-6" **Lab ID:** 17051193-18
Collection Date: 5/17/2017 04:50 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Acetophenone	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Anthracene	**1,100**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Atrazine	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Benzaldehyde	ND		1,400	µg/Kg-dry	20	5/26/2017 01:27 AM
Benzo(a)anthracene	**3,400**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Benzo(a)pyrene	**3,000**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Benzo(b)fluoranthene	**3,100**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Benzo(g,h,i)perylene	**1,600**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Benzo(k)fluoranthene	**1,000**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Bis(2-chloroethoxy)methane	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Bis(2-chloroethyl)ether	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Bis(2-ethylhexyl)phthalate	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Butyl benzyl phthalate	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Caprolactam	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Carbazole	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Chrysene	**3,200**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Dibenzo(a,h)anthracene	**460**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Dibenzofuran	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Diethyl phthalate	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Dimethyl phthalate	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Di-n-butyl phthalate	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Di-n-octyl phthalate	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Fluoranthene	**5,700**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Fluorene	**180**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Hexachlorobenzene	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Hexachlorobutadiene	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Hexachlorocyclopentadiene	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Hexachloroethane	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Indeno(1,2,3-cd)pyrene	**1,700**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Isophorone	ND		3,500	µg/Kg-dry	20	5/26/2017 01:27 AM
Naphthalene	ND		140	µg/Kg-dry	20	5/26/2017 01:27 AM
Nitrobenzene	ND		3,500	µg/Kg-dry	20	5/26/2017 01:27 AM
N-Nitrosodimethylamine	ND		3,500	µg/Kg-dry	20	5/26/2017 01:27 AM
N-Nitrosodi-n-propylamine	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Pentachlorophenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Phenanthrene	**5,000**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Phenol	ND		700	µg/Kg-dry	20	5/26/2017 01:27 AM
Pyrene	**8,800**		**140**	**µg/Kg-dry**	20	5/26/2017 01:27 AM
Surr: 2,4,6-Tribromophenol	*60.4*		*34-140*	*%REC*	20	5/26/2017 01:27 AM
Surr: 2-Fluorobiphenyl	*0*	S	*12-100*	*%REC*	20	5/26/2017 01:27 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM02-0"-6" **Lab ID:** 17051193-18
Collection Date: 5/17/2017 04:50 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	*20.4*	S	*33-117*	*%REC*	20	5/26/2017 01:27 AM
Surr: 4-Terphenyl-d14	*65.2*		*25-137*	*%REC*	20	5/26/2017 01:27 AM
Surr: Nitrobenzene-d5	*40.0*		*37-107*	*%REC*	20	5/26/2017 01:27 AM
Surr: Phenol-d6	*17.2*	S	*40-106*	*%REC*	20	5/26/2017 01:27 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**		Prep: SW5035 5/22/17 16:33	Analyst: **AK**
1,1,1,2-Tetrachloroethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,1,1-Trichloroethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,1,2,2-Tetrachloroethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,1,2-Trichloroethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,1,2-Trichlorotrifluoroethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,1-Dichloroethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,1-Dichloroethene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,2,3-Trichloropropane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,2,4-Trichlorobenzene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,2,4-Trimethylbenzene	**190**		**67**	**µg/Kg**	1	5/24/2017 06:55 PM
1,2-Dibromo-3-chloropropane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,2-Dibromoethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,2-Dichlorobenzene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,2-Dichloroethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,2-Dichloropropane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,3,5-Trimethylbenzene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,3-Dichlorobenzene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
1,4-Dichlorobenzene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
2-Butanone	ND		450	µg/Kg	1	5/24/2017 06:55 PM
2-Hexanone	ND		67	µg/Kg	1	5/24/2017 06:55 PM
2-Methylnaphthalene	**420**		**220**	**µg/Kg**	1	5/24/2017 06:55 PM
4-Methyl-2-pentanone	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Acetone	ND		220	µg/Kg	1	5/24/2017 06:55 PM
Acrylonitrile	ND		220	µg/Kg	1	5/24/2017 06:55 PM
Benzene	**79**		**67**	**µg/Kg**	1	5/24/2017 06:55 PM
Bromochloromethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Bromodichloromethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Bromoform	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Bromomethane	ND		170	µg/Kg	1	5/24/2017 06:55 PM
Carbon disulfide	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Carbon tetrachloride	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Chlorobenzene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Chloroethane	ND		220	µg/Kg	1	5/24/2017 06:55 PM
Chloroform	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Chloromethane	ND		220	µg/Kg	1	5/24/2017 06:55 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM02-0"-6" **Lab ID:** 17051193-18
Collection Date: 5/17/2017 04:50 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
cis-1,2-Dichloroethene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
cis-1,3-Dichloropropene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Dibromochloromethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Dibromomethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Dichlorodifluoromethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Diethyl ether	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Ethylbenzene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Hexachloroethane	ND		220	µg/Kg	1	5/24/2017 06:55 PM
Isopropylbenzene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
m,p-Xylene	**410**		**130**	**µg/Kg**	1	5/24/2017 06:55 PM
Methyl iodide	ND		170	µg/Kg	1	5/24/2017 06:55 PM
Methyl tert-butyl ether	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Methylene chloride	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Naphthalene	**420**		**220**	**µg/Kg**	1	5/24/2017 06:55 PM
n-Propylbenzene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
o-Xylene	**270**		**67**	**µg/Kg**	1	5/24/2017 06:55 PM
Styrene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Tetrachloroethene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Toluene	**410**		**67**	**µg/Kg**	1	5/24/2017 06:55 PM
trans-1,2-Dichloroethene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
trans-1,3-Dichloropropene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
trans-1,4-Dichloro-2-butene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Trichloroethene	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Trichlorofluoromethane	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Vinyl acetate	ND		560	µg/Kg	1	5/24/2017 06:55 PM
Vinyl chloride	ND		67	µg/Kg	1	5/24/2017 06:55 PM
Xylenes, Total	**680**		**200**	**µg/Kg**	1	5/24/2017 06:55 PM
Surr: 1,2-Dichloroethane-d4	*102*		*70-130*	*%REC*	1	5/24/2017 06:55 PM
Surr: 4-Bromofluorobenzene	*104*		*70-130*	*%REC*	1	5/24/2017 06:55 PM
Surr: Dibromofluoromethane	*83.3*		*70-130*	*%REC*	1	5/24/2017 06:55 PM
Surr: Toluene-d8	*100*		*70-130*	*%REC*	1	5/24/2017 06:55 PM
CYANIDE, REACTIVE			**SW7.3.3.2**			Analyst: **RZM**
Cyanide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 12:50 PM
FLASHPOINT/IGNITABILITY ANALYSIS			**SW1010A**			Analyst: **RZM**
Flashpoint/Ignitability	*>200*		1.00	°F	1	5/30/2017 09:45 AM
PAINT FILTER (FREE LIQUIDS)			**SW9095B**			Analyst: **KF**
Free Liquids	**Absent**			**none**	1	5/24/2017 01:00 PM
MOISTURE			**SW3550C**			Analyst: **EDL**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *31-May-17*

Client: Michigan Dept.of Environmental Quality
Project: Abandoned Mining Wastes - Torch Lake 31000098 **Work Order:** 17051193
Sample ID: QMCM - DM02-0"-6" **Lab ID:** 17051193-18
Collection Date: 5/17/2017 04:50 PM **Matrix:** WASTE

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Moisture	**8.4**		**0.050**	**% of sample**	1	5/23/2017 03:34 PM
PH			**SW9045D**	Prep: EXTRACT 5/23/17 11:32		Analyst: **JB**
pH	**6.25**		**0.100**	**s.u.**	1	5/24/2017 12:00 PM
SULFIDE, REACTIVE			**SW7.3.4.2**			Analyst: **RZM**
Sulfide, Reactive	ND		110	mg/Kg-dry	1	5/26/2017 09:45 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 31-May-17

Client: Michigan Dept.of Environmental Quality

Work Order: 17051193

Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102235** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-102235-102235** Units: **µg/Kg** Analysis Date: **5/23/2017 11:54 AM**

Client ID: Run ID: **GC14_170523A** SeqNo: **4444903** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	67								
Aroclor 1221	ND	67								
Aroclor 1232	ND	67								
Aroclor 1242	ND	67								
Aroclor 1248	ND	67								
Aroclor 1254	ND	67								
Aroclor 1260	ND	67								
Surr: Decachlorobiphenyl	*31.3*	0	*33.3*	0	*94*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*30.6*	0	*33.3*	0	*91.9*	*45-124*	0			

LCS Sample ID: **PLCSS1-102235-102235** Units: **µg/Kg** Analysis Date: **5/23/2017 12:09 PM**

Client ID: Run ID: **GC14_170523A** SeqNo: **4444904** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	539.5	67	833	0	64.8	50-130	0			
Aroclor 1260	636.8	67	833	0	76.5	50-130	0			
Surr: Decachlorobiphenyl	*26.06*	0	*33.3*	0	*78.3*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*18.46*	0	*33.3*	0	*55.4*	*45-124*	0			

MS Sample ID: **1705884-06A MS** Units: **µg/Kg** Analysis Date: **5/23/2017 12:38 PM**

Client ID: Run ID: **GC14_170523A** SeqNo: **4444906** Prep Date: **5/22/2017** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	395.1	330	825.8	0	47.8	40-140	0			
Aroclor 1260	440.8	330	825.8	0	53.4	40-140	0			
Surr: Decachlorobiphenyl	*19.26*	0	*33.01*	0	*58.3*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*12.05*	0	*33.01*	0	*36.5*	*45-124*	0			*S*

MSD Sample ID: **1705884-06A MSD** Units: **µg/Kg** Analysis Date: **5/23/2017 12:52 PM**

Client ID: Run ID: **GC14_170523A** SeqNo: **4444907** Prep Date: **5/22/2017** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	383.6	330	822.4	0	46.6	40-140	395.1	2.95	50	
Aroclor 1260	450.3	330	822.4	0	54.8	40-140	440.8	2.14	50	
Surr: Decachlorobiphenyl	*19.35*	0	*32.87*	0	*58.9*	*40-140*	19.26	*0.481*	*50*	
Surr: Tetrachloro-m-xylene	*12.72*	0	*32.87*	0	*38.7*	*45-124*	12.05	*5.38*	*50*	*S*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102235** Instrument ID **GC14** Method: **SW8082**

The following samples were analyzed in this batch:

17051193-02A	17051193-06A	17051193-08A
17051193-12A	17051193-14A	17051193-16A
17051193-18A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102236** Instrument ID **GC12** Method: **SW8081A**

MBLK Sample ID: **PBLKS1-102236-102236** Units: **µg/Kg** Analysis Date: **5/23/2017 11:12 AM**

Client ID: Run ID: **GC12_170523A** SeqNo: **4447236** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	ND	10								
4,4´-DDE	ND	10								
4,4´-DDT	ND	10								
Aldrin	ND	10								
alpha-BHC	ND	10								
alpha-Chlordane	ND	10								
beta-BHC	ND	10								
Chlordane, Technical	ND	25								
delta-BHC	ND	10								
Dieldrin	ND	10								
Endosulfan I	ND	10								
Endosulfan II	ND	10								
Endosulfan sulfate	ND	10								
Endrin	ND	10								
Endrin aldehyde	ND	10								
Endrin ketone	ND	10								
gamma-BHC (Lindane)	ND	10								
gamma-Chlordane	ND	10								
Heptachlor	ND	10								
Heptachlor epoxide	ND	10								
Methoxychlor	ND	10								
Toxaphene	ND	60								
Surr: Decachlorobiphenyl	*25.5*	0	*33.3*	0	*76.6*	*50-150*	0			
Surr: Tetrachloro-m-xylene	*23.8*	0	*33.3*	0	*71.5*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102236** Instrument ID **GC12** Method: **SW8081A**

LCS Sample ID: **PLCSS1-102236-102236** Units: **µg/Kg** Analysis Date: **5/23/2017 11:26 AM**

Client ID: Run ID: **GC12_170523A** SeqNo: **4447237** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4'-DDD	42.02	10	33.33	0	126	50-150	0			
4,4'-DDE	41.13	10	33.33	0	123	50-150	0			
4,4'-DDT	41.42	10	33.33	0	124	50-150	0			
Aldrin	40.3	10	33.33	0	121	50-150	0			
alpha-BHC	42.46	10	33.33	0	127	50-150	0			
alpha-Chlordane	39.78	10	33.33	0	119	50-150	0			
beta-BHC	37.2	10	33.33	0	112	50-150	0			
delta-BHC	42.56	10	33.33	0	128	50-150	0			
Dieldrin	40.85	10	33.33	0	123	50-150	0			
Endosulfan I	39.98	10	33.33	0	120	50-150	0			
Endosulfan II	38.14	10	33.33	0	114	50-150	0			
Endosulfan sulfate	40.52	10	33.33	0	122	50-150	0			
Endrin	41.82	10	33.33	0	125	50-150	0			
Endrin aldehyde	35.56	10	33.33	0	107	50-150	0			
Endrin ketone	39.4	10	33.33	0	118	50-150	0			
gamma-BHC (Lindane)	41.66	10	33.33	0	125	50-150	0			
gamma-Chlordane	40.38	10	33.33	0	121	50-150	0			
Heptachlor	41.63	10	33.33	0	125	50-150	0			
Heptachlor epoxide	39.64	10	33.33	0	119	50-150	0			
Methoxychlor	37.42	10	33.33	0	112	50-150	0			
Surr: Decachlorobiphenyl	*25.32*	0	*33.3*	0	*76*	*50-150*	0			
Surr: Tetrachloro-m-xylene	*24.86*	0	*33.3*	0	*74.7*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102236** Instrument ID **GC12** Method: **SW8081A**

MS Sample ID: **17051186-07A MS** Units: **µg/Kg** Analysis Date: **5/23/2017 11:52 AM**

Client ID: Run ID: **GC12_170523A** SeqNo: **4447239** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4'-DDD	29.35	9.9	33.08	0	88.7	50-150	0			
4,4'-DDE	29.13	9.9	33.08	0	88.1	50-150	0			
4,4'-DDT	29.02	9.9	33.08	0	87.7	50-150	0			
Aldrin	29.21	9.9	33.08	0	88.3	50-150	0			
alpha-BHC	30.25	9.9	33.08	0	91.4	50-150	0			
alpha-Chlordane	43.49	9.9	33.08	15.39	85	50-150	0			
beta-BHC	23.86	9.9	33.08	0	72.1	50-150	0			
delta-BHC	25.57	9.9	33.08	0	77.3	50-150	0			
Dieldrin	28.07	9.9	33.08	0	84.9	50-150	0			
Endosulfan I	27.49	9.9	33.08	0	83.1	50-150	0			
Endosulfan II	21.22	9.9	33.08	0	64.1	50-150	0			
Endosulfan sulfate	21.36	9.9	33.08	0.4922	63.1	50-150	0			
Endrin	30.46	9.9	33.08	0	92.1	50-150	0			
Endrin aldehyde	15.57	9.9	33.08	1.207	43.4	50-150	0			S
Endrin ketone	21.69	9.9	33.08	0	65.6	50-150	0			
gamma-BHC (Lindane)	28.75	9.9	33.08	0	86.9	50-150	0			
gamma-Chlordane	35.91	9.9	33.08	10.04	78.2	50-150	0			
Heptachlor	30.59	9.9	33.08	0.3408	91.4	50-150	0			
Heptachlor epoxide	28.68	9.9	33.08	1.786	81.3	50-150	0			
Methoxychlor	24.03	9.9	33.08	1.549	68	50-150	0			
Surr: Decachlorobiphenyl	*17.69*	0	*33.05*	0	*53.5*	*50-150*	0			
Surr: Tetrachloro-m-xylene	*18.37*	0	*33.05*	0	*55.6*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102236** Instrument ID **GC12** Method: **SW8081A**

MSD Sample ID: **17051186-07A MSD** Units: **µg/Kg** Analysis Date: **5/23/2017 12:05 PM**

Client ID: Run ID: **GC12_170523A** SeqNo: **4447240** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4'-DDD	26.64	9.6	32.13	0	82.9	50-150	29.35	9.69	35	
4,4'-DDE	25.18	9.6	32.13	0	78.4	50-150	29.13	14.6	35	
4,4'-DDT	25.36	9.6	32.13	0	78.9	50-150	29.02	13.5	35	
Aldrin	24.92	9.6	32.13	0	77.6	50-150	29.21	15.8	35	
alpha-BHC	26.23	9.6	32.13	0	81.6	50-150	30.25	14.2	35	
alpha-Chlordane	43.01	9.6	32.13	15.39	85.9	50-150	43.49	1.13	35	
beta-BHC	21.12	9.6	32.13	0	65.7	50-150	23.86	12.2	35	
delta-BHC	23.16	9.6	32.13	0	72.1	50-150	25.57	9.91	35	
Dieldrin	25.19	9.6	32.13	0	78.4	50-150	28.07	10.8	35	
Endosulfan I	24.19	9.6	32.13	0	75.3	50-150	27.49	12.8	35	
Endosulfan II	19.78	9.6	32.13	0	61.6	50-150	21.22	7	35	
Endosulfan sulfate	19.38	9.6	32.13	0.4922	58.8	50-150	21.36	9.7	35	
Endrin	26.29	9.6	32.13	0	81.8	50-150	30.46	14.7	35	
Endrin aldehyde	13.93	9.6	32.13	1.207	39.6	50-150	15.57	11.1	35	S
Endrin ketone	19.75	9.6	32.13	0	61.5	50-150	21.69	9.37	35	
gamma-BHC (Lindane)	25.07	9.6	32.13	0	78	50-150	28.75	13.7	35	
gamma-Chlordane	33.64	9.6	32.13	10.04	73.4	50-150	35.91	6.55	35	
Heptachlor	26.56	9.6	32.13	0.3408	81.6	50-150	30.59	14.1	35	
Heptachlor epoxide	25.48	9.6	32.13	1.786	73.7	50-150	28.68	11.8	35	
Methoxychlor	21.51	9.6	32.13	1.549	62.1	50-150	24.03	11.1	35	
Surr: Decachlorobiphenyl	*14.85*	0	*32.1*	0	*46.3*	*50-150*	17.69	*17.5*	*35*	S
Surr: Tetrachloro-m-xylene	*16*	0	*32.1*	0	*49.8*	*50-150*	18.37	*13.8*	*35*	S

The following samples were analyzed in this batch: 17051193-02A 17051193-06A 17051193-08A 17051193-12A 17051193-14A 17051193-16A 17051193-18A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102357** Instrument ID **GC7** Method: **SW8151**

MBLK Sample ID: **HBLKS1-102357-102357** Units: **µg/Kg** Analysis Date: **5/27/2017 05:33 AM**
Client ID: Run ID: **GC7_170526A** SeqNo: **4452965** Prep Date: **5/26/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-T	ND	5.0								
2,4,5-TP (Silvex)	ND	5.0								
2,4-D	ND	5.0								
Surr: DCAA	*32.7*	0	*50*	0	*65.4*	*10-150*	0			

LCS Sample ID: **HLCSS1-102357-102357** Units: **µg/Kg** Analysis Date: **5/27/2017 05:50 AM**
Client ID: Run ID: **GC7_170526A** SeqNo: **4452967** Prep Date: **5/26/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-T	20.2	5.0	50	0	40.4	10-150	0			
2,4,5-TP (Silvex)	25.8	5.0	50	0	51.6	10-150	0			
2,4-D	19.3	5.0	50	0	38.6	10-130	0			
Surr: DCAA	*45.8*	0	*50*	0	*91.6*	*10-150*	0			

MS Sample ID: **17051197-02A MS** Units: **µg/Kg** Analysis Date: **5/27/2017 06:07 AM**
Client ID: Run ID: **GC7_170526A** SeqNo: **4452968** Prep Date: **5/26/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-T	16.97	4.9	48.77	0	34.8	10-150	0			
2,4,5-TP (Silvex)	20.09	4.9	48.77	0	41.2	10-150	0			
2,4-D	22.63	4.9	48.77	0	46.4	10-130	0			
Surr: DCAA	*39.31*	0	*48.77*	0	*80.6*	*10-150*	0			

MSD Sample ID: **17051197-02A MSD** Units: **µg/Kg** Analysis Date: **5/27/2017 06:23 AM**
Client ID: Run ID: **GC7_170526A** SeqNo: **4452969** Prep Date: **5/26/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-T	19.03	4.8	48.06	0	39.6	10-150	16.97	11.4	50	
2,4,5-TP (Silvex)	22.01	4.8	48.06	0	45.8	10-150	20.09	9.12	50	
2,4-D	24.22	4.8	48.06	0	50.4	10-130	22.63	6.8	50	
Surr: DCAA	*44.31*	0	*48.06*	0	*92.2*	*10-150*	39.31	*12*	*50*	

The following samples were analyzed in this batch:

17051193-02A	17051193-04A	17051193-06A
17051193-08A	17051193-10A	17051193-12A
17051193-14A	17051193-16A	17051193-18A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102398** Instrument ID **GC12** Method: **SW8081**

MBLK Sample ID: **PBLKW1-102398-102398** Units: **µg/L** Analysis Date: **5/26/2017 10:45 AM**
Client ID: Run ID: **GC12_170526A** SeqNo: **4451244** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chlordane, Technical	ND	0.50								
Endrin	ND	0.020								
gamma-BHC (Lindane)	ND	0.010								
Heptachlor	ND	0.010								
Heptachlor epoxide	ND	0.010								
Methoxychlor	ND	0.040								
Toxaphene	ND	2.0								
Surr: Decachlorobiphenyl	*0.1377*	0	*0.208*	0	*66.2*	*50-150*	0			
Surr: Tetrachloro-m-xylene	*0.1205*	0	*0.208*	0	*57.9*	*50-150*	0			

LCS Sample ID: **PLCSW1-102398-102398** Units: **µg/L** Analysis Date: **5/26/2017 10:58 AM**
Client ID: Run ID: **GC12_170526A** SeqNo: **4451245** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Endrin	0.2194	0.020	0.167	0	131	50-150	0			
gamma-BHC (Lindane)	0.2055	0.010	0.167	0	123	50-150	0			
Heptachlor	0.2152	0.010	0.167	0	129	50-150	0			
Heptachlor epoxide	0.2105	0.010	0.167	0	126	50-150	0			
Methoxychlor	0.2119	0.040	0.167	0	127	50-150	0			
Surr: Decachlorobiphenyl	*0.1247*	0	*0.208*	0	*60*	*50-150*	0			
Surr: Tetrachloro-m-xylene	*0.1461*	0	*0.208*	0	*70.3*	*50-150*	0			

MS Sample ID: **1705871-02A MS** Units: **µg/L** Analysis Date: **5/26/2017 11:38 AM**
Client ID: Run ID: **GC12_170526A** SeqNo: **4451248** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Endrin	0.2174	0.020	0.167	0	130	50-150	0			
gamma-BHC (Lindane)	0.1932	0.010	0.167	0	116	50-150	0			
Heptachlor	0.2129	0.010	0.167	0	127	50-150	0			
Heptachlor epoxide	0.2012	0.010	0.167	0	120	50-150	0			
Methoxychlor	0.2065	0.040	0.167	0	124	50-150	0			
Surr: Decachlorobiphenyl	*0.1113*	0	*0.208*	0	*53.5*	*50-150*	0			
Surr: Tetrachloro-m-xylene	*0.1522*	0	*0.208*	0	*73.2*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102398** Instrument ID **GC12** Method: **SW8081**

MSD Sample ID: **1705871-02A MSD** Units: **µg/L** Analysis Date: **5/26/2017 11:52 AM**

Client ID: Run ID: **GC12_170526A** SeqNo: **4451249** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Endrin	0.2146	0.020	0.167	0	128	50-150	0.2174	1.33	50	
gamma-BHC (Lindane)	0.1909	0.010	0.167	0	114	50-150	0.1932	1.21	50	
Heptachlor	0.2094	0.010	0.167	0	125	50-150	0.2129	1.66	50	
Heptachlor epoxide	0.1986	0.010	0.167	0	119	50-150	0.2012	1.29	50	
Methoxychlor	0.2024	0.040	0.167	0	121	50-150	0.2065	2.01	50	
Surr: Decachlorobiphenyl	*0.07787*	0	*0.208*	0	*37.4*	*50-150*	0.1113	*35.3*	*50*	*S*
Surr: Tetrachloro-m-xylene	*0.1463*	0	*0.208*	0	*70.3*	*50-150*	0.1522	*3.93*	*50*	

The following samples were analyzed in this batch:

17051193-01B	17051193-03B	17051193-05B
17051193-07B	17051193-09B	17051193-11B
17051193-13B	17051193-15B	17051193-17B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102420a** Instrument ID **GC14** Method: **SW8082**

MBLK Sample ID: **PBLKS1-102420-102420a** Units: **µg/Kg** Analysis Date: **5/25/2017 08:28 PM**
Client ID: Run ID: **GC14_170525B** SeqNo: **4450756** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	83								
Aroclor 1221	ND	83								
Aroclor 1232	ND	83								
Aroclor 1242	ND	83								
Aroclor 1248	ND	83								
Aroclor 1254	ND	83								
Aroclor 1260	ND	83								
Surr: Decachlorobiphenyl	*29*	0	*33.3*	0	*87.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*27.67*	0	*33.3*	0	*83.1*	*45-124*	0			

LCS Sample ID: **PLCSS1-102420-102420a** Units: **µg/Kg** Analysis Date: **5/25/2017 08:43 PM**
Client ID: Run ID: **GC14_170525B** SeqNo: **4450757** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	840.7	83	833	0	101	50-130	0			
Aroclor 1260	745	83	833	0	89.4	50-130	0			
Surr: Decachlorobiphenyl	*30.67*	0	*33.3*	0	*92.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*27.67*	0	*33.3*	0	*83.1*	*45-124*	0			

MS Sample ID: **17051035-14B MS** Units: **µg/Kg** Analysis Date: **5/25/2017 08:57 PM**
Client ID: Run ID: **GC14_170525B** SeqNo: **4450758** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	694.3	81	804.7	0	86.3	40-140	0			
Aroclor 1260	678.8	81	804.7	79.35	74.5	40-140	0			
Surr: Decachlorobiphenyl	*21.9*	0	*32.17*	0	*68.1*	*40-140*	0			
Surr: Tetrachloro-m-xylene	*23.83*	0	*32.17*	0	*74.1*	*45-124*	0			

MSD Sample ID: **17051035-14B MSD** Units: **µg/Kg** Analysis Date: **5/25/2017 09:11 PM**
Client ID: Run ID: **GC14_170525B** SeqNo: **4450759** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	666.5	79	787.5	0	84.6	40-140	694.3	4.09	50	
Aroclor 1260	613.5	79	787.5	79.35	67.8	40-140	678.8	10.1	50	
Surr: Decachlorobiphenyl	*23.63*	0	*31.48*	0	*75.1*	*40-140*	21.9	*7.63*	*50*	
Surr: Tetrachloro-m-xylene	*22.06*	0	*31.48*	0	*70.1*	*45-124*	23.83	*7.72*	*50*	

The following samples were analyzed in this batch: 17051193-04A 17051193-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102421** Instrument ID **GC12** Method: **SW8081**

MBLK Sample ID: **PBLKS1-102421-102421** Units: **µg/Kg** Analysis Date: **5/26/2017 05:37 PM**
Client ID: Run ID: **GC12_170526A** SeqNo: **4452689** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4´-DDD	ND	10								
4,4´-DDE	ND	10								
4,4´-DDT	ND	10								
Aldrin	ND	10								
alpha-BHC	ND	10								
alpha-Chlordane	ND	10								
beta-BHC	ND	10								
Chlordane, Technical	ND	25								
delta-BHC	ND	10								
Dieldrin	ND	10								
Endosulfan I	ND	10								
Endosulfan II	ND	10								
Endosulfan sulfate	ND	10								
Endrin	ND	10								
Endrin aldehyde	ND	10								
Endrin ketone	ND	10								
gamma-BHC (Lindane)	ND	10								
gamma-Chlordane	ND	10								
Heptachlor	ND	10								
Heptachlor epoxide	ND	10								
Methoxychlor	ND	10								
Toxaphene	ND	60								
Surr: Decachlorobiphenyl	*30*	0	*33.3*	0	*90.1*	*47.5-136*	0			
Surr: Tetrachloro-m-xylene	*26.67*	0	*33.3*	0	*80.1*	*40.3-131*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102421** Instrument ID **GC12** Method: **SW8081**

LCS Sample ID: **PLCSS1-102421-102421** Units: **µg/Kg** Analysis Date: **5/26/2017 05:51 PM**

Client ID: Run ID: **GC12_170526A** SeqNo: **4452690** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4'-DDD	63	10	66.66	0	94.5	41.5-132	0			
4,4'-DDE	68	10	66.66	0	102	44.8-127	0			
4,4'-DDT	86.67	10	66.66	0	130	33.2-145	0			
Aldrin	62.67	10	66.66	0	94	44.7-119	0			
alpha-BHC	62.67	10	66.66	0	94	39.3-125	0			
alpha-Chlordane	64	10	66.66	0	96	44-124	0			
beta-BHC	62.33	10	66.66	0	93.5	43.1-125	0			
delta-BHC	65.33	10	66.66	0	98	39.7-131	0			
Dieldrin	65	10	66.66	0	97.5	43.1-127	0			
Endosulfan I	62	10	66.66	0	93	44.8-127	0			
Endosulfan II	64.67	10	66.66	0	97	42.5-130	0			
Endosulfan sulfate	62	10	66.66	0	93	36.5-138	0			
Endrin	84	10	66.66	0	126	36.5-141	0			
Endrin aldehyde	61	10	66.66	0	91.5	37.5-130	0			
Endrin ketone	56.33	10	66.66	0	84.5	37.7-140	0			
gamma-BHC (Lindane)	60.33	10	66.66	0	90.5	43.5-120	0			
gamma-Chlordane	64.67	10	66.66	0	97	39.4-127	0			
Heptachlor	66	10	66.66	0	99	47-120	0			
Heptachlor epoxide	64	10	66.66	0	96	45.2-126	0			
Methoxychlor	83.67	10	66.66	0	126	32.4-143	0			
Surr: Decachlorobiphenyl	*29.33*	0	*33.3*	0	*88.1*	*47.5-136*	0			
Surr: Tetrachloro-m-xylene	27	0	*33.3*	0	*81.1*	*40.3-131*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102421** Instrument ID **GC12** Method: **SW8081**

MS Sample ID: **17051197-02A MS** Units: **µg/Kg** Analysis Date: **5/26/2017 06:17 PM**

Client ID: Run ID: **GC12_170526A** SeqNo: **4452692** Prep Date: **5/25/2017** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4'-DDD	3225	99	33.08	0	9750	41.5-132	0			SE
4,4'-DDE	1853	99	33.08	0	5600	44.8-127	0			SE
4,4'-DDT	5495	99	33.08	0	16600	33.2-145	0			SE
Aldrin	ND	99	33.08	0	0	44.7-119	0			S
alpha-BHC	39.7	99	33.08	0	120	39.3-125	0			J
alpha-Chlordane	1035	99	33.08	0	3130	44-124	0			S
beta-BHC	ND	99	33.08	0	0	43.1-125	0			S
delta-BHC	59.55	99	33.08	0	180	39.7-131	0			JS
Dieldrin	1303	99	33.08	0	3940	43.1-127	0			S
Endosulfan I	966	99	33.08	0	2920	44.8-127	0			S
Endosulfan II	628.6	99	33.08	0	1900	42.5-130	0			S
Endosulfan sulfate	148.9	99	33.08	0	450	36.5-138	0			S
Endrin	717.9	99	33.08	0	2170	36.5-141	0			S
Endrin aldehyde	330.8	99	33.08	0	1000	37.5-130	0			S
Endrin ketone	ND	99	33.08	0	0	37.7-140	0			S
gamma-BHC (Lindane)	43.01	99	33.08	0	130	43.5-120	0			JS
gamma-Chlordane	228.3	99	33.08	0	690	39.4-127	0			S
Heptachlor	39.7	99	33.08	0	120	47-120	0			JS
Heptachlor epoxide	535.9	99	33.08	0	1620	45.2-126	0			S
Methoxychlor	1962	99	33.08	0	5930	32.4-143	0			SE
Surr: Decachlorobiphenyl	*86.01*	0	*33.05*	0	*260*	*47.5-136*	0			*S*
Surr: Tetrachloro-m-xylene	*23.16*	0	*33.05*	0	*70.1*	*40.3-131*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102421** Instrument ID **GC12** Method: **SW8081**

MSD Sample ID: **17051197-02A MSD** Units: **µg/Kg** Analysis Date: **5/26/2017 06:30 PM**

Client ID: Run ID: **GC12_170526A** SeqNo: **4452693** Prep Date: **5/25/2017** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
4,4'-DDD	2339	98	32.81	0	7130	41.5-132	3225	31.8	35	SE
4,4'-DDE	1559	98	32.81	0	4750	44.8-127	1853	17.2	35	S
4,4'-DDT	111.6	98	32.81	0	340	33.2-145	5495	192	35	SR
Aldrin	ND	98	32.81	0	0	44.7-119	16.54	0	35	S
alpha-BHC	59.06	98	32.81	0	180	39.3-125	39.7	0	35	JS
alpha-Chlordane	754.6	98	32.81	0	2300	44-124	1035	31.4	35	S
beta-BHC	68.9	98	32.81	0	210	43.1-125	33.08	0	35	JS
delta-BHC	72.18	98	32.81	0	220	39.7-131	59.55	0	35	JS
Dieldrin	954.8	98	32.81	0	2910	43.1-127	1303	30.9	35	S
Endosulfan I	49.22	98	32.81	0	150	44.8-127	966	0	35	JS
Endosulfan II	282.2	98	32.81	0	860	42.5-130	628.6	76.1	35	SR
Endosulfan sulfate	52.5	98	32.81	0	160	36.5-138	148.9	0	35	JS
Endrin	308.4	98	32.81	0	940	36.5-141	717.9	79.8	35	SR
Endrin aldehyde	200.1	98	32.81	0	610	37.5-130	330.8	49.2	35	SR
Endrin ketone	ND	98	32.81	0	0	37.7-140	0	0	35	S
gamma-BHC (Lindane)	55.78	98	32.81	0	170	43.5-120	43.01	0	35	JS
gamma-Chlordane	68.9	98	32.81	0	210	39.4-127	228.3	0	35	JS
Heptachlor	88.59	98	32.81	0	270	47-120	39.7	0	35	JS
Heptachlor epoxide	370.8	98	32.81	0	1130	45.2-126	535.9	36.4	35	SR
Methoxychlor	108.3	98	32.81	0	330	32.4-143	1962	179	35	SR
Surr: Decachlorobiphenyl	*124.7*	0	*32.78*	0	*380*	*47.5-136*	86.01	*36.7*	*35*	*SR*
Surr: Tetrachloro-m-xylene	*22.97*	0	*32.78*	0	*70.1*	*40.3-131*	23.16	*0.824*	*35*	

The following samples were analyzed in this batch: 17051193-04A 17051193-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102475** Instrument ID **GC7** Method: **SW8151**

MBLK Sample ID: **HBLKW1-102475-102475** Units: **µg/L** Analysis Date: **5/26/2017 09:01 PM**
Client ID: Run ID: **GC7_170526A** SeqNo: **4453043** Prep Date: **5/26/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	ND	5.0								
2,4-D	ND	5.0								
Surr: DCAA	*46.8*	0	*50*	0	*93.6*	*30-150*	0			

LCS Sample ID: **HLCSW1-102475-102475** Units: **µg/L** Analysis Date: **5/26/2017 09:18 PM**
Client ID: Run ID: **GC7_170526A** SeqNo: **4453044** Prep Date: **5/26/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	46.1	5.0	50	0	92.2	50-150	0			
2,4-D	67.6	5.0	50	0	135	50-150	0			
Surr: DCAA	*49.8*	0	*50*	0	*99.6*	*30-150*	0			

MS Sample ID: **17051193-01B MS** Units: **µg/L** Analysis Date: **5/26/2017 09:34 PM**
Client ID: **QMCM - RPM01-0"-6" (TCLP)** Run ID: **GC7_170526A** SeqNo: **4453045** Prep Date: **5/26/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	45.8	5.0	50	0	91.6	50-150	0			
2,4-D	67.8	5.0	50	0	136	50-150	0			
Surr: DCAA	*50.9*	0	*50*	0	*102*	*30-150*	0			

MSD Sample ID: **17051193-01B MSD** Units: **µg/L** Analysis Date: **5/26/2017 09:51 PM**
Client ID: **QMCM - RPM01-0"-6" (TCLP)** Run ID: **GC7_170526A** SeqNo: **4453046** Prep Date: **5/26/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-TP (Silvex)	45.2	5.0	50	0	90.4	50-150	45.8	1.32	30	
2,4-D	72.2	5.0	50	0	144	50-150	67.8	6.29	30	
Surr: DCAA	*51*	0	*50*	0	*102*	*30-150*	50.9	*0.196*	*30*	

The following samples were analyzed in this batch:

17051193-01B	17051193-03B	17051193-05B
17051193-07B	17051193-09B	17051193-11B
17051193-13B	17051193-15B	17051193-17B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102365** Instrument ID **HG1** Method: **SW7471B**

MBLK Sample ID: **MBLK-102365-102365** Units: **mg/Kg** Analysis Date: **5/24/2017 08:17 PM**
Client ID: Run ID: **HG1_170524A** SeqNo: **4447880** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.020								

LCS Sample ID: **LCS-102365-102365** Units: **mg/Kg** Analysis Date: **5/24/2017 08:27 PM**
Client ID: Run ID: **HG1_170524A** SeqNo: **4447884** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1867	0.020	0.1665	0	112	80-120		0		

MS Sample ID: **17051093-44BMS** Units: **mg/Kg** Analysis Date: **5/24/2017 08:50 PM**
Client ID: Run ID: **HG1_170524A** SeqNo: **4447893** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.192	0.015	0.1226	0.05181	114	75-125		0		

MSD Sample ID: **17051093-44BMSD** Units: **mg/Kg** Analysis Date: **5/24/2017 09:01 PM**
Client ID: Run ID: **HG1_170524A** SeqNo: **4447897** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1847	0.015	0.123	0.05181	108	75-125	0.192	3.87	35	

The following samples were analyzed in this batch: 17051193-02A 17051193-04A 17051193-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102383** Instrument ID **HG1** Method: **SW7471B**

MBLK Sample ID: **MBLK-102383-102383** Units: **mg/Kg** Analysis Date: **5/25/2017 10:18 AM**
Client ID: Run ID: **HG1_170525A** SeqNo: **4449119** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.020								

LCS Sample ID: **LCS-102383-102383** Units: **mg/Kg** Analysis Date: **5/25/2017 10:21 AM**
Client ID: Run ID: **HG1_170525A** SeqNo: **4449120** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.185	0.020	0.1665	0	111	80-120		0		

MS Sample ID: **17051343-05AMS** Units: **mg/Kg** Analysis Date: **5/25/2017 11:19 AM**
Client ID: Run ID: **HG1_170525A** SeqNo: **4449141** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1272	0.013	0.1115	0.004417	110	75-125		0		

MSD Sample ID: **17051343-05AMSD** Units: **mg/Kg** Analysis Date: **5/25/2017 11:22 AM**
Client ID: Run ID: **HG1_170525A** SeqNo: **4449142** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1345	0.014	0.1174	0.004417	111	75-125	0.1272	5.59	35	

The following samples were analyzed in this batch:

17051193-08A	17051193-10A	17051193-12A
17051193-14A	17051193-16A	17051193-18A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102460** Instrument ID **HG1** Method: **SW7470A**

MBLK Sample ID: **MBLK-102460-102460** Units: **mg/L** Analysis Date: **5/25/2017 04:04 PM**
Client ID: Run ID: **HG1_170525A** SeqNo: **4449859** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-102460-102460** Units: **mg/L** Analysis Date: **5/25/2017 04:06 PM**
Client ID: Run ID: **HG1_170525A** SeqNo: **4449860** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00205	0.00020	0.002	0	102	80-120	0			

MS Sample ID: **17051193-01BMS** Units: **mg/L** Analysis Date: **5/25/2017 04:15 PM**
Client ID: **QMCM - RPM01-0"-6" (TCLP)** Run ID: **HG1_170525A** SeqNo: **4449862** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0217	0.0020	0.02	0.00014	108	75-125	0			

MSD Sample ID: **17051193-01BMSD** Units: **mg/L** Analysis Date: **5/25/2017 04:18 PM**
Client ID: **QMCM - RPM01-0"-6" (TCLP)** Run ID: **HG1_170525A** SeqNo: **4449863** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0215	0.0020	0.02	0.00014	107	75-125	0.0217	0.926	20	

The following samples were analyzed in this batch:

17051193-01B	17051193-03B	17051193-05B
17051193-07B	17051193-09B	17051193-11B
17051193-13B	17051193-15B	17051193-17B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102308** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-102308-102308** Units: **mg/Kg** Analysis Date: **5/26/2017 09:49 AM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450779** Prep Date: **5/23/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Barium	ND	0.25								
Cadmium	0.05674	0.50								J
Chromium	ND	0.25								
Lead	ND	0.25								
Selenium	ND	0.50								
Silver	ND	0.25								

LCS Sample ID: **LCS-102308-102308** Units: **mg/Kg** Analysis Date: **5/25/2017 08:40 PM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450215** Prep Date: **5/23/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.173	0.25	5	0	103	80-120	0			
Barium	5.083	0.25	5	0	102	80-120	0			
Cadmium	5.24	0.50	5	0	105	80-120	0			
Chromium	5.52	0.25	5	0	110	80-120	0			
Lead	5.537	0.25	5	0	111	80-120	0			
Selenium	4.689	0.50	5	0	93.8	80-120	0			
Silver	5.019	0.25	5	0	100	80-120	0			

MS Sample ID: **17051166-02BMS** Units: **mg/Kg** Analysis Date: **5/25/2017 08:53 PM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450217** Prep Date: **5/23/2017** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	17.32	3.8	7.587	3.696	180	75-125	0			S
Barium	70.83	3.8	7.587	53.82	224	75-125	0			SO
Cadmium	13.81	7.6	7.587	10.03	49.8	75-125	0			S
Chromium	277.2	3.8	7.587	211.2	870	75-125	0			SO
Lead	701.6	3.8	7.587	877.5	-2320	75-125	0			SO
Selenium	13.06	7.6	7.587	9.623	45.3	75-125	0			S
Silver	8.876	3.8	7.587	0.8888	105	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102308** Instrument ID **ICP2** Method: **SW846 6010C**

MSD Sample ID: **17051166-02BMSD** Units: **mg/Kg** Analysis Date: **5/25/2017 08:59 PM**

Client ID: Run ID: **ICP2_170526A** SeqNo: **4450218** Prep Date: **5/23/2017** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	16.52	3.8	7.576	3.696	169	75-125	10.26	46.7	20	SR
Barium	61.55	3.8	7.576	53.82	102	75-125	75.53	20.4	20	RO
Cadmium	16.47	7.6	7.576	10.03	85	75-125	17.04	3.39	20	
Chromium	223.6	3.8	7.576	211.2	163	75-125	295.4	27.7	20	SRO
Lead	1074	3.8	7.576	877.5	2590	75-125	723.9	38.9	20	SRO
Selenium	12.51	7.6	7.576	9.623	38.1	75-125	12.96	3.6	20	S
Silver	10.63	3.8	7.576	0.8888	129	75-125	9.732	8.78	20	S

The following samples were analyzed in this batch:

17051193-02A	17051193-04A	17051193-06A
17051193-08A	17051193-10A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102427** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-102427-102427** Units: **mg/Kg** Analysis Date: **5/30/2017 02:00 PM**
Client ID: Run ID: **ICP2_170530A** SeqNo: **4454869** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Barium	ND	0.25								
Cadmium	0.07171	0.50								J
Chromium	ND	0.25								
Lead	ND	0.25								
Selenium	ND	0.50								
Silver	ND	0.25								

LCS Sample ID: **LCS-102427-102427** Units: **mg/Kg** Analysis Date: **5/26/2017 09:36 AM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450777** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.446	0.25	5	0	109	80-120	0			
Barium	5.313	0.25	5	0	106	80-120	0			
Cadmium	5.309	0.50	5	0	106	80-120	0			
Chromium	5.675	0.25	5	0	113	80-120	0			
Lead	5.56	0.25	5	0	111	80-120	0			
Selenium	4.888	0.50	5	0	97.8	80-120	0			
Silver	5.194	0.25	5	0	104	80-120	0			

MS Sample ID: **17051193-14AMS** Units: **mg/Kg** Analysis Date: **5/26/2017 10:21 AM**
Client ID: **QMCM - RPM07-0"-6"** Run ID: **ICP2_170526A** SeqNo: **4450784** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	9.239	0.77	7.74	2.352	89	75-125	0			
Silver	11.67	0.39	7.74	3.783	102	75-125	0			

MS Sample ID: **17051193-14AMS** Units: **mg/Kg** Analysis Date: **5/31/2017 09:24 AM**
Client ID: **QMCM - RPM07-0"-6"** Run ID: **ICP2_170531A** SeqNo: **4456201** Prep Date: **5/25/2017** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	16.87	3.9	7.74	0	218	75-125	0			S
Barium	20.53	3.9	7.74	0	265	75-125	0			S
Cadmium	9.804	7.7	7.74	0	127	75-125	0			S
Chromium	38.45	3.9	7.74	0	497	75-125	0			S
Lead	371	3.9	7.74	0	4790	75-125	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102427** Instrument ID **ICP2** Method: **SW846 6010C**

MSD Sample ID: **17051193-14AMSD** Units: **mg/Kg** Analysis Date: **5/26/2017 10:28 AM**
Client ID: **QMCM - RPM07-0"-6"** Run ID: **ICP2_170526A** SeqNo: **4450785** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Selenium	8.952	0.77	7.669	2.352	86.1	75-125	9.239	3.16	20	
Silver	10.67	0.38	7.669	3.783	89.9	75-125	11.67	8.9	20	

MSD Sample ID: **17051193-14AMSD** Units: **mg/Kg** Analysis Date: **5/31/2017 09:31 AM**
Client ID: **QMCM - RPM07-0"-6"** Run ID: **ICP2_170531A** SeqNo: **4456202** Prep Date: **5/25/2017** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	14.3	3.8	7.669	4.732	125	75-125	19.72	31.9	20	R
Barium	20.86	3.8	7.669	10.12	140	75-125	19.47	6.92	20	S
Cadmium	9.641	7.7	7.669	0.8905	114	75-125	9.957	3.23	20	
Chromium	40.13	3.8	7.669	23.53	217	75-125	32.33	21.5	20	SR

The following samples were analyzed in this batch: 17051193-12A 17051193-14A 17051193-16A 17051193-18A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102444** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-102444-102444** Units: **mg/L** Analysis Date: **5/26/2017 04:59 AM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450294** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	0.0007996	0.010								J
Chromium	ND	0.0050								
Lead	ND	0.0050								
Selenium	ND	0.010								
Silver	ND	0.0050								

MBLK Sample ID: **MBLK-102426-102444** Units: **mg/L** Analysis Date: **5/26/2017 05:12 AM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450296** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	0.0008006	0.010								J
Chromium	ND	0.0050								
Lead	ND	0.0050								
Selenium	ND	0.010								
Silver	ND	0.0050								

LCS Sample ID: **LCS-102444-102444** Units: **mg/L** Analysis Date: **5/26/2017 05:06 AM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450295** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1062	0.0050	0.1	0	106	80-120	0			
Barium	0.1031	0.0050	0.1	0	103	80-120	0			
Cadmium	0.1035	0.010	0.1	0	104	80-120	0			
Chromium	0.1056	0.0050	0.1	0	106	80-120	0			
Lead	0.1093	0.0050	0.1	0	109	80-120	0			
Selenium	0.1032	0.010	0.1	0	103	80-120	0			
Silver	0.1027	0.0050	0.1	0	103	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102444** Instrument ID **ICP2** Method: **SW846 6010C**

LCS Sample ID: **LCS-102426-102444** Units: **mg/L** Analysis Date: **5/26/2017 05:18 AM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450297** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1078	0.0050	0.1	0	108	80-120	0			
Barium	0.1056	0.0050	0.1	0	106	80-120	0			
Cadmium	0.1052	0.010	0.1	0	105	80-120	0			
Chromium	0.1073	0.0050	0.1	0	107	80-120	0			
Lead	0.1112	0.0050	0.1	0	111	80-120	0			
Selenium	0.1048	0.010	0.1	0	105	80-120	0			
Silver	0.1039	0.0050	0.1	0	104	80-120	0			

MS Sample ID: **17051199-06AMS** Units: **mg/L** Analysis Date: **5/26/2017 07:26 AM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450324** Prep Date: **5/25/2017** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	1.048	0.50	1	-0.07016	112	75-125	0			
Barium	1.304	0.50	1	0.2102	109	75-125	0			
Cadmium	1.137	1.0	1	0.08143	106	75-125	0			
Chromium	1.106	0.50	1	0.00449	110	75-125	0			
Lead	1.166	0.50	1	-0.00522	117	75-125	0			
Selenium	0.9746	1.0	1	-0.03484	101	75-125	0			J
Silver	1.116	0.50	1	-0.00318	112	75-125	0			

MSD Sample ID: **17051199-06AMSD** Units: **mg/L** Analysis Date: **5/26/2017 07:32 AM**
Client ID: Run ID: **ICP2_170526A** SeqNo: **4450328** Prep Date: **5/25/2017** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.997	0.50	1	-0.07016	107	75-125	1.048	5	20	
Barium	1.293	0.50	1	0.2102	108	75-125	1.304	0.843	20	
Cadmium	1.125	1.0	1	0.08143	104	75-125	1.137	1.02	20	
Chromium	1.111	0.50	1	0.00449	111	75-125	1.106	0.445	20	
Lead	1.177	0.50	1	-0.00522	118	75-125	1.166	0.966	20	
Selenium	1.049	1.0	1	-0.03484	108	75-125	0.9746	7.37	20	
Silver	1.109	0.50	1	-0.00318	111	75-125	1.116	0.597	20	

The following samples were analyzed in this batch:

17051193-01B	17051193-03B	17051193-05B
17051193-07B	17051193-09B	17051193-11B
17051193-13B	17051193-15B	17051193-17B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

MBLK Sample ID: **SBLKS1-102351-102351** Units: **µg/Kg** Analysis Date: **5/25/2017 04:16 PM**

Client ID: Run ID: **SVMS5_170525A** SeqNo: **4452404** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	33								
2,2`-Oxybis(1-chloropropane)	ND	33								
2,4,5-Trichlorophenol	ND	33								
2,4,6-Trichlorophenol	ND	33								
2,4-Dichlorophenol	ND	33								
2,4-Dimethylphenol	ND	33								
2,4-Dinitrophenol	ND	33								
2,4-Dinitrotoluene	ND	33								
2,6-Dinitrotoluene	ND	33								
2-Chloronaphthalene	ND	6.7								
2-Chlorophenol	ND	33								
2-Methylnaphthalene	ND	6.7								
2-Methylphenol	ND	33								
2-Nitroaniline	ND	33								
2-Nitrophenol	ND	33								
3&4-Methylphenol	ND	33								
3,3`-Dichlorobenzidine	ND	170								
3-Nitroaniline	ND	33								
4,6-Dinitro-2-methylphenol	ND	33								
4-Bromophenyl phenyl ether	ND	33								
4-Chloro-3-methylphenol	ND	33								
4-Chloroaniline	ND	67								
4-Chlorophenyl phenyl ether	ND	33								
4-Nitroaniline	ND	170								
4-Nitrophenol	ND	33								
Acenaphthene	ND	6.7								
Acenaphthylene	ND	6.7								
Acetophenone	ND	33								
Anthracene	ND	6.7								
Atrazine	ND	33								
Benzaldehyde	ND	67								
Benzo(a)anthracene	ND	6.7								
Benzo(a)pyrene	ND	6.7								
Benzo(b)fluoranthene	ND	6.7								
Benzo(g,h,i)perylene	ND	6.7								
Benzo(k)fluoranthene	ND	6.7								
Bis(2-chloroethoxy)methane	ND	33								
Bis(2-chloroethyl)ether	ND	33								
Bis(2-ethylhexyl)phthalate	ND	33								
Butyl benzyl phthalate	ND	33								
Caprolactam	ND	33								
Carbazole	ND	33								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

Chrysene	ND	6.7					
Dibenzo(a,h)anthracene	ND	6.7					
Dibenzofuran	ND	33					
Diethyl phthalate	ND	33					
Dimethyl phthalate	ND	33					
Di-n-butyl phthalate	ND	33					
Di-n-octyl phthalate	ND	33					
Fluoranthene	ND	6.7					
Fluorene	ND	6.7					
Hexachlorobenzene	ND	33					
Hexachlorobutadiene	ND	33					
Hexachlorocyclopentadiene	ND	33					
Hexachloroethane	ND	33					
Indeno(1,2,3-cd)pyrene	ND	6.7					
Isophorone	ND	170					
Naphthalene	ND	6.7					
Nitrobenzene	ND	170					
N-Nitrosodimethylamine	ND	170					
N-Nitrosodi-n-propylamine	ND	33					
Pentachlorophenol	ND	33					
Phenanthrene	ND	6.7					
Phenol	ND	33					
Pyrene	ND	6.7					
Surr: 2,4,6-Tribromophenol	*1951*	0	*3333*	0	*58.5*	*34-140*	0
Surr: 2-Fluorobiphenyl	*2306*	0	*3333*	0	*69.2*	*12-100*	0
Surr: 2-Fluorophenol	*2233*	0	*3333*	0	*67*	*33-117*	0
Surr: 4-Terphenyl-d14	*2591*	0	*3333*	0	*77.7*	*25-137*	0
Surr: Nitrobenzene-d5	*2060*	0	*3333*	0	*61.8*	*37-107*	0
Surr: Phenol-d6	*2190*	0	*3333*	0	*65.7*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

LCS Sample ID: **SLCSS1-102351-102351** Units: **µg/Kg** Analysis Date: **5/25/2017 04:39 PM**

Client ID: Run ID: **SVMS5_170525A** SeqNo: **4452405** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	939.3	33	1333	0	70.5	30-120	0			
2,4,5-Trichlorophenol	946	33	1333	0	71	50-110	0			
2,4,6-Trichlorophenol	921.3	33	1333	0	69.1	45-110	0			
2,4-Dichlorophenol	888.7	33	1333	0	66.7	45-110	0			
2,4-Dimethylphenol	962	33	1333	0	72.2	30-105	0			
2,4-Dinitrophenol	788.7	33	1333	0	59.2	15-130	0			
2,4-Dinitrotoluene	1005	33	1333	0	75.4	50-115	0			
2,6-Dinitrotoluene	1005	33	1333	0	75.4	50-110	0			
2-Chloronaphthalene	933.3	6.7	1333	0	70	45-105	0			
2-Chlorophenol	960.7	33	1333	0	72.1	45-105	0			
2-Methylnaphthalene	948.7	6.7	1333	0	71.2	45-105	0			
2-Methylphenol	1002	33	1333	0	75.2	40-105	0			
2-Nitroaniline	1004	33	1333	0	75.3	45-120	0			
2-Nitrophenol	877.3	33	1333	0	65.8	40-110	0			
3&4-Methylphenol	968.7	33	1333	0	72.7	40-105	0			
3,3'-Dichlorobenzidine	1138	170	1333	0	85.4	30-120	0			
3-Nitroaniline	628	33	1333	0	47.1	25-150	0			
4,6-Dinitro-2-methylphenol	884	33	1333	0	66.3	40-130	0			
4-Bromophenyl phenyl ether	970	33	1333	0	72.8	45-115	0			
4-Chloro-3-methylphenol	952	33	1333	0	71.4	45-115	0			
4-Chloroaniline	1099	67	1333	0	82.4	15-110	0			
4-Chlorophenyl phenyl ether	1001	33	1333	0	75.1	45-110	0			
4-Nitroaniline	700.7	170	1333	0	52.6	35-150	0			
4-Nitrophenol	1233	33	1333	0	92.5	15-140	0			
Acenaphthene	1019	6.7	1333	0	76.4	45-110	0			
Acenaphthylene	1027	6.7	1333	0	77	45-105	0			
Acetophenone	999.3	33	1333	0	75	30-120	0			
Anthracene	1080	6.7	1333	0	81	55-105	0			
Benzaldehyde	414	67	1333	0	31.1	10-60	0			
Benzo(a)anthracene	1104	6.7	1333	0	82.8	50-110	0			
Benzo(a)pyrene	1175	6.7	1333	0	88.1	50-110	0			
Benzo(b)fluoranthene	1158	6.7	1333	0	86.9	45-115	0			
Benzo(g,h,i)perylene	1146	6.7	1333	0	86	40-125	0			
Benzo(k)fluoranthene	1119	6.7	1333	0	83.9	45-115	0			
Bis(2-chloroethoxy)methane	931.3	33	1333	0	69.9	45-110	0			
Bis(2-chloroethyl)ether	941.3	33	1333	0	70.6	40-105	0			
Bis(2-ethylhexyl)phthalate	1158	33	1333	0	86.9	45-125	0			
Butyl benzyl phthalate	1079	33	1333	0	81	50-125	0			
Caprolactam	1071	33	1333	0	80.4	30-120	0			
Carbazole	1088	33	1333	0	81.6	50-150	0			
Chrysene	1133	6.7	1333	0	85	55-110	0			
Dibenzo(a,h)anthracene	1131	6.7	1333	0	84.9	40-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

Dibenzofuran	1025	33	1333	0	76.9	50-105	0
Diethyl phthalate	1086	33	1333	0	81.5	50-115	0
Dimethyl phthalate	1062	33	1333	0	79.7	50-110	0
Di-n-butyl phthalate	1154	33	1333	0	86.6	55-110	0
Di-n-octyl phthalate	1087	33	1333	0	81.5	40-130	0
Fluoranthene	1085	6.7	1333	0	81.4	55-115	0
Fluorene	1015	6.7	1333	0	76.2	50-110	0
Hexachlorobenzene	1019	33	1333	0	76.5	45-120	0
Hexachlorobutadiene	916.7	33	1333	0	68.8	40-115	0
Hexachlorocyclopentadiene	1033	33	1333	0	77.5	40-115	0
Hexachloroethane	968.7	33	1333	0	72.7	35-110	0
Indeno(1,2,3-cd)pyrene	1093	6.7	1333	0	82	40-120	0
Isophorone	978	170	1333	0	73.4	45-110	0
Naphthalene	929.3	6.7	1333	0	69.7	40-105	0
Nitrobenzene	917.3	170	1333	0	68.8	40-115	0
N-Nitrosodimethylamine	1046	170	1333	0	78.5	20-115	0
N-Nitrosodi-n-propylamine	1035	33	1333	0	77.7	40-115	0
Pentachlorophenol	1190	33	1333	0	89.3	25-120	0
Phenanthrene	1117	6.7	1333	0	83.8	50-110	0
Phenol	959.3	33	1333	0	72	40-100	0
Pyrene	1125	6.7	1333	0	84.4	45-125	0
Surr: 2,4,6-Tribromophenol	*2261*	0	*3333*	0	*67.8*	*34-140*	0
Surr: 2-Fluorobiphenyl	*2345*	0	*3333*	0	*70.3*	*12-100*	0
Surr: 2-Fluorophenol	*2243*	0	*3333*	0	*67.3*	*33-117*	0
Surr: 4-Terphenyl-d14	*2553*	0	*3333*	0	*76.6*	*25-137*	0
Surr: Nitrobenzene-d5	*2108*	0	*3333*	0	*63.2*	*37-107*	0
Surr: Phenol-d6	*2275*	0	*3333*	0	*68.2*	*40-106*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

MS Sample ID: **17051196-14A MS** Units: **µg/Kg** Analysis Date: **5/25/2017 05:02 PM**

Client ID: Run ID: **SVMS5_170525A** SeqNo: **4452393** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	915.9	32	1289	0	71.1	50-110	0			
2,4,6-Trichlorophenol	843.1	32	1289	0	65.4	45-110	0			
2,4-Dichlorophenol	825.1	32	1289	0	64	45-110	0			
2,4-Dimethylphenol	631.7	32	1289	0	49	30-105	0			
2,4-Dinitrophenol	408.7	32	1289	0	31.7	15-130	0			
2,4-Dinitrotoluene	917.9	32	1289	0	71.2	50-115	0			
2,6-Dinitrotoluene	917.9	32	1289	0	71.2	50-110	0			
2-Chloronaphthalene	879.2	6.4	1289	0	68.2	45-105	0			
2-Chlorophenol	856	32	1289	0	66.4	45-105	0			
2-Methylnaphthalene	872.1	6.4	1289	15.28	66.5	45-105	0			
2-Methylphenol	780.6	32	1289	0	60.6	40-105	0			
2-Nitroaniline	950.1	32	1289	0	73.7	45-120	0			
2-Nitrophenol	810.2	32	1289	0	62.9	40-110	0			
3&4-Methylphenol	833.4	32	1289	0	64.7	40-105	0			
3,3'-Dichlorobenzidine	908.9	160	1289	0	70.5	30-120	0			
3-Nitroaniline	636.2	32	1289	0	49.4	25-150	0			
4,6-Dinitro-2-methylphenol	685.2	32	1289	0	53.2	40-130	0			
4-Bromophenyl phenyl ether	888.9	32	1289	0	69	45-115	0			
4-Chloro-3-methylphenol	863.1	32	1289	0	67	45-115	0			
4-Chloroaniline	1006	65	1289	0	78	15-110	0			
4-Chlorophenyl phenyl ether	920.5	32	1289	0	71.4	45-110	0			
4-Nitroaniline	693.6	160	1289	0	53.8	35-150	0			
4-Nitrophenol	1044	32	1289	0	81	15-140	0			
Acenaphthene	943	6.4	1289	0	73.2	45-110	0			
Acenaphthylene	950.1	6.4	1289	0	73.7	45-105	0			
Acetophenone	886.9	32	1289	0	68.8	40-140	0			
Anthracene	990.7	6.4	1289	0	76.9	55-105	0			
Benzo(a)anthracene	1004	6.4	1289	31.88	75.4	50-110	0			
Benzo(a)pyrene	1060	6.4	1289	19.26	80.8	50-110	0			
Benzo(b)fluoranthene	1044	6.4	1289	24.57	79.1	45-115	0			
Benzo(g,h,i)perylene	1018	6.4	1289	13.28	78	40-125	0			
Benzo(k)fluoranthene	1013	6.4	1289	7.97	78	45-115	0			
Bis(2-chloroethoxy)methane	859.2	32	1289	0	66.7	45-110	0			
Bis(2-chloroethyl)ether	854.1	32	1289	0	66.3	40-105	0			
Bis(2-ethylhexyl)phthalate	1058	32	1289	0	82.1	45-125	0			
Butyl benzyl phthalate	1009	32	1289	38490	-2910	50-125	0			SO
Chrysene	1053	6.4	1289	0	81.7	55-110	0			
Dibenzo(a,h)anthracene	1029	6.4	1289	0	79.9	40-125	0			
Dibenzofuran	959.8	32	1289	0	74.5	50-105	0			
Diethyl phthalate	998.5	32	1289	0	77.5	50-115	0			
Dimethyl phthalate	937.9	32	1289	0	72.8	50-110	0			
Di-n-butyl phthalate	1057	32	1289	1775	-55.7	55-110	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

Di-n-octyl phthalate	1000	32	1289	0	77.6	40-130	0	
Fluoranthene	1038	6.4	1289	42.51	77.2	55-115	0	
Fluorene	966.2	6.4	1289	0	75	50-110	0	
Hexachlorobenzene	923.7	32	1289	0	71.7	45-120	0	
Hexachlorobutadiene	841.2	32	1289	0	65.3	40-115	0	
Hexachlorocyclopentadiene	919.8	32	1289	0	71.4	40-115	0	
Hexachloroethane	856	32	1289	0	66.4	35-110	0	
Indeno(1,2,3-cd)pyrene	1046	6.4	1289	15.94	79.9	40-120	0	
Isophorone	884.4	160	1289	0	68.6	45-110	0	
Naphthalene	878.6	6.4	1289	0	68.2	40-105	0	
Nitrobenzene	803.8	160	1289	0	62.4	40-115	0	
N-Nitrosodimethylamine	1001	160	1289	0	77.7	20-115	0	
N-Nitrosodi-n-propylamine	954.6	32	1289	445.7	39.5	40-115	0	S
Pentachlorophenol	1111	32	1289	0	86.2	25-120	0	
Phenanthrene	1040	6.4	1289	10.63	79.9	50-110	0	
Phenol	861.2	32	1289	0	66.8	40-100	0	
Pyrene	1061	6.4	1289	39.19	79.3	45-125	0	
Surr: 2,4,6-Tribromophenol	*2090*	0	*3223*	0	*64.9*	*34-140*	0	
Surr: 2-Fluorobiphenyl	*2166*	0	*3223*	0	*67.2*	*12-100*	0	
Surr: 2-Fluorophenol	*1929*	0	*3223*	*0*	*59.8*	*33-117*	0	
Surr: 4-Terphenyl-d14	*2407*	0	*3223*	0	*74.7*	*25-137*	0	
Surr: Nitrobenzene-d5	*1922*	0	*3223*	0	*59.6*	*37-107*	0	
Surr: Phenol-d6	*1988*	0	*3223*	*0*	*61.7*	*40-106*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

MS Sample ID: **17051196-14A MS** Units: **µg/Kg** Analysis Date: **5/25/2017 05:02 PM**

Client ID: Run ID: **SVMS5_170525A** SeqNo: **4452406** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	887.6	32	1289	0	68.9	30-120	0			
2,4,5-Trichlorophenol	915.9	32	1289	0	71.1	50-110	0			
2,4,6-Trichlorophenol	843.1	32	1289	0	65.4	45-110	0			
2,4-Dichlorophenol	825.1	32	1289	0	64	45-110	0			
2,4-Dimethylphenol	631.7	32	1289	0	49	30-105	0			
2,4-Dinitrophenol	408.7	32	1289	0	31.7	15-130	0			
2,4-Dinitrotoluene	917.9	32	1289	0	71.2	50-115	0			
2,6-Dinitrotoluene	917.9	32	1289	0	71.2	50-110	0			
2-Chloronaphthalene	879.2	6.4	1289	0	68.2	45-105	0			
2-Chlorophenol	856	32	1289	0	66.4	45-105	0			
2-Methylnaphthalene	872.1	6.4	1289	15.28	66.5	45-105	0			
2-Methylphenol	780.6	32	1289	0	60.6	40-105	0			
2-Nitroaniline	950.1	32	1289	0	73.7	45-120	0			
2-Nitrophenol	810.2	32	1289	0	62.9	40-110	0			
3&4-Methylphenol	833.4	32	1289	0	64.7	40-105	0			
3,3'-Dichlorobenzidine	908.9	160	1289	0	70.5	30-120	0			
3-Nitroaniline	636.2	32	1289	0	49.4	25-150	0			
4,6-Dinitro-2-methylphenol	685.2	32	1289	0	53.2	40-130	0			
4-Bromophenyl phenyl ether	888.9	32	1289	0	69	45-115	0			
4-Chloro-3-methylphenol	863.1	32	1289	0	67	45-115	0			
4-Chloroaniline	1006	65	1289	0	78	15-110	0			
4-Chlorophenyl phenyl ether	920.5	32	1289	0	71.4	45-110	0			
4-Nitroaniline	693.6	160	1289	0	53.8	35-150	0			
4-Nitrophenol	1044	32	1289	0	81	15-140	0			
Acenaphthene	943	6.4	1289	0	73.2	45-110	0			
Acenaphthylene	950.1	6.4	1289	0	73.7	45-105	0			
Acetophenone	888.9	32	1289	0	68.8	30-120	0			
Anthracene	990.7	6.4	1289	0	76.9	55-105	0			
Benzaldehyde	392.5	65	1289	0	30.5	10-60	0			
Benzo(a)anthracene	1004	6.4	1289	31.88	75.4	50-110	0			
Benzo(a)pyrene	1060	6.4	1289	19.26	80.8	50-110	0			
Benzo(b)fluoranthene	1044	6.4	1289	24.57	79.1	45-115	0			
Benzo(g,h,i)perylene	1016	6.4	1289	13.28	78	40-125	0			
Benzo(k)fluoranthene	1013	6.4	1289	7.97	78	45-115	0			
Bis(2-chloroethoxy)methane	859.2	32	1289	0	66.7	45-110	0			
Bis(2-chloroethyl)ether	854.1	32	1289	0	66.3	40-105	0			
Bis(2-ethylhexyl)phthalate	1058	32	1289	0	82.1	45-125	0			
Butyl benzyl phthalate	1009	32	1289	38490	-2910	50-125	0			SO
Caprolactam	1056	32	1289	0	81.9	30-120	0			
Carbazole	1010	32	1289	0	78.4	50-150	0			
Chrysene	1053	6.4	1289	0	81.7	55-110	0			
Dibenzo(a,h)anthracene	1029	6.4	1289	0	79.9	40-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

Dibenzofuran	959.8	32	1289	0	74.5	50-105	0	
Diethyl phthalate	998.5	32	1289	0	77.5	50-115	0	
Dimethyl phthalate	937.9	32	1289	0	72.8	50-110	0	
Di-n-butyl phthalate	1057	32	1289	1775	-55.7	55-110	0	S
Di-n-octyl phthalate	1000	32	1289	0	77.6	40-130	0	
Fluoranthene	1038	6.4	1289	42.51	77.2	55-115	0	
Fluorene	966.2	6.4	1289	0	75	50-110	0	
Hexachlorobenzene	923.7	32	1289	0	71.7	45-120	0	
Hexachlorobutadiene	841.2	32	1289	0	65.3	40-115	0	
Hexachlorocyclopentadiene	919.8	32	1289	0	71.4	40-115	0	
Hexachloroethane	856	32	1289	0	66.4	35-110	0	
Indeno(1,2,3-cd)pyrene	1046	6.4	1289	15.94	79.9	40-120	0	
Isophorone	884.4	160	1289	0	68.6	45-110	0	
Naphthalene	878.6	6.4	1289	0	68.2	40-105	0	
Nitrobenzene	803.8	160	1289	0	62.4	40-115	0	
N-Nitrosodimethylamine	1001	160	1289	0	77.7	20-115	0	
N-Nitrosodi-n-propylamine	954.6	32	1289	445.7	39.5	40-115	0	S
Pentachlorophenol	1111	32	1289	0	86.2	25-120	0	
Phenanthrene	1040	6.4	1289	10.63	79.9	50-110	0	
Phenol	861.2	32	1289	0	66.8	40-100	0	
Pyrene	1061	6.4	1289	39.19	79.3	45-125	0	
Surr: 2,4,6-Tribromophenol	*2090*	0	*3223*	0	*64.9*	*34-140*	0	
Surr: 2-Fluorobiphenyl	*2166*	0	*3223*	0	*67.2*	*12-100*	0	
Surr: 2-Fluorophenol	*1929*	0	*3223*	0	*59.8*	*33-117*	0	
Surr: 4-Terphenyl-d14	*2407*	0	*3223*	0	*74.7*	*25-137*	0	
Surr: Nitrobenzene-d5	*1922*	0	*3223*	0	*59.6*	*37-107*	0	
Surr: Phenol-d6	*1988*	0	*3223*	0	*61.7*	*40-106*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

MSD Sample ID: **17051196-14A MSD** Units: **µg/Kg** Analysis Date: **5/25/2017 05:25 PM**

Client ID: Run ID: **SVMS5_170525A** SeqNo: **4452394** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
2,4,5-Trichlorophenol	991.2	33	1323	0	74.9	50-110	915.9	7.69	30	
2,4,6-Trichlorophenol	924.4	33	1323	0	69.9	45-110	843.1	9.2	30	
2,4-Dichlorophenol	865.5	33	1323	0	65.4	45-110	825.1	4.78	30	
2,4-Dimethylphenol	702.7	33	1323	0	53.1	30-105	631.7	10.6	30	
2,4-Dinitrophenol	429.4	33	1323	0	32.5	15-130	408.7	4.96	30	
2,4-Dinitrotoluene	974	33	1323	0	73.6	50-115	917.9	5.93	30	
2,6-Dinitrotoluene	974	33	1323	0	73.6	50-110	917.9	5.93	30	
2-Chloronaphthalene	949.5	6.6	1323	0	71.8	45-105	879.2	7.69	30	
2-Chlorophenol	970.7	33	1323	0	73.4	45-105	856	12.6	30	
2-Methylnaphthalene	976.6	6.6	1323	15.28	72.7	45-105	872.1	11.3	30	
2-Methylphenol	898.6	33	1323	0	67.9	40-105	780.6	14.1	30	
2-Nitroaniline	1009	33	1323	0	76.3	45-120	950.1	6.02	30	
2-Nitrophenol	901.2	33	1323	0	68.1	40-110	810.2	10.6	30	
3&4-Methylphenol	929	33	1323	0	70.2	40-105	833.4	10.8	30	
3,3'-Dichlorobenzidine	973.3	170	1323	0	73.6	30-120	908.9	6.85	30	
3-Nitroaniline	612.7	33	1323	0	46.3	25-150	636.2	3.76	30	
4,6-Dinitro-2-methylphenol	712.6	33	1323	0	53.9	40-130	685.2	3.93	30	
4-Bromophenyl phenyl ether	946.2	33	1323	0	71.5	45-115	888.9	6.25	30	
4-Chloro-3-methylphenol	939.6	33	1323	0	71	45-115	863.1	8.49	30	
4-Chloroaniline	1026	66	1323	0	77.5	15-110	1006	1.98	30	
4-Chlorophenyl phenyl ether	942.9	33	1323	0	71.3	45-110	920.5	2.41	30	
4-Nitroaniline	679.5	170	1323	0	51.4	35-150	693.6	2.04	30	
4-Nitrophenol	1032	33	1323	0	78	15-140	1044	1.09	30	
Acenaphthene	991.2	6.6	1323	0	74.9	45-110	943	4.98	30	
Acenaphthylene	1022	6.6	1323	0	77.2	45-105	950.1	7.26	30	
Acetophenone	1022	33	1323	0	77.2	40-140	886.9	14.1	30	
Anthracene	1024	6.6	1323	0	77.4	55-105	990.7	3.27	30	
Benzo(a)anthracene	1060	6.6	1323	31.88	77.7	50-110	1004	5.47	30	
Benzo(a)pyrene	1113	6.6	1323	19.26	82.7	50-110	1060	4.84	30	
Benzo(b)fluoranthene	1102	6.6	1323	24.57	81.5	45-115	1044	5.42	30	
Benzo(g,h,i)perylene	1053	6.6	1323	13.28	78.6	40-125	1016	3.31	30	
Benzo(k)fluoranthene	1030	6.6	1323	7.97	77.2	45-115	1013	1.6	30	
Bis(2-chloroethoxy)methane	926.4	33	1323	0	70	45-110	859.2	7.52	30	
Bis(2-chloroethyl)ether	925.7	33	1323	0	70	40-105	854.1	8.05	30	
Bis(2-ethylhexyl)phthalate	1081	33	1323	0	81.7	45-125	1058	2.07	30	
Butyl benzyl phthalate	1012	33	1323	38490	-2830	50-125	1009	0.228	30	SO
Chrysene	1101	6.6	1323	0	83.2	55-110	1053	4.5	30	
Dibenzo(a,h)anthracene	1085	6.6	1323	0	82	40-125	1029	5.27	30	
Dibenzofuran	998.5	33	1323	0	75.3	50-105	959.8	3.75	30	
Diethyl phthalate	1016	33	1323	0	76.8	50-115	998.5	1.78	30	
Dimethyl phthalate	991.9	33	1323	0	75	50-110	937.9	5.6	30	
Di-n-butyl phthalate	1047	33	1323	1775	-55	55-110	1057	0.919	30	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

Di-n-octyl phthalate	1033	33	1323	0	78.1	40-130	1000	3.2	30
Fluoranthene	1092	6.6	1323	42.51	79.4	55-115	1038	5.13	30
Fluorene	993.8	6.6	1323	0	75.1	50-110	966.2	2.82	30
Hexachlorobenzene	936.3	33	1323	0	70.8	45-120	923.7	1.35	30
Hexachlorobutadiene	909.2	33	1323	0	68.7	40-115	841.2	7.77	30
Hexachlorocyclopentadiene	1024	33	1323	0	77.4	40-115	919.8	10.7	30
Hexachloroethane	1008	33	1323	0	76.2	35-110	856	16.3	30
Indeno(1,2,3-cd)pyrene	1088	6.6	1323	15.94	81.1	40-120	1046	4.03	30
Isophorone	980	170	1323	0	74.1	45-110	884.4	10.3	30
Naphthalene	996.5	6.6	1323	0	75.3	40-105	878.6	12.6	30
Nitrobenzene	917.8	170	1323	0	69.4	40-115	803.8	13.2	30
N-Nitrosodimethylamine	941.6	170	1323	0	71.2	20-115	1001	6.12	30
N-Nitrosodi-n-propylamine	1053	33	1323	445.7	45.9	40-115	954.6	9.78	30
Pentachlorophenol	1125	33	1323	0	85	25-120	1111	1.27	30
Phenanthrene	1143	6.6	1323	10.63	85.6	50-110	1040	9.38	30
Phenol	947.5	33	1323	0	71.6	40-100	861.2	9.55	30
Pyrene	1145	6.6	1323	39.19	83.6	45-125	1061	7.59	30
Surr: 2,4,6-Tribromophenol	*2154*	0	*3308*	0	*65.1*	*34-140*	2090	*2.99*	*40*
Surr: 2-Fluorobiphenyl	*2316*	0	*3308*	0	*70*	*12-100*	2166	*6.67*	*40*
Surr: 2-Fluorophenol	*2190*	0	*3308*	0	*66.2*	*33-117*	1929	*12.7*	*40*
Surr: 4-Terphenyl-d14	*2374*	0	*3308*	0	*71.8*	*25-137*	2407	*1.37*	*40*
Surr: Nitrobenzene-d5	*2144*	0	*3308*	0	*64.8*	*37-107*	1922	*10.9*	*40*
Surr: Phenol-d6	*2203*	0	*3308*	0	*66.6*	*40-106*	1988	*10.3*	*40*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

MSD Sample ID: **17051196-14A MSD** Units: **µg/Kg** Analysis Date: **5/25/2017 05:25 PM**

Client ID: Run ID: **SVMS5_170525A** SeqNo: **4452407** Prep Date: **5/24/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	935.6	33	1323	0	70.7	30-120	887.6	5.27	30	
2,4,5-Trichlorophenol	991.2	33	1323	0	74.9	50-110	915.9	7.89	30	
2,4,6-Trichlorophenol	924.4	33	1323	0	69.9	45-110	843.1	9.2	30	
2,4-Dichlorophenol	865.5	33	1323	0	65.4	45-110	825.1	4.78	30	
2,4-Dimethylphenol	702.7	33	1323	0	53.1	30-105	631.7	10.6	30	
2,4-Dinitrophenol	429.4	33	1323	0	32.5	15-130	408.7	4.96	30	
2,4-Dinitrotoluene	974	33	1323	0	73.6	50-115	917.9	5.93	30	
2,6-Dinitrotoluene	974	33	1323	0	73.6	50-110	917.9	5.93	30	
2-Chloronaphthalene	949.5	6.6	1323	0	71.8	45-105	879.2	7.69	30	
2-Chlorophenol	970.7	33	1323	0	73.4	45-105	856	12.6	30	
2-Methylnaphthalene	976.6	6.6	1323	15.28	72.7	45-105	872.1	11.3	30	
2-Methylphenol	898.6	33	1323	0	67.9	40-105	780.6	14.1	30	
2-Nitroaniline	1009	33	1323	0	76.3	45-120	950.1	6.02	30	
2-Nitrophenol	901.2	33	1323	0	68.1	40-110	810.2	10.6	30	
3&4-Methylphenol	929	33	1323	0	70.2	40-105	833.4	10.8	30	
3,3'-Dichlorobenzidine	973.3	170	1323	0	73.6	30-120	908.9	6.85	30	
3-Nitroaniline	612.7	33	1323	0	46.3	25-110	636.2	3.76	30	
4,6-Dinitro-2-methylphenol	712.6	33	1323	0	53.9	40-130	685.2	3.93	30	
4-Bromophenyl phenyl ether	946.2	33	1323	0	71.5	45-115	886.9	6.25	30	
4-Chloro-3-methylphenol	939.6	33	1323	0	71	45-115	863.1	8.49	30	
4-Chloroaniline	1026	66	1323	0	77.5	15-110	1006	1.98	30	
4-Chlorophenyl phenyl ether	942.9	33	1323	0	71.3	45-110	920.5	2.41	30	
4-Nitroaniline	679.5	170	1323	0	51.4	35-150	693.6	2.04	30	
4-Nitrophenol	1032	33	1323	0	78	15-140	1044	1.09	30	
Acenaphthene	991.2	6.6	1323	0	74.9	45-110	943	4.96	30	
Acenaphthylene	1022	6.6	1323	0	77.2	45-105	950.1	7.26	30	
Acetophenone	1022	33	1323	0	77.2	30-120	886.9	14.1	30	
Anthracene	1024	6.6	1323	0	77.4	55-105	990.7	3.27	30	
Benzaldehyde	437.4	66	1323	0	33.1	10-60	392.5	10.8	30	
Benzo(a)anthracene	1060	6.6	1323	31.88	77.7	50-110	1004	5.47	30	
Benzo(a)pyrene	1113	6.6	1323	19.26	82.7	50-110	1060	4.64	30	
Benzo(b)fluoranthene	1102	6.6	1323	24.57	81.5	45-115	1044	5.42	30	
Benzo(g,h,i)perylene	1053	6.6	1323	13.28	78.6	40-125	1018	3.31	30	
Benzo(k)fluoranthene	1030	6.6	1323	7.97	77.2	45-115	1013	1.6	30	
Bis(2-chloroethoxy)methane	926.4	33	1323	0	70	45-110	859.2	7.52	30	
Bis(2-chloroethyl)ether	925.7	33	1323	0	70	40-105	854.1	8.05	30	
Bis(2-ethylhexyl)phthalate	1081	33	1323	0	81.7	45-125	1058	2.07	30	
Butyl benzyl phthalate	1012	33	1323	38490	-2830	50-125	1009	0.226	30	SO
Caprolactam	1015	33	1323	0	76.7	30-120	1056	3.94	30	
Carbazole	1040	33	1323	0	78.6	50-150	1010	2.94	30	
Chrysene	1101	6.6	1323	0	83.2	55-110	1053	4.5	30	
Dibenzo(a,h)anthracene	1085	6.6	1323	0	82	40-125	1029	5.27	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102351** Instrument ID **SVMS5** Method: **SW846 8270D**

Dibenzofuran	996.5	33	1323	0	75.3	50-105	959.8	3.75	30	
Diethyl phthalate	1016	33	1323	0	76.8	50-115	998.5	1.78	30	
Dimethyl phthalate	991.9	33	1323	0	75	50-110	937.9	5.6	30	
Di-n-butyl phthalate	1047	33	1323	1775	-55	55-110	1057	0.919	30	S
Di-n-octyl phthalate	1033	33	1323	0	78.1	40-130	1000	3.2	30	
Fluoranthene	1092	6.6	1323	42.51	79.4	55-115	1038	5.13	30	
Fluorene	993.8	6.6	1323	0	75.1	50-110	966.2	2.82	30	
Hexachlorobenzene	936.3	33	1323	0	70.8	45-120	923.7	1.35	30	
Hexachlorobutadiene	909.2	33	1323	0	68.7	40-115	841.2	7.77	30	
Hexachlorocyclopentadiene	1024	33	1323	0	77.4	40-115	919.8	10.7	30	
Hexachloroethane	1008	33	1323	0	76.2	35-110	856	16.3	30	
Indeno(1,2,3-cd)pyrene	1088	6.6	1323	15.94	81.1	40-120	1046	4.03	30	
Isophorone	980	170	1323	0	74.1	45-110	884.4	10.3	30	
Naphthalene	996.5	6.6	1323	0	75.3	40-105	878.6	12.6	30	
Nitrobenzene	917.8	170	1323	0	69.4	40-115	803.8	13.2	30	
N-Nitrosodimethylamine	941.6	170	1323	0	71.2	20-115	1001	6.12	30	
N-Nitrosodi-n-propylamine	1053	33	1323	445.7	45.9	40-115	954.6	9.78	30	
Pentachlorophenol	1125	33	1323	0	85	25-120	1111	1.27	30	
Phenanthrene	1143	6.6	1323	10.63	85.6	50-110	1040	9.38	30	
Phenol	947.5	33	1323	0	71.6	40-100	861.2	9.55	30	
Pyrene	1145	6.6	1323	39.19	83.6	45-125	1061	7.59	30	
Surr: 2,4,6-Tribromophenol	*2154*	0	*3308*	0	*65.1*	*34-140*	2090	*2.99*	*40*	
Surr: 2-Fluorobiphenyl	*2316*	0	*3308*	0	*70*	*12-100*	2166	*6.67*	*40*	
Surr: 2-Fluorophenol	*2190*	0	*3308*	0	*66.2*	*33-117*	1929	*12.7*	*40*	
Surr: 4-Terphenyl-d14	*2374*	0	*3308*	0	*71.8*	*25-137*	2407	*1.37*	*40*	
Surr: Nitrobenzene-d5	*2144*	0	*3308*	0	*64.8*	*37-107*	1922	*10.9*	*40*	
Surr: Phenol-d6	*2203*	0	*3308*	0	*66.6*	*40-106*	1988	*10.3*	*40*	

The following samples were analyzed in this batch:

17051193-02A	17051193-06A	17051193-08A
17051193-12A	17051193-14A	17051193-16A
17051193-18A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102392** Instrument ID **SVMS8** Method: **SW8270D**

MBLK Sample ID: **SBLKW1-102392-102392** Units: **µg/L** Analysis Date: **5/25/2017 08:12 PM**

Client ID: Run ID: **SVMS8_170525A** SeqNo: **4451666** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
Hexachloro-1,3-butadiene	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
m-Cresol	ND	5.0								
Nitrobenzene	ND	5.0								
o-Cresol	ND	5.0								
p-Cresol	ND	5.0								
Pentachlorophenol	ND	5.0								
Pyridine	ND	10								
Surr: 2,4,6-Tribromophenol	*32.29*	0	*50*	0	*64.6*	*38-115*		0		
Surr: 2-Fluorobiphenyl	*28.67*	0	*50*	0	*57.3*	*32-100*		0		
Surr: 2-Fluorophenol	*18.96*	0	*50*	0	*37.9*	*22-59*		0		
Surr: 4-Terphenyl-d14	*31.51*	0	*50*	0	*63*	*23-112*		0		
Surr: Nitrobenzene-d5	*27.65*	0	*50*	0	*55.3*	*31-93*		0		
Surr: Phenol-d6	*11.04*	0	*50*	0	*22.1*	*13-36*		0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102392** Instrument ID **SVMS8** Method: **SW8270D**

LCS Sample ID: **SLCSW1-102392-102392** Units: **µg/L** Analysis Date: **5/25/2017 08:32 PM**

Client ID: Run ID: **SVMS8_170525A** SeqNo: **4451667** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	8.86	5.0	20	0	44.3	30-110	0			
2,4,5-Trichlorophenol	10.16	5.0	20	0	50.8	50-110	0			
2,4,6-Trichlorophenol	10.38	5.0	20	0	51.9	50-115	0			
2,4-Dinitrotoluene	13.6	5.0	20	0	68	50-120	0			
Hexachloro-1,3-butadiene	10.32	5.0	20	0	51.6	25-105	0			
Hexachlorobenzene	15.03	5.0	20	0	75.2	50-110	0			
Hexachloroethane	8.09	5.0	20	0	40.4	30-95	0			
m-Cresol	9.03	5.0	20	0	45.2	30-110	0			
Nitrobenzene	12.28	5.0	20	0	61.4	45-110	0			
o-Cresol	10.05	5.0	20	0	50.2	40-110	0			
p-Cresol	9.03	5.0	20	0	45.2	30-110	0			
Pentachlorophenol	9.01	5.0	20	0	45	40-115	0			
Pyridine	5.7	10	20	0	28.5	10-71	0			J
Surr: 2,4,6-Tribromophenol	*27.47*	0	*50*	0	*54.9*	*38-115*	0			
Surr: 2-Fluorobiphenyl	*31.74*	0	*50*	0	*63.5*	*32-100*	0			
Surr: 2-Fluorophenol	*12.36*	0	*50*	0	*24.7*	*22-59*	0			
Surr: 4-Terphenyl-d14	*32.64*	0	*50*	0	*65.3*	*23-112*	0			
Surr: Nitrobenzene-d5	*29.59*	0	*50*	0	*59.2*	*31-93*	0			
Surr: Phenol-d6	*8.62*	0	*50*	0	*17.2*	*13-36*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102392** Instrument ID **SVMS8** Method: **SW8270D**

MS Sample ID: **17051199-06A MS** Units: **µg/L** Analysis Date: **5/25/2017 08:52 PM**

Client ID: Run ID: **SVMS8_170525A** SeqNo: **4451668** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	188.2	100	400	0	47	30-110	0			
2,4,5-Trichlorophenol	307.6	100	400	0	76.9	50-110	0			
2,4,6-Trichlorophenol	321.6	100	400	0	80.4	50-115	0			
2,4-Dinitrotoluene	285.4	100	400	0	71.4	50-120	0			
Hexachloro-1,3-butadiene	232.8	100	400	0	58.2	25-105	0			
Hexachlorobenzene	300.2	100	400	0	75	50-110	0			
Hexachloroethane	185.2	100	400	0	46.3	30-95	0			
m-Cresol	192	100	400	0	48	30-110	0			
Nitrobenzene	226.8	100	400	0	56.7	45-110	0			
o-Cresol	213.8	100	400	0	53.4	40-110	0			
p-Cresol	192	100	400	0	48	30-110	0			
Pentachlorophenol	326.8	100	400	0	81.7	40-115	0			
Pyridine	117.8	200	400	0	29.4	10-80	0			J
Surr: 2,4,6-Tribromophenol	*804*	0	*1000*	0	*80.4*	*38-115*	0			
Surr: 2-Fluorobiphenyl	*616.8*	0	*1000*	0	*61.7*	*32-100*	0			
Surr: 2-Fluorophenol	*311.6*	0	*1000*	0	*31.2*	*22-59*	0			
Surr: 4-Terphenyl-d14	*636.6*	0	*1000*	0	*63.7*	*23-112*	0			
Surr: Nitrobenzene-d5	*538.6*	0	*1000*	0	*53.9*	*31-93*	0			
Surr: Phenol-d6	*204.4*	0	*1000*	0	*20.4*	*13-36*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102392** Instrument ID **SVMS8** Method: **SW8270D**

MSD Sample ID: **17051199-06A MSD** Units: **µg/L** Analysis Date: **5/25/2017 09:12 PM**

Client ID: Run ID: **SVMS8_170525A** SeqNo: **4451669** Prep Date: **5/25/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	160.4	100	400	0	40.1	30-110	188.2	15.9	30	
2,4,5-Trichlorophenol	284.8	100	400	0	71.2	50-110	307.6	7.7	30	
2,4,6-Trichlorophenol	299.2	100	400	0	74.8	50-115	321.6	7.22	30	
2,4-Dinitrotoluene	246.8	100	400	0	61.7	50-120	285.4	14.5	30	
Hexachloro-1,3-butadiene	186.2	100	400	0	46.6	25-105	232.8	22.2	30	
Hexachlorobenzene	264.2	100	400	0	66	50-110	300.2	12.8	30	
Hexachloroethane	150.6	100	400	0	37.6	30-95	185.2	20.6	30	
m-Cresol	205.8	100	400	0	51.4	30-110	192	6.94	30	
Nitrobenzene	228.4	100	400	0	57.1	45-110	226.8	0.703	30	
o-Cresol	227.8	100	400	0	57	40-110	213.8	6.34	30	
p-Cresol	205.8	100	400	0	51.4	30-110	192	6.94	30	
Pentachlorophenol	272	100	400	0	68	40-115	326.8	18.3	30	
Pyridine	121.2	200	400	0	30.3	10-80	117.8	0	30	J
Surr: 2,4,6-Tribromophenol	*693.6*	0	*1000*	0	*69.4*	*38-115*	804	*14.7*	*0*	
Surr: 2-Fluorobiphenyl	*584.4*	0	*1000*	0	*58.4*	*32-100*	616.8	*5.39*	*0*	
Surr: 2-Fluorophenol	*353.4*	0	*1000*	0	*35.3*	*22-59*	311.6	*12.6*	*0*	
Surr: 4-Terphenyl-d14	*540.6*	0	*1000*	0	*54.1*	*23-112*	636.6	*16.3*	*0*	
Surr: Nitrobenzene-d5	*543.2*	0	*1000*	0	*54.3*	*31-93*	538.6	*0.85*	*0*	
Surr: Phenol-d6	*224*	0	*1000*	0	*22.4*	*13-36*	204.4	*9.15*	*0*	

The following samples were analyzed in this batch:

17051193-01B	17051193-03B	17051193-05B
17051193-07B	17051193-09B	17051193-11B
17051193-13B	17051193-15B	17051193-17B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102286** Instrument ID **VMS9** Method: **SW8260B**

MBLK Sample ID: **MBLK-102286-102286** Units: **µg/Kg-dry** Analysis Date: **5/24/2017 07:41 PM**

Client ID: Run ID: **VMS9_170524A** SeqNo: **4448163** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	ND	30								
1,1,1-Trichloroethane	ND	30								
1,1,2,2-Tetrachloroethane	ND	30								
1,1,2-Trichloroethane	ND	30								
1,1,2-Trichlorotrifluoroethane	ND	30								
1,1-Dichloroethane	ND	30								
1,1-Dichloroethene	ND	30								
1,2,3-Trichloropropane	ND	30								
1,2,4-Trichlorobenzene	ND	30								
1,2,4-Trimethylbenzene	ND	30								
1,2-Dibromo-3-chloropropane	ND	30								
1,2-Dibromoethane	ND	30								
1,2-Dichlorobenzene	ND	30								
1,2-Dichloroethane	ND	30								
1,2-Dichloropropane	ND	30								
1,3,5-Trimethylbenzene	ND	30								
1,3-Dichlorobenzene	ND	30								
1,4-Dichlorobenzene	ND	30								
2-Butanone	ND	200								
2-Hexanone	ND	30								
2-Methylnaphthalene	ND	100								
4-Methyl-2-pentanone	ND	30								
Acetone	ND	100								
Acrylonitrile	ND	100								
Benzene	ND	30								
Bromochloromethane	ND	30								
Bromodichloromethane	ND	30								
Bromoform	ND	30								
Bromomethane	ND	75								
Carbon disulfide	ND	30								
Carbon tetrachloride	ND	30								
Chlorobenzene	ND	30								
Chloroethane	ND	100								
Chloroform	ND	30								
Chloromethane	ND	100								
cis-1,2-Dichloroethene	ND	30								
cis-1,3-Dichloropropene	ND	30								
Dibromochloromethane	ND	30								
Dibromomethane	ND	30								
Dichlorodifluoromethane	ND	30								
Diethyl ether	ND	30								
Ethylbenzene	ND	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102286** Instrument ID **VMS9** Method: **SW8260B**

Hexachloroethane	ND	100					
Isopropylbenzene	ND	30					
m,p-Xylene	ND	60					
Methyl iodide	ND	75					
Methyl tert-butyl ether	ND	30					
Methylene chloride	ND	30					
Naphthalene	ND	100					
n-Propylbenzene	ND	30					
o-Xylene	ND	30					
Styrene	ND	30					
Tetrachloroethene	ND	30					
Toluene	ND	30					
trans-1,2-Dichloroethene	ND	30					
trans-1,3-Dichloropropene	ND	30					
trans-1,4-Dichloro-2-butene	ND	30					
Trichloroethene	ND	30					
Trichlorofluoromethane	ND	30					
Vinyl acetate	ND	250					
Vinyl chloride	ND	30					
Xylenes, Total	ND	90					
Surr: 1,2-Dichloroethane-d4	*1006*	0	*1000*	0	*101*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1044*	0	*1000*	0	*104*	*70-130*	0
Surr: Dibromofluoromethane	*820*	0	*1000*	0	*82*	*70-130*	0
Surr: Toluene-d8	*1022*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102286** Instrument ID **VMS9** Method: **SW8260B**

LCS Sample ID: **LCS-102286-102286** Units: **µg/Kg-dry** Analysis Date: **5/24/2017 11:34 AM**
Client ID: Run ID: **VMS9_170524A** SeqNo: **4448147** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	838	30	1000	0	83.8	75-125	0			
1,1,1-Trichloroethane	941.5	30	1000	0	94.2	70-135	0			
1,1,2,2-Tetrachloroethane	1012	30	1000	0	101	55-130	0			
1,1,2-Trichloroethane	1117	30	1000	0	112	60-125	0			
1,1-Dichloroethane	1148	30	1000	0	115	75-125	0			
1,1-Dichloroethene	967.5	30	1000	0	96.8	65-135	0			
1,2,3-Trichloropropane	1112	30	1000	0	111	65-130	0			
1,2,4-Trichlorobenzene	944.5	30	1000	0	94.4	65-130	0			
1,2,4-Trimethylbenzene	995	30	1000	0	99.5	65-135	0			
1,2-Dibromo-3-chloropropane	804	30	1000	0	80.4	40-135	0			
1,2-Dibromoethane	1060	30	1000	0	106	80-195	0			
1,2-Dichlorobenzene	986	30	1000	0	98.6	75-120	0			
1,2-Dichloroethane	1046	30	1000	0	105	70-135	0			
1,2-Dichloropropane	1134	30	1000	0	113	70-120	0			
1,3,5-Trimethylbenzene	1019	30	1000	0	102	65-135	0			
1,3-Dichlorobenzene	959.5	30	1000	0	96	70-125	0			
1,4-Dichlorobenzene	961	30	1000	0	96.1	70-125	0			
2-Butanone	1136	200	1000	0	114	30-160	0			
2-Hexanone	1014	30	1000	0	101	45-145	0			
4-Methyl-2-pentanone	1248	30	1000	0	125	74-176	0			
Acetone	952.5	100	1000	0	95.2	20-160	0			
Acrylonitrile	1242	100	1000	0	124	70-135	0			
Benzene	1054	30	1000	0	105	75-125	0			
Bromochloromethane	1171	30	1000	0	117	74-134	0			
Bromodichloromethane	871.5	30	1000	0	87.2	70-130	0			
Bromoform	724.5	30	1000	0	72.4	55-135	0			
Bromomethane	1082	75	1000	0	108	50-170	0			
Carbon disulfide	866.5	30	1000	0	86.6	45-160	0			
Carbon tetrachloride	783.5	30	1000	0	78.4	65-135	0			
Chlorobenzene	1004	30	1000	0	100	75-125	0			
Chloroethane	820	100	1000	0	82	40-155	0			
Chloroform	1046	30	1000	0	105	70-125	0			
Chloromethane	1009	100	1000	0	101	50-144	0			
cis-1,2-Dichloroethene	1117	30	1000	0	112	65-125	0			
cis-1,3-Dichloropropene	958	30	1000	0	95.8	70-125	0			
Dibromochloromethane	768	30	1000	0	76.8	65-135	0			
Dibromomethane	1006	30	1000	0	101	75-130	0			
Dichlorodifluoromethane	835	30	1000	0	83.5	35-135	0			
Diethyl ether	1003	30	1000	0	100	70-130	0			
Ethylbenzene	1017	30	1000	0	102	75-125	0			
Hexachloroethane	532.5	100	1000	0	53.2	51-122	0			
Isopropylbenzene	993	30	1000	0	99.3	75-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102286** Instrument ID **VMS9** Method: **SW8260B**

m,p-Xylene	2062	60	2000	0	103	80-125	0
Methyl iodide	1058	75	1000	0	106	64-180	0
Methyl tert-butyl ether	1170	30	1000	0	117	75-125	0
Methylene chloride	1208	30	1000	0	121	55-145	0
Naphthalene	1004	100	1000	0	100	40-140	0
n-Propylbenzene	1011	30	1000	0	101	65-135	0
o-Xylene	1046	30	1000	0	105	75-125	0
Styrene	1088	30	1000	0	109	80-138	0
Tetrachloroethene	1283	30	1000	0	128	67-167	0
Toluene	1002	30	1000	0	100	70-125	0
trans-1,2-Dichloroethene	1080	30	1000	0	108	65-135	0
trans-1,3-Dichloropropene	891.5	30	1000	0	89.2	59-129	0
trans-1,4-Dichloro-2-butene	787	30	1000	0	78.7	62-112	0
Trichloroethene	1000	30	1000	0	100	75-125	0
Trichlorofluoromethane	741.5	30	1000	0	74.2	25-185	0
Vinyl chloride	859.5	30	1000	0	86	60-125	0
Xylenes, Total	3110	90	3000	0	104	75-125	0
Surr: 1,2-Dichloroethane-d4	*1015*	0	*1000*	0	*102*	*70-130*	0
Surr: 4-Bromofluorobenzene	*1027*	0	*1000*	0	*103*	*70-130*	0
Surr: Dibromofluoromethane	*972*	0	*1000*	0	*97.2*	*70-130*	0
Surr: Toluene-d8	*1018*	0	*1000*	0	*102*	*70-130*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102286** Instrument ID **VMS9** Method: **SW8260B**

MS Sample ID: **17051208-01A MS** Units: **µg/Kg-dry** Analysis Date: **5/24/2017 08:28 PM**

Client ID: Run ID: **VMS9_170524A** SeqNo: **4448165** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	700.5	30	1000	0	70	75-125	0			S
1,1,1-Trichloroethane	751	30	1000	0	75.1	70-135	0			
1,1,2,2-Tetrachloroethane	775.5	30	1000	0	77.6	55-130	0			
1,1,2-Trichloroethane	980.5	30	1000	0	98	60-125	0			
1,1-Dichloroethane	934.5	30	1000	0	93.4	75-125	0			
1,1-Dichloroethene	787	30	1000	0	78.7	65-135	0			
1,2,3-Trichloropropane	995.5	30	1000	0	99.6	65-130	0			
1,2,4-Trichlorobenzene	813	30	1000	0	81.3	65-130	0			
1,2,4-Trimethylbenzene	890	30	1000	0	89	65-135	0			
1,2-Dibromo-3-chloropropane	605	30	1000	0	60.5	40-135	0			
1,2-Dibromoethane	911	30	1000	0	91.1	80-195	0			
1,2-Dichlorobenzene	855	30	1000	0	85.5	75-120	0			
1,2-Dichloroethane	900	30	1000	0	90	70-135	0			
1,2-Dichloropropane	951	30	1000	0	95.1	70-120	0			
1,3,5-Trimethylbenzene	903.5	30	1000	0	90.4	65-135	0			
1,3-Dichlorobenzene	832	30	1000	0	83.2	70-125	0			
1,4-Dichlorobenzene	831	30	1000	0	83.1	70-125	0			
2-Butanone	1756	200	1000	0	176	30-160	0			S
2-Hexanone	1403	30	1000	0	140	45-145	0			
4-Methyl-2-pentanone	1127	30	1000	0	113	74-176	0			
Acetone	1938	100	1000	0	194	20-160	0			S
Acrylonitrile	1123	100	1000	0	112	70-135	0			
Benzene	918.5	30	1000	0	91.8	75-125	0			
Bromochloromethane	996.5	30	1000	0	99.6	74-134	0			
Bromodichloromethane	681.5	30	1000	0	68.2	70-130	0			S
Bromoform	555	30	1000	0	55.5	55-135	0			
Bromomethane	657.5	75	1000	0	65.8	50-170	0			
Carbon disulfide	580	30	1000	0	58	45-160	0			
Carbon tetrachloride	626.5	30	1000	0	62.6	65-135	0			S
Chlorobenzene	863.5	30	1000	0	86.4	75-125	0			
Chloroethane	226.5	100	1000	0	22.6	40-155	0			S
Chloroform	863.5	30	1000	0	86.4	70-125	0			
Chloromethane	846.5	100	1000	0	84.6	50-144	0			
cis-1,2-Dichloroethene	907	30	1000	0	90.7	65-125	0			
cis-1,3-Dichloropropene	724.5	30	1000	0	72.4	70-125	0			
Dibromochloromethane	566.5	30	1000	0	56.6	65-135	0			S
Dibromomethane	841	30	1000	0	84.1	75-130	0			
Dichlorodifluoromethane	575.5	30	1000	0	57.6	35-135	0			
Diethyl ether	868	30	1000	0	86.8	70-130	0			
Ethylbenzene	879	30	1000	0	87.9	75-125	0			
Hexachloroethane	377	100	1000	0	37.7	51-122	0			S
Isopropylbenzene	882	30	1000	0	88.2	75-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102286** Instrument ID **VMS9** Method: **SW8260B**

m,p-Xylene	1792	60	2000	0	89.6	80-125	0	
Methyl iodide	625.5	75	1000	0	62.6	64-180	0	S
Methyl tert-butyl ether	996	30	1000	0	99.6	75-125	0	
Methylene chloride	980	30	1000	0	98	55-145	0	
Naphthalene	915.5	100	1000	0	91.6	40-140	0	
n-Propylbenzene	910	30	1000	0	91	65-135	0	
o-Xylene	919.5	30	1000	0	92	75-125	0	
Styrene	967.5	30	1000	0	96.8	80-138	0	
Tetrachloroethene	1420	30	1000	0	142	67-167	0	
Toluene	861.5	30	1000	0	86.2	70-125	0	
trans-1,2-Dichloroethene	872.5	30	1000	0	87.2	65-135	0	
trans-1,3-Dichloropropene	658.5	30	1000	0	65.8	59-129	0	
trans-1,4-Dichloro-2-butene	669	30	1000	0	66.9	62-112	0	
Trichloroethene	893	30	1000	0	89.3	75-125	0	
Trichlorofluoromethane	589.5	30	1000	0	59	25-185	0	
Vinyl chloride	770.5	30	1000	0	77	60-125	0	
Xylenes, Total	2712	90	3000	0	90.4	75-125	0	
Surr: 1,2-Dichloroethane-d4	*1004*	0	*1000*	0	*100*	*70-130*	0	
Surr: 4-Bromofluorobenzene	*1055*	0	*1000*	0	*106*	*70-130*	0	
Surr: Dibromofluoromethane	*918*	0	*1000*	0	*91.8*	*70-130*	0	
Surr: Toluene-d8	*1006*	0	*1000*	0	*101*	*70-130*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102286** Instrument ID **VMS9** Method: **SW8260B**

MSD Sample ID: **17051208-01A MSD** Units: **µg/Kg-dry** Analysis Date: **5/24/2017 08:51 PM**
Client ID: Run ID: **VMS9_170524A** SeqNo: **4448204** Prep Date: **5/22/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	739.5	30	1000	0	74	75-125	700.5	5.42	30	S
1,1,1-Trichloroethane	800.5	30	1000	0	80	70-135	751	6.38	30	
1,1,2,2-Tetrachloroethane	877.5	30	1000	0	87.8	55-130	775.5	12.3	30	
1,1,2-Trichloroethane	1016	30	1000	0	102	60-125	980.5	3.75	30	
1,1-Dichloroethane	1002	30	1000	0	100	75-125	934.5	6.97	30	
1,1-Dichloroethene	853.5	30	1000	0	85.4	65-135	787	8.11	30	
1,2,3-Trichloropropane	1070	30	1000	0	107	65-130	995.5	7.26	30	
1,2,4-Trichlorobenzene	868	30	1000	0	86.8	65-130	813	6.54	30	
1,2,4-Trimethylbenzene	940	30	1000	0	94	65-135	890	5.46	30	
1,2-Dibromo-3-chloropropane	684.5	30	1000	0	68.4	40-135	605	12.3	30	
1,2-Dibromoethane	958	30	1000	0	95.8	80-195	911	5.03	30	
1,2-Dichlorobenzene	938.5	30	1000	0	93.8	75-120	855	9.31	30	
1,2-Dichloroethane	976.5	30	1000	0	97.6	70-135	900	8.15	30	
1,2-Dichloropropane	1026	30	1000	0	103	70-120	951	7.59	30	
1,3,5-Trimethylbenzene	964	30	1000	0	96.4	65-135	903.5	6.48	30	
1,3-Dichlorobenzene	895	30	1000	0	89.5	70-125	832	7.3	30	
1,4-Dichlorobenzene	894	30	1000	0	89.4	70-125	831	7.3	30	
2-Butanone	1652	200	1000	0	165	30-160	1756	6.13	30	S
2-Hexanone	1330	30	1000	0	133	45-145	1403	5.3	30	
4-Methyl-2-pentanone	1196	30	1000	0	120	74-176	1127	5.94	30	
Acetone	1819	100	1000	0	182	20-160	1938	6.33	30	S
Acrylonitrile	1220	100	1000	0	122	70-135	1123	8.28	30	
Benzene	958	30	1000	0	95.8	75-125	918.5	4.21	30	
Bromochloromethane	1067	30	1000	0	107	74-134	996.5	6.83	30	
Bromodichloromethane	734.5	30	1000	0	73.4	70-130	681.5	7.49	30	
Bromoform	629.5	30	1000	0	63	55-135	555	12.6	30	
Bromomethane	776.5	75	1000	0	77.6	50-170	657.5	16.6	30	
Carbon disulfide	643	30	1000	0	64.3	45-160	580	10.3	30	
Carbon tetrachloride	645	30	1000	0	64.5	65-135	626.5	2.91	30	S
Chlorobenzene	925	30	1000	0	92.5	75-125	863.5	6.88	30	
Chloroethane	251.5	100	1000	0	25.2	40-155	226.5	10.5	30	S
Chloroform	911	30	1000	0	91.1	70-125	863.5	5.35	30	
Chloromethane	898.5	100	1000	0	89.6	50-144	846.5	5.74	30	
cis-1,2-Dichloroethene	983	30	1000	0	98.3	65-125	907	8.04	30	
cis-1,3-Dichloropropene	790	30	1000	0	79	70-125	724.5	8.65	30	
Dibromochloromethane	644.5	30	1000	0	64.4	65-135	566.5	12.9	30	S
Dibromomethane	914	30	1000	0	91.4	75-130	841	8.32	30	
Dichlorodifluoromethane	633.5	30	1000	0	63.4	35-135	575.5	9.59	30	
Diethyl ether	897	30	1000	0	89.7	70-130	868	3.29	30	
Ethylbenzene	937.5	30	1000	0	93.8	75-125	879	6.44	30	
Hexachloroethane	406.5	100	1000	0	40.6	51-122	377	7.53	30	S
Isopropylbenzene	938	30	1000	0	93.8	75-130	882	6.15	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **102286** Instrument ID **VMS9** Method: **SW8260B**

m,p-Xylene	1908	60	2000	0	95.4	80-125	1792	6.3	30
Methyl iodide	670.5	75	1000	0	67	64-180	625.5	6.94	30
Methyl tert-butyl ether	1078	30	1000	0	108	75-125	996	7.86	30
Methylene chloride	1050	30	1000	0	105	55-145	980	6.94	30
Naphthalene	942.5	100	1000	0	94.2	40-140	915.5	2.91	30
n-Propylbenzene	962.5	30	1000	0	96.2	65-135	910	5.61	30
o-Xylene	977	30	1000	0	97.7	75-125	919.5	6.06	30
Styrene	1037	30	1000	0	104	80-138	967.5	6.93	30
Tetrachloroethene	1468	30	1000	0	147	67-167	1420	3.39	30
Toluene	921	30	1000	0	92.1	70-125	861.5	6.68	30
trans-1,2-Dichloroethene	940.5	30	1000	0	94	65-135	872.5	7.5	30
trans-1,3-Dichloropropene	732.5	30	1000	0	73.2	59-129	658.5	10.6	30
trans-1,4-Dichloro-2-butene	697.5	30	1000	0	69.8	62-112	669	4.17	30
Trichloroethene	924.5	30	1000	0	92.4	75-125	893	3.47	30
Trichlorofluoromethane	641	30	1000	0	64.1	25-185	589.5	8.37	30
Vinyl chloride	824	30	1000	0	82.4	60-125	770.5	6.71	30
Xylenes, Total	2886	90	3000	0	96.2	75-125	2712	6.22	30
Surr: 1,2-Dichloroethane-d4	*996.5*	0	*1000*	0	*99.6*	*70-130*	1004	*0.8*	*30*
Surr: 4-Bromofluorobenzene	*1053*	0	*1000*	0	*105*	*70-130*	1055	*0.19*	*30*
Surr: Dibromofluoromethane	*928*	0	*1000*	0	*92.8*	*70-130*	918	*1.08*	*30*
Surr: Toluene-d8	*992*	0	*1000*	0	*99.2*	*70-130*	1006	*1.35*	*30*

The following samples were analyzed in this batch:

17051193-02B	17051193-04B	17051193-06B
17051193-08B	17051193-10B	17051193-12B
17051193-14B	17051193-16B	17051193-18B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **R212731** Instrument ID **VMS9** Method: **SW8260B**

MBLK Sample ID: **VBLKW2-170525-R212731** Units: **µg/L** Analysis Date: **5/25/2017 11:07 PM**

Client ID: Run ID: **VMS9_170525B** SeqNo: **4451503** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
2-Butanone	ND	5.0								
Benzene	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroform	ND	1.0								
Tetrachloroethene	ND	1.0								
Trichloroethene	ND	1.0								
Vinyl chloride	33.21	1.0								
Surr: 1,2-Dichloroethane-d4	*19.96*	0	*20*	0	*99.8*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.98*	0	*20*	0	*105*	*80-110*	0			
Surr: Dibromofluoromethane	*17.88*	0	*20*	0	*89.4*	*85-115*	0			
Surr: Toluene-d8	*20.19*	0	*20*	0	*101*	*85-110*	0			

LCS Sample ID: **VLCSW3-17055-R212731** Units: **µg/L** Analysis Date: **5/25/2017 10:44 PM**

Client ID: Run ID: **VMS9_170525B** SeqNo: **4451500** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	18.16	1.0	20	0	90.8	70-145	0			
1,2-Dichloroethane	19.79	1.0	20	0	99	78-125	0			
2-Butanone	21.06	5.0	20	0	105	55-150	0			
Benzene	20.25	1.0	20	0	101	85-125	0			
Carbon tetrachloride	15.61	1.0	20	0	78	65-140	0			
Chlorobenzene	19.56	1.0	20	0	97.8	80-120	0			
Chloroform	19.25	1.0	20	0	96.2	80-130	0			
Tetrachloroethene	22.83	1.0	20	0	114	68-166	0			
Trichloroethene	18.86	1.0	20	0	94.3	84-130	0			
Vinyl chloride	15.8	1.0	20	0	79	50-136	0			B
Surr: 1,2-Dichloroethane-d4	*19.91*	0	*20*	0	*99.6*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*20.36*	0	*20*	0	*102*	*80-110*	0			
Surr: Dibromofluoromethane	*19.09*	0	*20*	0	*95.4*	*85-115*	0			
Surr: Toluene-d8	*20.63*	0	*20*	0	*103*	*85-110*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **R212731** Instrument ID **VMS9** Method: **SW8260B**

MS Sample ID: **17051345-03A MS** Units: **µg/L** Analysis Date: **5/26/2017 07:38 AM**
Client ID: Run ID: **VMS9_170525B** SeqNo: **4451512** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	1573	100	2000	0	78.6	70-145	0			
1,2-Dichloroethane	1664	100	2000	0	83.2	78-125	0			
2-Butanone	1544	500	2000	0	77.2	55-150	0			
Benzene	1747	100	2000	0	87.4	85-125	0			
Carbon tetrachloride	1259	100	2000	0	63	65-140	0			S
Chlorobenzene	1681	100	2000	0	84	80-120	0			
Chloroform	1630	100	2000	0	81.5	80-130	0			
Tetrachloroethene	2098	100	2000	0	105	68-166	0			
Trichloroethene	1683	100	2000	0	84.2	84-130	0			
Vinyl chloride	1326	100	2000	0	66.3	50-136	0			B
Surr: 1,2-Dichloroethane-d4	*1909*	0	*2000*	0	*95.4*	*75-120*	0			
Surr: 4-Bromofluorobenzene	*2060*	0	*2000*	0	*103*	*80-110*	0			
Surr: Dibromofluoromethane	*1832*	0	*2000*	0	*91.6*	*85-115*	0			
Surr: Toluene-d8	*2060*	0	*2000*	0	*103*	*85-110*	0			

MSD Sample ID: **17051345-03A MSD** Units: **µg/L** Analysis Date: **5/26/2017 08:01 AM**
Client ID: Run ID: **VMS9_170525B** SeqNo: **4451514** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	2054	100	2000	0	103	70-145	1573	26.5	30	
1,2-Dichloroethane	2081	100	2000	0	104	78-125	1664	22.3	30	
2-Butanone	2063	500	2000	0	103	55-150	1544	28.8	30	
Benzene	2199	100	2000	0	110	85-125	1747	22.9	30	
Carbon tetrachloride	1679	100	2000	0	84	65-140	1259	28.6	30	
Chlorobenzene	2076	100	2000	0	104	80-120	1681	21	30	
Chloroform	2066	100	2000	0	103	80-130	1630	23.6	30	
Tetrachloroethene	2468	100	2000	0	123	68-166	2098	16.2	30	
Trichloroethene	2053	100	2000	0	103	84-130	1683	19.8	30	
Vinyl chloride	1809	100	2000	0	90.4	50-136	1326	30.8	30	BR
Surr: 1,2-Dichloroethane-d4	*1981*	0	*2000*	0	*99*	*75-120*	1909	*3.7*	*30*	
Surr: 4-Bromofluorobenzene	*2049*	0	*2000*	0	*102*	*80-110*	2060	*0.535*	*30*	
Surr: Dibromofluoromethane	*1891*	0	*2000*	0	*94.6*	*85-115*	1832	*3.17*	*30*	
Surr: Toluene-d8	*2053*	0	*2000*	0	*103*	*85-110*	2060	*0.34*	*30*	

The following samples were analyzed in this batch:

17051193-01A	17051193-03A	17051193-05A
17051193-07A	17051193-09A	17051193-11A
17051193-13A	17051193-15A	17051193-17A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **102321** Instrument ID **WETCHEM** Method: **SW9045D**

LCS Sample ID: **LCS-102321-102321** Units: **s.u.** Analysis Date: **5/24/2017 12:00 PM**
Client ID: Run ID: **WETCHEM_170524S** SeqNo: **4447675** Prep Date: **5/23/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.9	0.10	4	0	97.5	90-110	0			

DUP Sample ID: **17051193-02A DUP** Units: **s.u.** Analysis Date: **5/24/2017 12:00 PM**
Client ID: **QMCM - RPM01-0"-6"** Run ID: **WETCHEM_170524S** SeqNo: **4447678** Prep Date: **5/23/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.99	0.10	0	0	0	0-0	7.81	2.28	20	

DUP Sample ID: **17051197-02A DUP** Units: **s.u.** Analysis Date: **5/24/2017 12:00 PM**
Client ID: Run ID: **WETCHEM_170524S** SeqNo: **4447688** Prep Date: **5/23/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.72	0.10	0	0	0	0-0	7.18	6.62	20	

The following samples were analyzed in this batch:

17051193-02A	17051193-04A	17051193-06A
17051193-08A	17051193-10A	17051193-12A
17051193-14A	17051193-16A	17051193-18A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **R212546** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R212546** Units: **% of sample** Analysis Date: **5/23/2017 12:17 PM**
Client ID: Run ID: **MOIST_170523A** SeqNo: **4446510** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R212546** Units: **% of sample** Analysis Date: **5/23/2017 12:17 PM**
Client ID: Run ID: **MOIST_170523A** SeqNo: **4446509** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **17051193-08A DUP** Units: **% of sample** Analysis Date: **5/23/2017 12:17 PM**
Client ID: **QMCM - RPM06-0"-6"** Run ID: **MOIST_170523A** SeqNo: **4446491** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	21.02	0.050	0	0	0		19.99	5.02	5	R

DUP Sample ID: **1705868-01A DUP** Units: **% of sample** Analysis Date: **5/23/2017 12:17 PM**
Client ID: Run ID: **MOIST_170523A** SeqNo: **4446503** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	19.84	0.050	0	0	0		19.69	0.759	5	

The following samples were analyzed in this batch:

17051193-02A	17051193-04A	17051193-06A
17051193-08A	17051193-10A	17051193-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **R212551** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R212551** Units: **% of sample** Analysis Date: **5/23/2017 03:34 PM**
Client ID: Run ID: **MOIST_170523B** SeqNo: **4446623** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R212551** Units: **% of sample** Analysis Date: **5/23/2017 03:34 PM**
Client ID: Run ID: **MOIST_170523B** SeqNo: **4446621** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **17051193-18A DUP** Units: **% of sample** Analysis Date: **5/23/2017 03:34 PM**
Client ID: **QMCM - DM02-0"-6"** Run ID: **MOIST_170523B** SeqNo: **4446596** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	8.2	0.050	0	0	0		8.35	1.81	5	

DUP Sample ID: **17051199-03A DUP** Units: **% of sample** Analysis Date: **5/23/2017 03:34 PM**
Client ID: Run ID: **MOIST_170523B** SeqNo: **4446600** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	78.43	0.050	0	0	0		78.5	0.0892	5	

The following samples were analyzed in this batch: 17051193-14A 17051193-16A 17051193-18A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **R212666** Instrument ID **WETCHEM** Method: **SW1010A**

LCS Sample ID: **LCS-R212666-R212666** Units: **°F** Analysis Date: **5/25/2017 11:05 AM**

Client ID: Run ID: **WETCHEM_170525G** SeqNo: **4449895** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	83	1.0	81	0	102	97-103	0			

DUP Sample ID: **1705895-04B DUP** Units: **°F** Analysis Date: **5/25/2017 11:05 AM**

Client ID: Run ID: **WETCHEM_170525G** SeqNo: **4449899** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	ND	1.0	0	0	0	0-0	0	0	10	

The following samples were analyzed in this batch: 17051193-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **R212691** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK Sample ID: **MB-R212691-R212691** Units: **mg/Kg** Analysis Date: **5/26/2017 09:45 AM**

Client ID: Run ID: **WETCHEM_170526A** SeqNo: **4450703** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	100								

LCS Sample ID: **LCS-R212691-R212691** Units: **mg/Kg** Analysis Date: **5/26/2017 09:45 AM**

Client ID: Run ID: **WETCHEM_170526A** SeqNo: **4450704** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	1584	100	2149	0	73.7	60-120		0		

The following samples were analyzed in this batch:

17051193-02A	17051193-04A	17051193-06A
17051193-08A	17051193-10A	17051193-12A
17051193-14A	17051193-16A	17051193-18A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **R212720** Instrument ID **WETCHEM** Method: **SW7.3.3.2**

MBLK Sample ID: **MB-R212720-R212720** Units: **mg/Kg** Analysis Date: **5/26/2017 12:50 PM**
Client ID: Run ID: **WETCHEM_170526F** SeqNo: **4451206** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	100								

LCS Sample ID: **LCS-R212720-R212720** Units: **mg/Kg** Analysis Date: **5/26/2017 12:50 PM**
Client ID: Run ID: **WETCHEM_170526F** SeqNo: **4451207** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	117.4	100	125	0	93.9	84-112		0		

MS Sample ID: **17051193-02A MS** Units: **mg/Kg** Analysis Date: **5/26/2017 12:50 PM**
Client ID: **QMCM - RPM01-0"-6"** Run ID: **WETCHEM_170526F** SeqNo: **4451209** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	100	250	0	94	84-112		0		

MSD Sample ID: **17051193-02A MSD** Units: **mg/Kg** Analysis Date: **5/26/2017 12:50 PM**
Client ID: **QMCM - RPM01-0"-6"** Run ID: **WETCHEM_170526F** SeqNo: **4451210** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	100	250	0	94	84-112	234.9	0	8	

The following samples were analyzed in this batch:

17051193-02A	17051193-04A	17051193-06A
17051193-08A	17051193-10A	17051193-12A
17051193-14A	17051193-16A	17051193-18A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **R212756** Instrument ID **WETCHEM** Method: **SW1010A**

LCS Sample ID: **LCS-R212756-R212756** Units: **°F** Analysis Date: **5/26/2017 09:35 AM**

Client ID: Run ID: **WETCHEM_170526L** SeqNo: **4451948** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	83	1.0	81	0	102	97-103	0			

DUP Sample ID: **17051233-01A DUP** Units: **°F** Analysis Date: **5/26/2017 09:35 AM**

Client ID: Run ID: **WETCHEM_170526L** SeqNo: **4451952** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	ND	1.0	0	0	0	0-0	0	0	10	

The following samples were analyzed in this batch: 17051193-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Michigan Dept.of Environmental Quality
Work Order: 17051193
Project: Abandoned Mining Wastes - Torch Lake 31000098

QC BATCH REPORT

Batch ID: **R212889** Instrument ID **WETCHEM** Method: **SW1010A**

LCS Sample ID: **LCS-R212889-R212889** Units: **°F** Analysis Date: **5/30/2017 09:45 AM**

Client ID: Run ID: **WETCHEM_170530I** SeqNo: **4454874** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	83	1.0	81	0	102	97-103		0		

DUP Sample ID: **17051193-08A DUP** Units: **°F** Analysis Date: **5/30/2017 09:45 AM**

Client ID: **QMCM - RPM06-0"-6"** Run ID: **WETCHEM_170530I** SeqNo: **4454877** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Flashpoint/Ignitability	ND	1.0	0	0	0	0-0	0	0	10	

The following samples were analyzed in this batch:

17051193-06A
17051193-08A
17051193-10A
17051193-12A
17051193-14A
17051193-16A
17051193-18A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

☐ ALS Environmental
10450 Stancliff Rd, #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

☑ ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

ALS Project Manager:

ALS Work Order #: 1705 1193

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Abandoned Mining Wastes - Torch Lake	A	TCLP VOCs-SVOA-PEST-HERB-METALS
Work Order		Project Number	31000098	B	Cyanide, Reactive/SW7.3.3.2
Company Name	Mannik & Smith Group	Bill To Company	MDEQ-RRD	C	Sulfide, Reactive/SW7.3.4.2
Send Report To	Jeff Binkley	Invoice Attn.	Tracey Curtis	D	pH/SW9045D
Address	200 Michigan St, Suite 705	Address	Constitution Hall 5th Floor South 525 West Allegan Street	E	Flashpoint-Ignitability Analysis/SW1010A
				F	PCBs/SW8082
City/State/Zip	Hancock, MI 49930	City/State/Zip	Lansing/MI/48909	G	Moisture/SW3550C
Phone	906-281-3404	Phone	517-284-5176	H	Paint Filter (Free Liquids)/SW9095B
DEQ PM address	keranena@michigan.gov	Fax		I	Total VOC/8260B-SVOC/8270D-PEST/8081-HERB/8151-Metals/6010C/7471B
e-Mail Address	lbinkley@manniksmithgroup.com	accounting #s	17 44251 30843 456457 00	J	

	No.	Sample Description	Date	Time	Matrix	Pres. Key Numbers	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
12	1	QMCM - RPM01 - 0"-6"	05/16/17	0904	RPM	7,8	5	X	X	X	X	X	X	X	X	X		
	2	~~QMCM - DM~~			~~Drum~~	~~7~~	~~6~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~Kom~~	
14	3	QMCM - RPM04 - 0"-6"	05/16/17	0931	RPM	7,8	5	X	X	X	X	X	X	X	X	X		
16	4	QMCM - RPM05 - 0"-6"	05/16/17	0917	RPM	7,8	5	X	X	X	X	X	X	X	X	X		
18	5	QMCM - RPM06 - 0"-6"	05/16/17	1527	RPM	7,8	5	X	X	X	X	X	X	X	X	X		
10	6	QMCM - RPM03 - 0"-6"	05/16/17	1127	RPM	7,8	5	X	X	X	X	X	X	X	X	X		
12	7	QMCM - RPM02 - 0"-6"	05/16/17	1143	RPM	7,8	5	X	X	X	X	X	X	X	X	X		
14	8	QMCM - RPM07 - 0"-6"	05/17/17	1212	RPM	7,8	5	X	X	X	X	X	X	X	X	X		
16	9	QMCM - DM03 - 0"-6"	05/17/17	1630	RPM	7,8	5	X	X	X	X	X	X	X	X	X		
18	10	QMCM - DM02 - 0"-6"	05/17/17	1650	RPM	7,8	5	X	X	X	X	X	X	X	X	X		

Sampler(s): Please Print & Sign: Shelly Kennedy Ashley Miller

Shipment Method: UPS

Turnaround Time in Business Days (BD): ☑ 10 BD ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Notes:
[signature]	05/18/17	1500	UPS			
Relinquished by: UPS	Date:	Time:	Received by (Laboratory): [signature]	Date: 5/19/17	Time: 1000	
Logged by (Laboratory): DFS	Date: 5/19/17	Time: 1430	Checked by (Laboratory): [signature]			

ALS Cooler ID	Cooler Temp
SR2	4.8°c
	3.8°c

QC Package: (Check Box Below)
☑ Level II: Standard QC ☐ Level III: Raw Data
☐ TRRP LRC ☐ TRRP Level IV
☐ Level IV: SW846 Methods/CLP like
☐ Other:

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-None/4°

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS.

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Sample Receipt Checklist

Client Name: **MDEQ** Date/Time Received: **19-May-17 10:00**

Work Order: **17051193** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 19-May-17 (Date) Reviewed by: Alex Csaszar (eSignature) 19-May-17 (Date)

Matrices: Waste
Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.8/4.8, 3.8/3.8 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/19/2017 2:54:06 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-79773-1
Client Project/Site: Abandoned Mining Waste
Revision: 1

For:
Michigan Dept of Environmental Quality
Water Resources Division
Constitution Hall, 3rd Fl SW
525 W. Allegan Street
Lansing, Michigan 48909

Attn: Amy Keranen

Kris Brooks

Authorized for release by:
6/6/2017 3:02:59 PM

Kris Brooks, Project Manager II
(330)966-9790
kris.brooks@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

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Job ID: 240-79773-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative
240-79773-1

Comments
The Asbestos analysis was performed at the EMLab P&K Denver Labortatory.

Receipt
The samples were received on 5/19/2017 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 23.7° C.

Method Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Abandoned Mining Waste

TestAmerica Job ID: 240-79773-1

Method	Method Description	Protocol	Laboratory
Asbestos-CARB 435 (non crush) w/1000 pt	General Sub Contract Method	NONE	

Protocol References:

NONE = NONE

Laboratory References:

= EMLab P&K - Denver, 4955 Yarrow Street, Arvada, CO 80002

Sample Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Abandoned Mining Waste

TestAmerica Job ID: 240-79773-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-79773-1	QMCM-SS05-0"-6"	Solid	05/16/17 09:55	05/19/17 10:10
240-79773-2	QMCM-SS04-0"-6"	Solid	05/16/17 10:29	05/19/17 10:10
240-79773-3	QMCM-SS17-0"-6"	Solid	05/16/17 13:30	05/19/17 10:10
240-79773-4	QMCM-SS18-0"-6"	Solid	05/16/17 14:02	05/19/17 10:10
240-79773-5	QMCM-SS23-0"-6"	Solid	05/16/17 14:42	05/19/17 10:10
240-79773-6	QMCM-SS35-0"-6"	Solid	05/17/17 14:30	05/19/17 10:10
240-79773-7	QMCM-SB13-0"-6"	Solid	05/17/17 15:05	05/19/17 10:10
240-79773-8	QMCM-SB01-0"-6"	Solid	05/17/17 15:45	05/19/17 10:10
240-79773-9	QMCM-SB21-0"-6"	Solid	05/17/17 16:20	05/19/17 10:10
240-79773-10	QMCM-DUP-0"-6"	Solid	05/17/17 16:20	05/19/17 10:10
240-79773-11	QMCM-SB18-0"-6"	Solid	05/17/17 17:10	05/19/17 10:10

EMLab P&K
A TestAmerica Company

Report for:

Ms. Kris Brooks
TestAmerica-Canton
4101 Shuffel Dr. NW
North Canton, OH 44720

Regarding: Project: 240-79773-1; MDEQ - Asbestos project - Jeff Binkley
EML ID: 1730450

Approved by:

Technical Manager
Noah Lazarte

Dates of Analysis:
Asbestos-CARB 435: 05-30-2017

Service SOPs: Asbestos-CARB 435 (EM-AS-S-1265)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: TestAmerica-Canton
C/O: Ms. Kris Brooks
Re: 240-79773-1; MDEQ - Asbestos project - Jeff Binkley

Date of Sampling: 05-16-2017 and 05-17-2017
Date of Receipt: 05-22-2017
Date of Report: 05-30-2017

ASBESTOS POINT COUNT REPORT: CARB METHOD 435

Location:	240-79773-1 QMCM-SS05-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074640-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	240-79773-2 QMCM-SS04-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074641-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	240-79773-3 QMCM-SS17-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074642-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

The analytical sensitivity is 1 asbestos point. The limit of detection is 1 asbestos point divided by the total number of asbestos points counted and multiplied by 100.

The results relate only to the items tested. Interpretation is left to the company and/or persons who conducted the field work. The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

All samples were received in acceptable condition unless otherwise noted. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: TestAmerica-Canton
C/O: Ms. Kris Brooks
Re: 240-79773-1; MDEQ - Asbestos project - Jeff Binkley

Date of Sampling: 05-16-2017
Date of Receipt: 05-22-2017
Date of Report: 05-30-2017

ASBESTOS POINT COUNT REPORT: CARB METHOD 435

Location:	240-79773-4 QMCM-SS18-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074643-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	240-79773-5 QMCM-SS23-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074644-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	240-79773-6 QMCM-SS35-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074645-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

The analytical sensitivity is 1 asbestos point. The limit of detection is 1 asbestos point divided by the total number of asbestos points counted and multiplied by 100.

The results relate only to the items tested. Interpretation is left to the company and/or persons who conducted the field work. The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

All samples were received in acceptable condition unless otherwise noted. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: TestAmerica-Canton
C/O: Ms. Kris Brooks
Re: 240-79773-1; MDEQ - Asbestos project - Jeff Binkley

Date of Sampling: 05-17-2017
Date of Receipt: 05-22-2017
Date of Report: 05-30-2017

ASBESTOS POINT COUNT REPORT: CARB METHOD 435

Location:	240-79773-7 QMCM-SS13-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074646-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	240-79773-8 QMCM-SS01-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074647-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	240-79773-9 QMCM-SS21-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074648-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Black Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

The analytical sensitivity is 1 asbestos point. The limit of detection is 1 asbestos point divided by the total number of asbestos points counted and multiplied by 100.

The results relate only to the items tested. Interpretation is left to the company and/or persons who conducted the field work. The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

All samples were received in acceptable condition unless otherwise noted. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: TestAmerica-Canton
C/O: Ms. Kris Brooks
Re: 240-79773-1; MDEQ - Asbestos project - Jeff Binkley

Date of Sampling: 05-17-2017
Date of Receipt: 05-22-2017
Date of Report: 05-30-2017

ASBESTOS POINT COUNT REPORT: CARB METHOD 435

Location:	240-79773-10 QMCM-DUP-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074649-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Black Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

Location:	240-79773-11 QMCM-SB18-0"-6"		
Total Points Counted:	0		
Lab ID-Version‡:	8074650-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Brown Soil	-	-	ND
Layer Totals:		-	-

Comments: Point counting as stated under "Total Points Counted" was not performed as no asbestos fibers were detected.

The analytical sensitivity is 1 asbestos point. The limit of detection is 1 asbestos point divided by the total number of asbestos points counted and multiplied by 100.

The results relate only to the items tested. Interpretation is left to the company and/or persons who conducted the field work. The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

All samples were received in acceptable condition unless otherwise noted. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

001730450

6/6/2017

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	
Client Contact: Shipping/Receiving	Phone:	E-Mail: kris.brooks@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 2
Company: EMLab P&K		Accreditations Required (See note):		Job #: 240-79773-1
Address: 4955 Yarrow Street,	Due Date Requested: 5/25/2017			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone:	PO #:			
Email:	WO #:			
Project Name: MDEQ - Asbestos project - Jeff Binkley	Project #: 24018266			
Site:	SSOW#:			

Analysis Requested

Field Filtered Sample (Yes or No) | Perform MS/MSD (Yes or No) | SUB (Asbestos-CARB 435 (non crush) w/1000 point count) | Asbestos-CARB 435 (non crush) w/1000 pt count | Total Number of containers

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Soil, Oil, Sediment, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Asbestos-CARB 435 (non crush) w/1000 point count)	Asbestos-CARB 435 (non crush) w/1000 pt count	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
QMCM-SS05-0"-6" (240-79773-1)	5/16/17	09:55 Eastern		Solid			X			
QMCM-SS04-0"-6" (240-79773-2)	5/16/17	10:29 Eastern		Solid			X			
QMCM-SS17-0"-6" (240-79773-3)	5/16/17	13:30 Eastern		Solid			X			
QMCM-SS18-0"-6" (240-79773-4)	5/16/17	14:02 Eastern		Solid			X			
QMCM-SS23-0"-6" (240-79773-5)	5/16/17	14:42 Eastern		Solid			X			
QMCM-SS35-0"-6" (240-79773-6)	5/17/17	14:30 Eastern		Solid			X			
QMCM-SS13-0"-6" (240-79773-7)	5/17/17	15:05 Eastern		Solid			X			
QMCM-SS01-0"-6" (240-79773-8)	5/17/17	15:45 Eastern		Solid			X			
QMCM-SS21-0"-6" (240-79773-9)	5/17/17	16:20 Eastern		Solid			X			

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) | Primary Deliverable Rank: 2 | Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 5-19-17 1530	Company: EM	Received by:	Date/Time: 5/22/17 0830	Company: EMLAB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

4101 Shuttel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

001730450

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Brooks, Kris M	Carrier Tracking No(s):	COC No: 2
Client Contact: Shipping/Receiving	Phone:	E-Mail: kris.brooks@testamericainc.com	State of Origin: Michigan	Page: Page 2 of 2
Company: EMLab P&K		Accreditations Required (See note):		Job #: 240-79773-1
Address: 4955 Yarrow Street,	Due Date Requested: 5/25/2017			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone:	PO #:			
Email:	WO #:			
Project Name: MDEQ - Asbestos project - Jeff Binkley	Project #: 24018266			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Soil, Oil/Waste, Air, Tissue, Other)	Field Filtered Sample (Yes or No)	SUB (Asbestos-CARB 435 (non crush) w/1000 point count, Asbestos-CARB 435 (non crush) w/1000 pt	Total Number of containers	Special Instructions/Note:
			Preservation Code:					
OMCM-DUP-0"-6" (240-79773-10)	5/17/17	18:20 Eastern		Solid		X	1	
OMCM-SB18-0"-6" (240-79773-11)	5/17/17	17:10 Eastern		Solid		X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

Possible Hazard Identification Unconfirmed		*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months	
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	Special Instructions/QC Requirements:	
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	5-19-17 1530	EML		5/22/17 0830	EMLAB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

6/6/2017

24.0/23.7

CHAIN OF CUSTODY
www.EMLabPK.com

EMLab P&K
A TestAmerica Company

New Jersey: 3000 Lincoln Drive East, Suite A, Marlton, NJ 08053 * (866) 871-1984
Phoenix, AZ: 1501 West Knudsen Drive, Phoenix, AZ 85027 * (800) 651-4802
SSF, CA: 6000 Shoreline Court, Suite 205, South San Francisco, CA 94080 * (866) 888-6653

CONTACT INFORMATION

Company:	Mannik Smith Group	Address:	200 Michigan Street, Suite 705, Hancock, MI 49930
Contact:	Jeffrey S. Binkley	Special Instructions:	Analysis in accordance with MDEQ Quote #24018087. On invoice, reference DEQ account #17 44251 30843 456457.00
Phone:	906.281.3404		

PROJECT INFORMATION

Project ID:	Abandoned Mining Wastes		
Project Description:	QMCM		
Project Zip Code:		Sampling Date & Time:	
PO Number:		Sampled By:	AEM

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)
ND – Next Business Day
SD – Same Business Day Rush*
*Please call Client Services for locations with Rush services

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes - Date/Time
	QMCM-SS05-0"-6"	SO	STD		05/16/17 0955
	QMCM-SS09-0"-6"	SO	STD		05/16/17 1029
	QMCM-SS17-0"-6"	SO	STD		05/16/17 1330
	QMCM-SS18-0"-6"	SO	STD		05/16/17 1402
	QMCM-SS23-0"-6"	SO	STD		05/16/17 1442
	QMCMSS35-0"-6"	SO	STD		05/17/17 1430
	QMCM-SB13-0"-6"	SO	STD		05/17/17 1505
	QMCM-SB01-0"-6"	SO	STD		05/17/17 1545
	QMCM-SB21-0"-6"	SO	STD		05/17/17 1620
	QMCM-DUP-0"-6"	SO	STD		05/17/17 1620
	QMCM-SB18-0"-6"	SO	STD		05/17/17 1710

ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

PCM Air		PLM Bulk					PLM Rock & Soil		Other Requests		
Fiber Count (NIOSH 7400)	OSHA with TWA	EPA Method 600/R-93/116	EPA Point Count (200 Point Count)	EPA Point Count (400 Point Count)	EPA Point Count (1000 Point Count)	Gravimetric Point Count	CARB 435 Method (Pre-crushed Sample)	CARB 435 Method (Regular Sample)	Lead Analysis	TEM Carb 435 w/100 point count	
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐
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240-79773 Chain of Custody

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[signature]	05/18/17 1500	[signature]	5-19-17 1010
B – Bulk	T – Tape				
D – Dust	R – Rock	[signature]	~~5-19-17 1010~~		
SO – Soil	O – Other:				

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at http://www.emlab.com/s/main/serviceterms.html

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Atlantic COC Doc # 04071 Rev 12 Revised 12/08/16 Page 1 of 1 QA

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 79773
Canton Facility

Client MAHNEK-SMITH Site Name — Cooler unpacked by: GBP

Cooler Received on 5-19-17 Opened on 5-19-17

FedEx: 1st Grd Exp (UPS) FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Foam Box (Client Cooler) Box Other

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water (None)

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.3** °C) Observed Cooler Temp. 24.0 °C Corrected Cooler Temp. 23.7 °C
   IR GUN #36 (CF **+0.8**°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were custody seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 11-15 have been checked at the originating laboratory.
11. Were sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# **HC697954**
12. Were VOAs on the COC? Yes (No)
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes (No) NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # ____ Yes (No)
15. Was a LL Hg or Me Hg trip blank present? ____ Yes (No)

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

17. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.

Sample(s) ____ were received in a broken container.

Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

18. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.

Time preserved: ____ Preservative(s) added/Lot number(s): ____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-80281-1
Client Project/Site: Abandoned Mining Waste
Revision: 1

For:
Michigan Dept of Environmental Quality
Water Resources Division
Constitution Hall, 3rd Fl SW
525 W. Allegan Street
Lansing, Michigan 48909

Attn: Amy Keranen

Kris Brooks

Authorized for release by:
6/22/2017 7:46:45 PM

Kris Brooks, Project Manager II
(330)966-9790
kris.brooks@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 240-80281-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative
240-80281-1

Comments
The Asbestos analysis was performed at the EMLab P&K Denver Laboratory.

This report has been revised to correct the sample IDs and sample dates on the subcontract report.

Receipt
The samples were received on 6/1/2017 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 22.6º C.

Method Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Abandoned Mining Waste

TestAmerica Job ID: 240-80281-1

Method	Method Description	Protocol	Laboratory
PLM Asbestos	General Sub Contract Method	NONE	

Protocol References:

NONE = NONE

Laboratory References:

= EMLab P&K - Denver, 4955 Yarrow Street, Arvada, CO 80002

Sample Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Abandoned Mining Waste

TestAmerica Job ID: 240-80281-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-80281-1	QMCM-ASBBLK01A-052417	Solid	05/24/17 13:05	06/01/17 10:30
240-80281-2	QMCM-ASBBLK01B-052417	Solid	05/24/17 13:05	06/01/17 10:30
240-80281-3	QMCM-ASBBLK01C-052417	Solid	05/24/17 13:05	06/01/17 10:30
240-80281-4	QMCM-ASBBLK02A-052417	Solid	05/24/17 13:13	06/01/17 10:30
240-80281-5	QMCM-ASBBLK02B-052417	Solid	05/24/17 13:13	06/01/17 10:30
240-80281-6	QMCM-ASBBLK02C-052417	Solid	05/24/17 13:13	06/01/17 10:30
240-80281-7	QMCM-ASBBLK03A-052417	Solid	05/24/17 13:16	06/01/17 10:30
240-80281-8	QMCM-ASBBLK03B-052417	Solid	05/24/17 13:16	06/01/17 10:30
240-80281-9	QMCM-ASBBLK03C-052417	Solid	05/24/17 13:16	06/01/17 10:30
240-80281-10	QMCM-ASBBLK04A-052417	Solid	05/24/17 13:33	06/01/17 10:30
240-80281-11	QMCM-ASBBLK04B-052417	Solid	05/24/17 13:33	06/01/17 10:30
240-80281-12	QMCM-ASBBLK04C-052417	Solid	05/24/17 13:33	06/01/17 10:30
240-80281-13	QMCM-ASBBLK05A-052417	Solid	05/24/17 13:39	06/01/17 10:30
240-80281-14	QMCM-ASBBLK05B-052417	Solid	05/24/17 13:39	06/01/17 10:30
240-80281-15	QMCM-ASBBLK05C-052417	Solid	05/24/17 13:39	06/01/17 10:30
240-80281-16	QMCM-ASBBLK06A-052417	Solid	05/24/17 13:55	06/01/17 10:30
240-80281-17	QMCM-ASBBLK06B-052417	Solid	05/24/17 13:55	06/01/17 10:30
240-80281-18	QMCM-ASBBLK06C-052417	Solid	05/24/17 13:55	06/01/17 10:30
240-80281-19	QMCM-ASBBLK07A-052417	Solid	05/24/17 13:57	06/01/17 10:30
240-80281-20	QMCM-ASBBLK07B-052417	Solid	05/24/17 13:57	06/01/17 10:30
240-80281-21	QMCM-ASBBLK07C-052417	Solid	05/24/17 13:57	06/01/17 10:30
240-80281-22	QMCM-ASBBLK08A-052417	Solid	05/24/17 14:14	06/01/17 10:30
240-80281-23	QMCM-ASBBLK08B-052417	Solid	05/24/17 14:14	06/01/17 10:30
240-80281-24	QMCM-ASBBLK08C-052417	Solid	05/24/17 14:14	06/01/17 10:30
240-80281-25	QMCM-ASBBLK09A-052417	Solid	05/24/17 14:20	06/01/17 10:30
240-80281-26	QMCM-ASBBLK10A-052417	Solid	05/24/17 14:20	06/01/17 10:30
240-80281-27	QMCM-ASBBLK10B-052417	Solid	05/24/17 14:20	06/01/17 10:30
240-80281-28	QMCM-ASBBLK10C-052417	Solid	05/24/17 14:20	06/01/17 10:30
240-80281-29	QMCM-ASBBLK11A-052417	Solid	05/24/17 14:40	06/01/17 10:30
240-80281-30	QMCM-ASBBLK11B-052417	Solid	05/24/17 14:40	06/01/17 10:30
240-80281-31	QMCM-ASBBLK11C-052417	Solid	05/24/17 14:40	06/01/17 10:30
240-80281-32	QMCM-ASBBLK12A-052417	Solid	05/24/17 14:51	06/01/17 10:30
240-80281-33	QMCM-ASBBLK12B-052417	Solid	05/24/17 14:51	06/01/17 10:30
240-80281-34	QMCM-ASBBLK12C-052417	Solid	05/24/17 14:51	06/01/17 10:30
240-80281-35	QMCM-ASBBLK13A-052417	Solid	05/24/17 15:05	06/01/17 10:30
240-80281-36	QMCM-ASBBLK13B-052417	Solid	05/24/17 15:05	06/01/17 10:30
240-80281-37	QMCM-ASBBLK13C-052417	Solid	05/24/17 15:05	06/01/17 10:30
240-80281-38	QMCM-ASBBLK14A-052417	Solid	05/24/17 15:14	06/01/17 10:30
240-80281-39	QMCM-ASBBLK14B-052417	Solid	05/24/17 15:14	06/01/17 10:30
240-80281-40	QMCM-ASBBLK14C-052417	Solid	05/24/17 15:14	06/01/17 10:30
240-80281-41	QMCM-ASBBLK15A-052417	Solid	05/24/17 15:24	06/01/17 10:30
240-80281-42	QMCM-ASBBLK15B-052417	Solid	05/24/17 15:24	06/01/17 10:30
240-80281-43	QMCM-ASBBLK15C-052417	Solid	05/24/17 15:24	06/01/17 10:30
240-80281-44	QMCM-ASBBLK16A-052417	Solid	05/24/17 15:27	06/01/17 10:30
240-80281-45	QMCM-ASBBLK16B-052417	Solid	05/24/17 15:27	06/01/17 10:30
240-80281-46	QMCM-ASBBLK16C-052417	Solid	05/24/17 15:27	06/01/17 10:30
240-80281-47	QMCM-ASBBLK17A-052417	Solid	05/24/17 16:00	06/01/17 10:30
240-80281-48	QMCM-ASBBLK17B-052417	Solid	05/24/17 16:00	06/01/17 10:30
240-80281-49	QMCM-ASBBLK17C-052417	Solid	05/24/17 16:00	06/01/17 10:30
240-80281-50	QMCM-ASBBLK18A-052417	Solid	05/24/17 16:10	06/01/17 10:30
240-80281-51	QMCM-ASBBLK18B-052417	Solid	05/24/17 16:10	06/01/17 10:30
240-80281-52	QMCM-ASBBLK18C-052417	Solid	05/24/17 16:10	06/01/17 10:30
240-80281-53	QMCM-ASBBLK19A-052417	Solid	05/24/17 16:14	06/01/17 10:30

Sample Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Abandoned Mining Waste

TestAmerica Job ID: 240-80281-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-80281-54	QMCM-ASBBLK20A-052417	Solid	05/24/17 16:16	06/01/17 10:30
240-80281-55	QMCM-ASBBLK20B-052417	Solid	05/24/17 16:16	06/01/17 10:30
240-80281-56	QMCM-ASBBLK20C-052417	Solid	05/24/17 16:16	06/01/17 10:30
240-80281-57	QMCM-ASBBLK21A-052417	Solid	05/24/17 16:35	06/01/17 10:30
240-80281-58	QMCM-ASBBLK21B-052417	Solid	05/24/17 16:35	06/01/17 10:30
240-80281-59	QMCM-ASBBLK21C-052417	Solid	05/24/17 16:35	06/01/17 10:30
240-80281-60	QMCM-ASBBLK22A-052517	Solid	05/25/17 09:00	06/01/17 10:30
240-80281-61	QMCM-ASBBLK22B-052517	Solid	05/25/17 09:00	06/01/17 10:30
240-80281-62	QMCM-ASBBLK22C-052517	Solid	05/25/17 09:00	06/01/17 10:30
240-80281-63	QMCM-ASBBLK23A-052517	Solid	05/25/17 09:05	06/01/17 10:30
240-80281-64	QMCM-ASBBLK23B-052517	Solid	05/25/17 09:05	06/01/17 10:30
240-80281-65	QMCM-ASBBLK23C-052517	Solid	05/25/17 09:05	06/01/17 10:30
240-80281-66	QMCM-ASBBLK24A-052517	Solid	05/25/17 09:10	06/01/17 10:30
240-80281-67	QMCM-ASBBLK24B-052517	Solid	05/25/17 09:10	06/01/17 10:30
240-80281-68	QMCM-ASBBLK24C-052517	Solid	05/25/17 09:10	06/01/17 10:30
240-80281-69	QMCM-ASBBLK25A-052517	Solid	05/25/17 09:11	06/01/17 10:30
240-80281-70	QMCM-ASBBLK25B-052517	Solid	05/25/17 09:11	06/01/17 10:30
240-80281-71	QMCM-ASBBLK25C-052517	Solid	05/25/17 09:11	06/01/17 10:30
240-80281-72	QMCM-ASBBLK26A-052517	Solid	05/25/17 09:19	06/01/17 10:30
240-80281-73	QMCM-ASBBLK26B-052517	Solid	05/25/17 09:19	06/01/17 10:30
240-80281-74	QMCM-ASBBLK26C-052517	Solid	05/25/17 09:19	06/01/17 10:30
240-80281-75	QMCM-ASBBLK27A-052517	Solid	05/25/17 09:21	06/01/17 10:30
240-80281-76	QMCM-ASBBLK28A-052517	Solid	05/25/17 09:28	06/01/17 10:30
240-80281-77	QMCM-ASBBLK28B-052517	Solid	05/25/17 09:28	06/01/17 10:30
240-80281-78	QMCM-ASBBLK28C-052517	Solid	05/25/17 09:28	06/01/17 10:30
240-80281-79	QMCM-ASBBLK29A-052517	Solid	05/25/17 09:35	06/01/17 10:30
240-80281-80	QMCM-ASBBLK29B-052517	Solid	05/25/17 09:35	06/01/17 10:30
240-80281-81	QMCM-ASBBLK29C-052517	Solid	05/25/17 09:35	06/01/17 10:30
240-80281-82	QMCM-ASBBLK30A-052517	Solid	05/25/17 09:40	06/01/17 10:30
240-80281-83	QMCM-ASBBLK30B-052517	Solid	05/25/17 09:40	06/01/17 10:30
240-80281-84	QMCM-ASBBLK31A-052517	Solid	05/25/17 09:51	06/01/17 10:30
240-80281-85	QMCM-ASBBLK31B-052517	Solid	05/25/17 09:51	06/01/17 10:30
240-80281-86	QMCM-ASBBLK31C-052517	Solid	05/25/17 09:51	06/01/17 10:30
240-80281-87	QMCM-ASBBLK32A-052517	Solid	05/25/17 09:58	06/01/17 10:30
240-80281-88	QMCM-ASBBLK32B-052517	Solid	05/25/17 09:58	06/01/17 10:30
240-80281-89	QMCM-ASBBLK32C-052517	Solid	05/25/17 09:58	06/01/17 10:30
240-80281-90	QMCM-ASBBLK33A-052517	Solid	05/25/17 10:03	06/01/17 10:30
240-80281-91	QMCM-ASBBLK34A-052517	Solid	05/25/17 10:15	06/01/17 10:30
240-80281-92	QMCM-ASBBLK35A-052517	Solid	05/25/17 10:37	06/01/17 10:30
240-80281-93	QMCM-ASBBLK36A-052517	Solid	05/25/17 10:48	06/01/17 10:30
240-80281-94	QMCM-ASBBLK36B-052517	Solid	05/25/17 10:48	06/01/17 10:30
240-80281-95	QMCM-ASBBLK37A-052517	Solid	05/25/17 11:16	06/01/17 10:30
240-80281-96	QMCM-ASBBLK37B-052517	Solid	05/25/17 11:16	06/01/17 10:30
240-80281-97	QMCM-ASBBLK37C-052517	Solid	05/25/17 11:16	06/01/17 10:30
240-80281-98	QMCM-ASBBLK38A-052517	Solid	05/25/17 11:25	06/01/17 10:30
240-80281-99	QMCM-ASBBLK39A-052517	Solid	05/25/17 11:30	06/01/17 10:30
240-80281-100	QMCM-ASBBLK39B-052517	Solid	05/25/17 11:30	06/01/17 10:30
240-80281-101	QMCM-ASBBLK39C-052517	Solid	05/25/17 11:30	06/01/17 10:30
240-80281-102	QMCM-ASBBLK40A-052517	Solid	05/25/17 11:38	06/01/17 10:30
240-80281-103	QMCM-ASBBLK41A-052517	Solid	05/25/17 11:39	06/01/17 10:30
240-80281-104	QMCM-ASBBLK42A-052517	Solid	05/25/17 11:50	06/01/17 10:30
240-80281-105	QMCM-ASBBLK42B-052517	Solid	05/25/17 11:50	06/01/17 10:30
240-80281-106	QMCM-ASBBLK42C-052517	Solid	05/25/17 11:50	06/01/17 10:30

Sample Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Abandoned Mining Waste

TestAmerica Job ID: 240-80281-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-80281-107	QMCM-ASBBLK43A-052517	Solid	05/25/17 11:55	06/01/17 10:30
240-80281-108	QMCM-ASBBLK43B-052517	Solid	05/25/17 11:55	06/01/17 10:30
240-80281-109	QMCM-ASBBLK43C-052517	Solid	05/25/17 11:55	06/01/17 10:30
240-80281-110	QMCM-ASBBLK44A-052517	Solid	05/25/17 12:00	06/01/17 10:30
240-80281-111	QMCM-ASBBLK44B-052517	Solid	05/25/17 12:00	06/01/17 10:30
240-80281-112	QMCM-ASBBLK44C-052517	Solid	05/25/17 12:00	06/01/17 10:30
240-80281-113	QMCM-ASBBLK45A-052517	Solid	05/25/17 12:12	06/01/17 10:30
240-80281-114	QMCM-ASBBLK45B-052517	Solid	05/25/17 12:12	06/01/17 10:30
240-80281-115	QMCM-ASBBLK45C-052517	Solid	05/25/17 12:12	06/01/17 10:30
240-80281-116	QMCM-ASBBLK46A-052517	Solid	05/25/17 12:36	06/01/17 10:30
240-80281-117	QMCM-ASBBLK47A-052517	Solid	05/25/17 13:11	06/01/17 10:30
240-80281-118	QMCM-ASBBLK47B-052517	Solid	05/25/17 13:11	06/01/17 10:30
240-80281-119	QMCM-ASBBLK47C-052517	Solid	05/25/17 13:11	06/01/17 10:30
240-80281-120	QMCM-ASBBLK48A-052517	Solid	05/25/17 13:15	06/01/17 10:30
240-80281-121	QMCM-ASBBLK48B-052517	Solid	05/25/17 13:15	06/01/17 10:30
240-80281-122	QMCM-ASBBLK48C-052517	Solid	05/25/17 13:15	06/01/17 10:30
240-80281-123	QMCM-ASBBLK49A-052517	Solid	05/25/17 13:16	06/01/17 10:30
240-80281-124	QMCM-ASBBLK50A-052517	Solid	05/25/17 13:18	06/01/17 10:30
240-80281-125	QMCM-ASBBLK51A-052517	Solid	05/25/17 13:25	06/01/17 10:30
240-80281-126	QMCM-ASBBLK51B-052517	Solid	05/25/17 13:25	06/01/17 10:30
240-80281-127	QMCM-ASBBLK51C-052517	Solid	05/25/17 13:25	06/01/17 10:30
240-80281-128	QMCM-ASBBLK52A-052517	Solid	05/25/17 13:32	06/01/17 10:30
240-80281-129	QMCM-ASBBLK52B-052517	Solid	05/25/17 13:32	06/01/17 10:30
240-80281-130	QMCM-ASBBLK52C-052517	Solid	05/25/17 13:32	06/01/17 10:30
240-80281-131	QMCM-ASBBLK53A-052517	Solid	05/25/17 13:35	06/01/17 10:30
240-80281-132	QMCM-ASBBLK53B-052517	Solid	05/25/17 13:35	06/01/17 10:30
240-80281-133	QMCM-ASBBLK53C-052517	Solid	05/25/17 13:35	06/01/17 10:30
240-80281-134	QMCM-ASBBLK54A-052517	Solid	05/25/17 13:37	06/01/17 10:30
240-80281-135	QMCM-ASBBLK55A-052517	Solid	05/25/17 13:37	06/01/17 10:30
240-80281-136	QMCM-ASBBLK56A-052517	Solid	05/25/17 13:37	06/01/17 10:30
240-80281-137	QMCM-ASBBLK57A-052517	Solid	05/25/17 13:37	06/01/17 10:30
240-80281-138	QMCM-ASBBLK58A-052517	Solid	05/25/17 14:43	06/01/17 10:30
240-80281-139	QMCM-ASBBLK58B-052517	Solid	05/25/17 14:43	06/01/17 10:30
240-80281-140	QMCM-ASBBLK58C-052517	Solid	05/25/17 14:43	06/01/17 10:30
240-80281-141	QMCM-ASBBLK59A-052517	Solid	05/25/17 14:50	06/01/17 10:30
240-80281-142	QMCM-ASBBLK59B-052517	Solid	05/25/17 14:50	06/01/17 10:30
240-80281-143	QMCM-ASBBLK59C-052517	Solid	05/25/17 14:50	06/01/17 10:30
240-80281-144	QMCM-ASBBLK60A-052517	Solid	05/25/17 15:00	06/01/17 10:30
240-80281-145	QMCM-ASBBLK60B-052517	Solid	05/25/17 15:00	06/01/17 10:30
240-80281-146	QMCM-ASBBLK60C-052517	Solid	05/25/17 15:00	06/01/17 10:30
240-80281-147	QMCM-ASBBLK61A-052517	Solid	05/25/17 15:13	06/01/17 10:30
240-80281-148	QMCM-ASBBLK62A-052517	Solid	05/25/17 15:19	06/01/17 10:30
240-80281-149	QMCM-ASBBLK62B-052517	Solid	05/25/17 15:19	06/01/17 10:30
240-80281-150	QMCM-ASBBLK62C-052517	Solid	05/25/17 15:19	06/01/17 10:30
240-80281-151	QMCM-ASBBLK63A-052517	Solid	05/25/17 15:35	06/01/17 10:30
240-80281-152	QMCM-ASBBLK63B-052517	Solid	05/25/17 15:35	06/01/17 10:30
240-80281-153	QMCM-ASBBLK63C-052517	Solid	05/25/17 15:35	06/01/17 10:30
240-80281-154	QMCM-ASBBLK64A-052517	Solid	05/25/17 15:35	06/01/17 10:30
240-80281-155	QMCM-ASBBLK64B-052517	Solid	05/25/17 15:40	06/01/17 10:30
240-80281-156	QMCM-ASBBLK64C-052517	Solid	05/25/17 15:40	06/01/17 10:30
240-80281-157	QMCM-ASBBLK65A-052517	Solid	05/25/17 15:46	06/01/17 10:30
240-80281-158	QMCM-ASBBLK65B-052517	Solid	05/25/17 15:46	06/01/17 10:30
240-80281-159	QMCM-ASBBLK65C-052517	Solid	05/25/17 15:46	06/01/17 10:30

Sample Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Abandoned Mining Waste

TestAmerica Job ID: 240-80281-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-80281-160	QMCM-ASBBLK66A-052517	Solid	05/25/17 15:22	06/01/17 10:30
240-80281-161	QMCM-ASBBLK67A-052617	Solid	05/26/17 14:13	06/01/17 10:30
240-80281-162	QMCM-ASBBLK67B-052617	Solid	05/26/17 14:13	06/01/17 10:30
240-80281-163	QMCM-ASBBLK67C-052617	Solid	05/26/17 14:13	06/01/17 10:30
240-80281-164	QMCM-ASBBLK68A-052617	Solid	05/26/17 14:20	06/01/17 10:30
240-80281-165	QMCM-ASBBLK68B-052617	Solid	05/26/17 14:20	06/01/17 10:30
240-80281-166	QMCM-ASBBLK68C-052617	Solid	05/26/17 14:20	06/01/17 10:30
240-80281-167	QMCM-ASBBLK69A-052617	Solid	05/26/17 14:23	06/01/17 10:30
240-80281-168	QMCM-ASBBLK69B-052617	Solid	05/26/17 14:23	06/01/17 10:30
240-80281-169	QMCM-ASBBLK69C-052617	Solid	05/26/17 14:23	06/01/17 10:30
240-80281-170	QMCM-ASBBLK70A-052617	Solid	05/26/17 14:27	06/01/17 10:30
240-80281-171	QMCM-ASBBLK71A-052617	Solid	05/26/17 14:38	06/01/17 10:30
240-80281-172	QMCM-ASBBLK71B-052617	Solid	05/26/17 14:38	06/01/17 10:30
240-80281-173	QMCM-ASBBLK71C-052617	Solid	05/26/17 14:38	06/01/17 10:30
240-80281-174	QMCM-ASBBLK72A-052617	Solid	05/26/17 14:42	06/01/17 10:30
240-80281-175	QMCM-ASBBLK72B-052617	Solid	05/26/17 14:42	06/01/17 10:30
240-80281-176	QMCM-ASBBLK72C-052617	Solid	05/26/17 14:42	06/01/17 10:30
240-80281-177	QMCM-ASBBLK73A-052617	Solid	05/26/17 14:47	06/01/17 10:30
240-80281-178	QMCM-ASBBLK73B-052617	Solid	05/26/17 14:47	06/01/17 10:30
240-80281-179	QMCM-ASBBLK73C-052617	Solid	05/26/17 14:47	06/01/17 10:30
240-80281-180	QMCM-ASBBLK74A-052617	Solid	05/26/17 14:56	06/01/17 10:30
240-80281-181	QMCM-ASBBLK74B-052617	Solid	05/26/17 14:56	06/01/17 10:30
240-80281-182	QMCM-ASBBLK74C-052617	Solid	05/26/17 14:56	06/01/17 10:30
240-80281-183	QMCM-ASBBLK75A-052617	Solid	05/26/17 15:00	06/01/17 10:30
240-80281-184	QMCM-ASBBLK75B-052617	Solid	05/26/17 15:00	06/01/17 10:30
240-80281-185	QMCM-ASBBLK75C-052617	Solid	05/26/17 15:00	06/01/17 10:30
240-80281-186	QMCM-ASBBLK76A-052617	Solid	05/26/17 15:05	06/01/17 10:30
240-80281-187	QMCM-ASBBLK76B-052617	Solid	05/26/17 15:05	06/01/17 10:30
240-80281-188	QMCM-ASBBLK76C-052617	Solid	05/26/17 15:05	06/01/17 10:30
240-80281-189	QMCM-ASBBLK77A-052617	Solid	05/26/17 15:10	06/01/17 10:30
240-80281-190	QMCM-ASBBLK77B-052617	Solid	05/26/17 15:10	06/01/17 10:30
240-80281-191	QMCM-ASBBLK77C-052617	Solid	05/26/17 15:10	06/01/17 10:30
240-80281-192	QMCM-ASBBLK78A-052617	Solid	05/26/17 15:27	06/01/17 10:30
240-80281-193	QMCM-ASBBLK78B-052617	Solid	05/26/17 15:27	06/01/17 10:30
240-80281-194	QMCM-ASBBLK78C-052617	Solid	05/26/17 15:27	06/01/17 10:30
240-80281-195	QMCM-ASBBLK79A-052617	Solid	05/26/17 15:28	06/01/17 10:30
240-80281-196	QMCM-ASBBLK80A-052617	Solid	05/26/17 15:42	06/01/17 10:30
240-80281-197	QMCM-ASBBLK80B-052617	Solid	05/26/17 15:42	06/01/17 10:30
240-80281-198	QMCM-ASBBLK80C-052617	Solid	05/26/17 15:42	06/01/17 10:30
240-80281-199	QMCM-ASBBLK81A-052617	Solid	05/26/17 15:43	06/01/17 10:30
240-80281-200	QMCM-ASBBLK82A-052617	Solid	05/26/17 15:44	06/01/17 10:30
240-80281-201	QMCM-ASBBLK83A-052617	Solid	05/26/17 15:45	06/01/17 10:30
240-80281-202	QMCM-ASBBLK84A-052617	Solid	05/26/17 15:57	06/01/17 10:30
240-80281-203	QMCM-ASBBLK85A-052617	Solid	05/26/17 15:58	06/01/17 10:30
240-80281-204	QMCM-ASBBLK85B-052617	Solid	05/26/17 15:58	06/01/17 10:30
240-80281-205	QMCM-ASBBLK85C-052617	Solid	05/26/17 15:58	06/01/17 10:30
240-80281-206	QMCM-ASBBLK86A-052617	Solid	05/26/17 15:59	06/01/17 10:30
240-80281-207	QMCM-ASBBLK87A-052617	Solid	05/26/17 16:00	06/01/17 10:30
240-80281-208	QMCM-ASBBLK87B-052617	Solid	05/26/17 16:00	06/01/17 10:30
240-80281-209	QMCM-ASBBLK87C-052617	Solid	05/26/17 16:00	06/01/17 10:30

EMLab P&K
A TestAmerica Company

Report for:

Ms. Kris Brooks
TestAmerica-Canton
4101 Shuffel Dr. NW
North Canton, OH 44720

Regarding: Project: 240-80281-1; Abandoned Mining Waste-1744251 308434564
EML ID: 1737061

Approved by:

Approved Signatory
Noah Lazarte

Dates of Analysis:
Asbestos PLM: 06-13-2017 and 06-14-2017

Service SOPs: Asbestos PLM (EPA Methods 600/R-93/116 & 600/M4-82-020, SOP EM-AS-S-1267)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the items tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

EMLab P&K
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(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: TestAmerica-Canton
C/O: Ms. Kris Brooks
Re: 240-80281-1; Abandoned Mining Waste-1744251
308434564

Date of Sampling: 05-24-2017 to 05-26-2017
Date of Receipt: 06-02-2017
Date of Report: 06-14-2017

ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Total Samples Submitted:	209
Total Samples Analyzed:	169
Total Samples with Layer Asbestos Content > 1%:	27

Location: 240-80281-1, QMCM-ASBBLK01A-052417 Lab ID-Version‡: 8107297-1

Sample Layers	Asbestos Content
Tan Transite	18% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-2 and 240-80281-3 were not analyzed due to prior positive series.

Location: 240-80281-4, QMCM-ASBBLK02A-052417 Lab ID-Version‡: 8107300-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-5, QMCM-ASBBLK02B-052417 Lab ID-Version‡: 8107301-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-6, QMCM-ASBBLK02C-052417 Lab ID-Version‡: 8107302-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Good

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308434564

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Date of Report: 06-14-2017

ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-7, QMCM-ASBBLK03A-052417

Lab ID-Version‡: 8107303-1

Sample Layers	Asbestos Content
Black/Yellow Tar	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	30% Cotton
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-8, QMCM-ASBBLK03B-052417 Lab ID-Version‡: 8107304-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-9, QMCM-ASBBLK03C-052417 Lab ID-Version‡: 8107305-1

Sample Layers	Asbestos Content
Black Tar	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	40% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-10, QMCM-ASBBLK04A-052417 Lab ID-Version‡: 8107306-1

Sample Layers	Asbestos Content
Black Tar with Silver Coating	3% Chrysotile
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose 7% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Comments: 240-80281-11 and 240-80281-12 were not analyzed due to prior positive series.

Location: 240-80281-13, QMCM-ASBBLK05A-052417 Lab ID-Version‡: 8107309-1

Sample Layers	Asbestos Content
Black Caulk	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-14, QMCM-ASBBLK05B-052417 Lab ID-Version‡: 8107310-1

Sample Layers	Asbestos Content
Black Caulk	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-15, QMCM-ASBBLK05C-052417 Lab ID-Version‡: 8107311-1

Sample Layers	Asbestos Content
Black Caulk	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-16, QMCM-ASBBLK06A-052417 Lab ID-Version‡: 8107312-1

Sample Layers	Asbestos Content
Black Tar with Silver Coating	4% Chrysotile
Black Tar and Felt	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose 10% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Comments: 240-80281-17 and 240-80281-18 were not analyzed due to prior positive series.

Location: 240-80281-19, QMCM-ASBBLK07A-052417 Lab ID-Version‡: 8107315-1

Sample Layers	Asbestos Content
Black Mastic	20% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-20 and 240-80281-21 were not analyzed due to prior positive series.

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-22, QMCM-ASBBLK08A-052417 Lab ID-Version‡: 8107318-1

Sample Layers	Asbestos Content
Brown/White Fibrous Material	ND
Composite Non-Asbestos Content:	60% Cellulose 20% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-23, QMCM-ASBBLK08B-052417 Lab ID-Version‡: 8107319-1

Sample Layers	Asbestos Content
Brown/White Fibrous Material	ND
Composite Non-Asbestos Content:	65% Cellulose 20% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-24, QMCM-ASBBLK08C-052417 Lab ID-Version‡: 8107320-1

Sample Layers	Asbestos Content
Brown/White Fibrous Material	ND
Composite Non-Asbestos Content:	50% Cellulose 30% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-25, QMCM-ASBBLK09A-052417 Lab ID-Version‡: 8107321-1

Sample Layers	Asbestos Content
Brown Semi-Fibrous Material	30% Chrysotile
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-26, QMCM-ASBBLK10A-052417 Lab ID-Version‡: 8107322-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-27, QMCM-ASBBLK10B-052417 Lab ID-Version‡: 8107323-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-28, QMCM-ASBBLK10C-052417 Lab ID-Version‡: 8107324-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-29, QMCM-ASBBLK11A-052417 Lab ID-Version‡: 8107325-1

Sample Layers	Asbestos Content
Black Tar	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-30, QMCM-ASBBLK11B-052417 Lab ID-Version‡: 8107326-1

Sample Layers	Asbestos Content
Black Tar	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-31, QMCM-ASBBLK11C-052417 Lab ID-Version‡: 8107327-1

Sample Layers	Asbestos Content
Black Tar	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-32, QMCM-ASBBLK12A-052417 Lab ID-Version‡: 8107328-1

Sample Layers	Asbestos Content
Black Tar	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-33, QMCM-ASBBLK12B-052417 Lab ID-Version‡: 8107329-1

Sample Layers	Asbestos Content
Black Tar	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-34, QMCM-ASBBLK12C-052417 Lab ID-Version‡: 8107330-1

Sample Layers	Asbestos Content
Black Tar	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-35, QMCM-ASBBLK13A-052417 Lab ID-Version‡: 8107331-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Black Non-Fibrous Material	ND
Composite Non-Asbestos Content:	35% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 240-80281-36, QMCM-ASBBLK13B-052417 Lab ID-Version‡: 8107332-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Black Non-Fibrous Material	ND
Composite Non-Asbestos Content:	35% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 240-80281-37, QMCM-ASBBLK13C-052417 Lab ID-Version‡: 8107333-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Black Non-Fibrous Material	ND
Composite Non-Asbestos Content:	35% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-38, QMCM-ASBBLK14A-052417 Lab ID-Version‡: 8107334-1

Sample Layers	Asbestos Content
Gray/Black Wiring Insulation	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-39, QMCM-ASBBLK14B-052417 Lab ID-Version‡: 8107335-1

Sample Layers	Asbestos Content
Gray/Black Wiring Insulation	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-40, QMCM-ASBBLK14C-052417 Lab ID-Version‡: 8107336-1

Sample Layers	Asbestos Content
Gray/Black Wiring Insulation	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-41, QMCM-ASBBLK15A-052417 Lab ID-Version‡: 8107337-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Green Pebbles	ND
Composite Non-Asbestos Content:	45% Cellulose 3% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-42, QMCM-ASBBLK15B-052417 Lab ID-Version‡: 8107338-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Green Pebbles	ND
Composite Non-Asbestos Content:	45% Cellulose 3% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-43, QMCM-ASBBLK15C-052417 Lab ID-Version‡: 8107339-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Green Pebbles	ND
Composite Non-Asbestos Content:	45% Cellulose 3% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-44, QMCM-ASBBLK16A-052417 Lab ID-Version‡: 8107340-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	35% Cellulose
Sample Composite Homogeneity:	Poor

Location: 240-80281-45, QMCM-ASBBLK16B-052417 Lab ID-Version‡: 8107341-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose 10% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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Client: TestAmerica-Canton
C/O: Ms. Kris Brooks
Re: 240-80281-1; Abandoned Mining Waste-1744251
308434564

Date of Sampling: 05-24-2017 to 05-26-2017
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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-46, QMCM-ASBBLK16C-052417 Lab ID-Version‡: 8107342-1

Sample Layers	Asbestos Content
Black Tar and Felt	3% Chrysotile
Black Tar and Felt	ND
Composite Non-Asbestos Content:	40% Cellulose
Sample Composite Homogeneity:	Poor

Location: 240-80281-47, QMCM-ASBBLK17A-052417 Lab ID-Version‡: 8107343-1

Sample Layers	Asbestos Content
Off-White Fibrous Material with Black Coating	80% Chrysotile
Composite Non-Asbestos Content:	2% Cellulose
Sample Composite Homogeneity:	Moderate

Comments: 240-80281-48 and 240-80281-49 were not analyzed due to prior positive series.

Location: 240-80281-50, QMCM-ASBBLK18A-052417 Lab ID-Version‡: 8107346-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Pink Woven Material	ND
Composite Non-Asbestos Content:	20% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-51, QMCM-ASBBLK18B-052417 Lab ID-Version‡: 8107347-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Pink Woven Material	ND
Composite Non-Asbestos Content:	20% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-52, QMCM-ASBBLK18C-052417 Lab ID-Version‡: 8107348-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Pink Woven Material	ND
Composite Non-Asbestos Content:	20% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-53, QMCM-ASBBLK19A-052417 Lab ID-Version‡: 8107349-1

Sample Layers	Asbestos Content
Off-White Caulk	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-54, QMCM-ASBBLK20A-052417 Lab ID-Version‡: 8107350-1

Sample Layers	Asbestos Content
Black Tar	ND
Tan Woven Material	ND
Composite Non-Asbestos Content:	15% Cotton 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-55, QMCM-ASBBLK20B-052417 Lab ID-Version‡: 8107351-1

Sample Layers	Asbestos Content
Black Tar	ND
Tan Woven Material	ND
Composite Non-Asbestos Content:	15% Cotton 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-56, QMCM-ASBBLK20C-052417 Lab ID-Version‡: 8107352-1

Sample Layers	Asbestos Content
Black Tar	ND
Tan Woven Material	ND
Composite Non-Asbestos Content:	15% Cotton 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-57, QMCM-ASBBLK21A-052417 Lab ID-Version‡: 8107353-1

Sample Layers	Asbestos Content
Gray/Black Tar	20% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-58 and 240-80281-59 were not analyzed due to prior positive series.

Location: 240-80281-60, QMCM-ASBBLK22A-502517 Lab ID-Version‡: 8107356-1

Sample Layers	Asbestos Content
Tan Cementitious Material	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-61, QMCM-ASBBLK22B-052517 Lab ID-Version‡: 8107357-1

Sample Layers	Asbestos Content
Yellow Cementitious Material	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-62, QMCM-ASBBLK22C-052517 Lab ID-Version‡: 8107358-1

Sample Layers	Asbestos Content
Yellow Cementitious Material	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-63, QMCM-ASBBLK23A-052517 Lab ID-Version‡: 8107359-1

Sample Layers	Asbestos Content
Red Wiring Insulation	85% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-64 and 240-80281-65 were not analyzed due to prior positive series.

Location: 240-80281-66, QMCM-ASBBLK24A-052517 Lab ID-Version‡: 8107362-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	50% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 240-80281-67, QMCM-ASBBLK24B-052517 Lab ID-Version‡: 8107363-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	60% Cellulose 2% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-68, QMCM-ASBBLK24C-052517 Lab ID-Version‡: 8107364-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	60% Cellulose 2% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-69, QMCM-ASBBLK25A-052517 Lab ID-Version‡: 8107365-1

Sample Layers	Asbestos Content
Gray/Black Felt	50% Chrysotile
Composite Non-Asbestos Content:	3% Cellulose
Sample Composite Homogeneity:	Good

Comments: 240-80281-70 and 240-80281-71 were not analyzed due to prior positive series.

Location: 240-80281-72, QMCM-ASBBLK26A-052517 Lab ID-Version‡: 8107368-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	40% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-73, QMCM-ASBBLK26B-052517 Lab ID-Version‡: 8107369-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	20% Cotton
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-74, QMCM-ASBBLK26C-052517 Lab ID-Version‡: 8107370-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-75, QMCM-ASBBLK27A-052517 Lab ID-Version‡: 8107371-1

Sample Layers	Asbestos Content
Gray Caulk with Paint	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-76, QMCM-ASBBLK28A-052517 Lab ID-Version‡: 8107372-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	35% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-77, QMCM-ASBBLK28B-052517 Lab ID-Version‡: 8107373-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	35% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-78, QMCM-ASBBLK28C-052517 Lab ID-Version‡: 8107374-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	35% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-79, QMCM-ASBBLK29A-052517 Lab ID-Version‡: 8107375-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	10% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-80, QMCM-ASBBLK29B-052517 Lab ID-Version‡: 8107376-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 3% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 240-80281-81, QMCM-ASBBLK29C-052517 Lab ID-Version‡: 8107377-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers 3% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-82, QMCM-ASBBLK30A-052517 Lab ID-Version‡: 8107378-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-83, QMCM-ASBBLK30B-052517 Lab ID-Version‡: 8107379-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-84, QMCM-ASBBLK31A-052517 Lab ID-Version‡: 8107380-1

Sample Layers	Asbestos Content
Silver Coating	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	40% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-85, QMCM-ASBBLK31B-052517 Lab ID-Version‡: 8107381-1

Sample Layers	Asbestos Content
Silver Coating	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	40% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-86, QMCM-ASBBLK31C-052517 Lab ID-Version‡: 8107382-1

Sample Layers	Asbestos Content
Silver Coating	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	40% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-87, QMCM-ASBBLK32A-052517 Lab ID-Version‡: 8107383-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-88, QMCM-ASBBLK32B-052517 Lab ID-Version‡: 8107384-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 10% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-89, QMCM-ASBBLK32C-052517 Lab ID-Version‡: 8107385-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	30% Synthetic Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-90, QMCM-ASBBLK33A-052517 Lab ID-Version‡: 8107386-1

Sample Layers	Asbestos Content
Black Wiring Insulation	ND
Composite Non-Asbestos Content:	15% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-91, QMCM-ASBBLK34A-052517 Lab ID-Version‡: 8107387-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	40% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-92, QMCM-ASBBLK35A-052517 Lab ID-Version‡: 8107388-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	20% Cellulose 15% Cotton
Sample Composite Homogeneity:	Poor

Location: 240-80281-93, QMCM-ASBBLK36A-052517 Lab ID-Version‡: 8107389-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Tan Caulk	ND
Composite Non-Asbestos Content:	80% Cotton
Sample Composite Homogeneity:	Poor

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Location: 240-80281-94, QMCM-ASBBLK36B-052517 Lab ID-Version‡: 8107390-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Off-White Woven Material	ND
Composite Non-Asbestos Content:	40% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-95, QMCM-ASBBLK37A-052517 Lab ID-Version‡: 8107391-1

Sample Layers	Asbestos Content
Brown Woven Material	90% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-96 and 240-80281-97 were not analyzed due to prior positive series.

Location: 240-80281-98, QMCM-ASBBLK38A-052517 Lab ID-Version‡: 8107394-1

Sample Layers	Asbestos Content
Gold Woven Material	ND
Composite Non-Asbestos Content:	98% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 240-80281-99, QMCM-ASBBLK39A-052517 Lab ID-Version‡: 8107395-1

Sample Layers	Asbestos Content
White Fibrous Material	70% Chrysotile
Black Non-Fibrous Material	ND
Sample Composite Homogeneity:	Moderate

Comments: 240-80281-100 and 240-80281-101 were not analyzed due to prior positive series.

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Client: TestAmerica-Canton
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Re: 240-80281-1; Abandoned Mining Waste-1744251
308434564

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-102, QMCM-ASBBLK40A-052517 Lab ID-Version‡: 8107398-1

Sample Layers	Asbestos Content
Gray Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	25% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Good

Location: 240-80281-103, QMCM-ASBBLK41A-052517 Lab ID-Version‡: 8107399-1

Sample Layers	Asbestos Content
Gray Sheet Flooring with Fibrous Backing	ND
Brown Debris	ND
Composite Non-Asbestos Content:	25% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-104, QMCM-ASBBLK42A-052517 Lab ID-Version‡: 8107400-1

Sample Layers	Asbestos Content
Gray Fibrous Material	85% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-105 and 240-80281-106 were not analyzed due to prior positive series.

Location: 240-80281-107, QMCM-ASBBLK43A-052517 Lab ID-Version‡: 8107403-1

Sample Layers	Asbestos Content
Tan Transite	18% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-108 and 240-80281-109 were not analyzed due to prior positive series.

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-110, QMCM-ASBBLK44A-052517 Lab ID-Version‡: 8107406-1

Sample Layers	Asbestos Content
Black Tar	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: 240-80281-111, QMCM-ASBBLK44B-052517 Lab ID-Version‡: 8107407-1

Sample Layers	Asbestos Content
Black Tar	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Good

Location: 240-80281-112, QMCM-ASBBLK44C-052517 Lab ID-Version‡: 8107408-1

Sample Layers	Asbestos Content
Black Tar	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Good

Location: 240-80281-113, QMCM-ASBBLK45A-052517 Lab ID-Version‡: 8107409-1

Sample Layers	Asbestos Content
Black Tar with Silver Coating	5% Chrysotile
Black Tar and Felt	ND
Composite Non-Asbestos Content:	40% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Comments: 240-80281-114 and 240-80281-115 were not analyzed due to prior positive series.

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-116, QMCM-ASBBLK46A-052517 Lab ID-Version‡: 8107412-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Black Woven Material	ND
Composite Non-Asbestos Content:	50% Cotton
Sample Composite Homogeneity:	Poor

Location: 240-80281-117, QMCM-ASBBLK47A-052517 Lab ID-Version‡: 8107413-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Black Woven Material	ND
Composite Non-Asbestos Content:	35% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 240-80281-118, QMCM-ASBBLK47B-052517 Lab ID-Version‡: 8107414-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Black Woven Material	ND
Composite Non-Asbestos Content:	30% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 240-80281-119, QMCM-ASBBLK47C-052517 Lab ID-Version‡: 8107415-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Black Woven Material	ND
Composite Non-Asbestos Content:	30% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-120, QMCM-ASBBLK48A-052517 Lab ID-Version‡: 8107416-1

Sample Layers	Asbestos Content
Beige Woven Material	ND
Composite Non-Asbestos Content:	98% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-121, QMCM-ASBBLK48B-052517 Lab ID-Version‡: 8107417-1

Sample Layers	Asbestos Content
Brown Woven Material	ND
Composite Non-Asbestos Content:	98% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-122, QMCM-ASBBLK48C-052517 Lab ID-Version‡: 8107418-1

Sample Layers	Asbestos Content
Brown Woven Material	ND
Composite Non-Asbestos Content:	98% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-123, QMCM-ASBBLK49A-052517 Lab ID-Version‡: 8107419-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Black Woven Material	ND
Composite Non-Asbestos Content:	20% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-124, QMCM-ASBBLK50A-052517 Lab ID-Version‡: 8107420-1

Sample Layers	Asbestos Content
Off-White Woven Material	ND
Composite Non-Asbestos Content:	98% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-125, QMCM-ASBBLK51A-052517 Lab ID-Version‡: 8107421-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Gray Pebbles	ND
Composite Non-Asbestos Content:	35% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 240-80281-126, QMCM-ASBBLK51B-052517 Lab ID-Version‡: 8107422-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Gray Pebbles	ND
Composite Non-Asbestos Content:	35% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 240-80281-127, QMCM-ASBBLK51C-052517 Lab ID-Version‡: 8107423-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Gray Pebbles	ND
Composite Non-Asbestos Content:	35% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-128, QMCM-ASBBLK52A-052517 Lab ID-Version‡: 8107424-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 240-80281-129, QMCM-ASBBLK52B-052517 Lab ID-Version‡: 8107425-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 240-80281-130, QMCM-ASBBLK52C-052517 Lab ID-Version‡: 8107426-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 240-80281-131, QMCM-ASBBLK53A-052517 Lab ID-Version‡: 8107427-1

Sample Layers	Asbestos Content
Black Tar with Silver Coating	4% Chrysotile
Black Tar and Felt	ND
Composite Non-Asbestos Content:	40% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Comments: 240-80281-132 and 240-80281-133 were not analyzed due to prior positive series.

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-134, QMCM-ASBBLK54A-052517 Lab ID-Version‡: 8107430-1

Sample Layers	Asbestos Content
Off-White Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	20% Synthetic Fibers
Sample Composite Homogeneity:	Good

Location: 240-80281-135, QMCM-ASBBLK55A-052517 Lab ID-Version‡: 8107431-1

Sample Layers	Asbestos Content
Off-White Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	20% Synthetic Fibers
Sample Composite Homogeneity:	Good

Location: 240-80281-136, QMCM-ASBBLK56A-052517 Lab ID-Version‡: 8107432-1

Sample Layers	Asbestos Content
Off-White Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	20% Synthetic Fibers
Sample Composite Homogeneity:	Good

Location: 240-80281-137, QMCM-ASBBLK57A-052517 Lab ID-Version‡: 8107433-1

Sample Layers	Asbestos Content
Pink Sheet Flooring with Fibrous Backing	ND
Gray Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	20% Synthetic Fibers 5% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-138, QMCM-ASBBLK58A-052517 Lab ID-Version‡: 8107434-1

Sample Layers	Asbestos Content
Black Tar	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Poor

Location: 240-80281-139, QMCM-ASBBLK58B-052517 Lab ID-Version‡: 8107435-1

Sample Layers	Asbestos Content
Black Tar	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Poor

Location: 240-80281-140, QMCM-ASBBLK58C-052517 Lab ID-Version‡: 8107436-1

Sample Layers	Asbestos Content
Black Tar	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Poor

Location: 240-80281-141, QMCM-ASBBLK59A-052517 Lab ID-Version‡: 8107437-1

Sample Layers	Asbestos Content
Black Tar	15% Chrysotile
Black Tar and Felt	ND
Composite Non-Asbestos Content:	25% Cellulose
Sample Composite Homogeneity:	Poor

Comments: 240-80281-142 and 240-80281-143 were not analyzed due to prior positive series.

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-144, QMCM-ASBBLK60A-052517 Lab ID-Version‡: 8107440-1

Sample Layers	Asbestos Content
Gray Fibrous Material	85% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-145 and 240-80281-146 were not analyzed due to prior positive series.

Location: 240-80281-147, QMCM-ASBBLK61A-052517 Lab ID-Version‡: 8107443-1

Sample Layers	Asbestos Content
Brown Tar	ND
Brown Woven Material	ND
Composite Non-Asbestos Content:	20% Cotton 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 240-80281-148, QMCM-ASBBLK62A-052517 Lab ID-Version‡: 8107444-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Black Woven Material	ND
Composite Non-Asbestos Content:	70% Cotton 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 240-80281-149, QMCM-ASBBLK62B-052517 Lab ID-Version‡: 8107445-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Black Woven Material	ND
Composite Non-Asbestos Content:	80% Cotton 7% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-150, QMCM-ASBBLK62C-052517 Lab ID-Version‡: 8107446-1

Sample Layers	Asbestos Content
Black Woven Material	ND
Red Caulk	ND
Composite Non-Asbestos Content:	85% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-151, QMCM-ASBBLK63A-052517 Lab ID-Version‡: 8107447-1

Sample Layers	Asbestos Content
Black Tar	ND
Black Woven Material	ND
Composite Non-Asbestos Content:	80% Cotton
Sample Composite Homogeneity:	Poor

Location: 240-80281-152, QMCM-ASBBLK63B-052517 Lab ID-Version‡: 8107448-1

Sample Layers	Asbestos Content
Black Tar	ND
Black Woven Material	ND
Composite Non-Asbestos Content:	80% Cotton
Sample Composite Homogeneity:	Poor

Location: 240-80281-153, QMCM-ASBBLK63C-052517 Lab ID-Version‡: 8107449-1

Sample Layers	Asbestos Content
Black Woven Material	ND
Composite Non-Asbestos Content:	90% Cotton
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-154, QMCM-ASBBLK64A-052517 Lab ID-Version‡: 8107450-1

Sample Layers	Asbestos Content
Gray Fibrous Material	85% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-155 and 240-80281-156 were not analyzed due to prior positive series.

Location: 240-80281-157, QMCM-ASBBLK65A-052517 Lab ID-Version‡: 8107453-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Black Pebbles	ND
Composite Non-Asbestos Content:	20% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-158, QMCM-ASBBLK65B-052517 Lab ID-Version‡: 8107454-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Black Pebbles	ND
Composite Non-Asbestos Content:	20% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-159, QMCM-ASBBLK65C-052517 Lab ID-Version‡: 8107455-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Black Pebbles	ND
Composite Non-Asbestos Content:	20% Glass Fibers
Sample Composite Homogeneity:	Moderate

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Client: TestAmerica-Canton
C/O: Ms. Kris Brooks
Re: 240-80281-1; Abandoned Mining Waste-1744251
308434564

Date of Sampling: 05-24-2017 to 05-26-2017
Date of Receipt: 06-02-2017
Date of Report: 06-14-2017

ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-160, QMCM-ASBBLK66A-052517 Lab ID-Version‡: 8107456-1

Sample Layers	Asbestos Content
Brown Woven Material	ND
Composite Non-Asbestos Content:	98% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-161, QMCM-ASBBLK67A-052617 Lab ID-Version‡: 8107457-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-162, QMCM-ASBBLK67B-052617 Lab ID-Version‡: 8107458-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-163, QMCM-ASBBLK67C-052617 Lab ID-Version‡: 8107459-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-164, QMCM-ASBBLK68A-052617 Lab ID-Version‡: 8107460-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-165, QMCM-ASBBLK68B-052617 Lab ID-Version‡: 8107461-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-166, QMCM-ASBBLK68C-052617 Lab ID-Version‡: 8107462-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-167, QMCM-ASBBLK69A-052617 Lab ID-Version‡: 8107463-1

Sample Layers	Asbestos Content
Brown Gasket	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-168, QMCM-ASBBLK69B-052617 Lab ID-Version‡: 8107464-1

Sample Layers	Asbestos Content
Brown Gasket	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-169, QMCM-ASBBLK69C-052617 Lab ID-Version‡: 8107465-1

Sample Layers	Asbestos Content
Brown Gasket	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-170, QMCM-ASBBLK70A-052617 Lab ID-Version‡: 8107466-1

Sample Layers	Asbestos Content
Off-White Woven Material	90% Chrysotile
Black Tar	ND
Sample Composite Homogeneity:	Moderate

Location: 240-80281-171, QMCM-ASBBLK71A-052617 Lab ID-Version‡: 8107467-1

Sample Layers	Asbestos Content
Gray Tar with Paint	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-172, QMCM-ASBBLK71B-052617 Lab ID-Version‡: 8107468-1

Sample Layers	Asbestos Content
Gray Tar with Paint	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-173, QMCM-ASBBLK71C-052617 Lab ID-Version‡: 8107469-1

Sample Layers	Asbestos Content
Gray Tar with Paint	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-174, QMCM-ASBBLK72A-052617 Lab ID-Version‡: 8107470-1

Sample Layers	Asbestos Content
Black Tar	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 240-80281-175, QMCM-ASBBLK72B-052617 Lab ID-Version‡: 8107471-1

Sample Layers	Asbestos Content
Black Tar	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-176, QMCM-ASBBLK72C-052617 Lab ID-Version‡: 8107472-1

Sample Layers	Asbestos Content
Black Tar	ND
Black Tar and Felt	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 240-80281-177, QMCM-ASBBLK73A-052617 Lab ID-Version‡: 8107473-1

Sample Layers	Asbestos Content
Gray Woven Material	ND
Composite Non-Asbestos Content:	98% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-178, QMCM-ASBBLK73B-052617 Lab ID-Version‡: 8107474-1

Sample Layers	Asbestos Content
Gray Woven Material	ND
Composite Non-Asbestos Content:	98% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-179, QMCM-ASBBLK73C-052617 Lab ID-Version‡: 8107475-1

Sample Layers	Asbestos Content
Gray Woven Material	ND
Composite Non-Asbestos Content:	98% Cotton
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-180, QMCM-ASBBLK74A-052617 Lab ID-Version‡: 8107476-1

Sample Layers	Asbestos Content
Gray Fibrous Material	85% Chrysotile
Sample Composite Homogeneity:	Good

Comments: 240-80281-181 and 240-80281-182 were not analyzed due to prior positive series.

Location: 240-80281-183, QMCM-ASBBLK75A-052617 Lab ID-Version‡: 8107479-1

Sample Layers	Asbestos Content
Gray Woven Material	ND
Composite Non-Asbestos Content:	95% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-184, QMCM-ASBBLK75B-052617 Lab ID-Version‡: 8107480-1

Sample Layers	Asbestos Content
Gray Woven Material	ND
Tan Cementitious Material	ND
Composite Non-Asbestos Content:	80% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-185, QMCM-ASBBLK75C-052617 Lab ID-Version‡: 8107481-1

Sample Layers	Asbestos Content
Gray Woven Material	ND
Tan Cementitious Material	2% Chrysotile
Composite Non-Asbestos Content:	90% Cotton
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-186, QMCM-ASBBLK76A-052617 Lab ID-Version‡: 8107482-1

Sample Layers	Asbestos Content
Gray/Black Tar and Felt	12% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: 240-80281-187 and 240-80281-188 were not analyzed due to prior positive series.

Location: 240-80281-189, QMCM-ASBBLK77A-052617 Lab ID-Version‡: 8107485-1

Sample Layers	Asbestos Content
Red Woven Material	ND
Composite Non-Asbestos Content:	95% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-190, QMCM-ASBBLK77B-052617 Lab ID-Version‡: 8107486-1

Sample Layers	Asbestos Content
Red Woven Material	ND
Composite Non-Asbestos Content:	95% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-191, QMCM-ASBBLK77C-052617 Lab ID-Version‡: 8107487-1

Sample Layers	Asbestos Content
Red Woven Material	ND
Composite Non-Asbestos Content:	95% Cotton
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-192, QMCM-ASBBLK78A-052617 Lab ID-Version‡: 8107488-1

Sample Layers	Asbestos Content
Brown Woven Material	ND
Composite Non-Asbestos Content:	95% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-193, QMCM-ASBBLK78B-052617 Lab ID-Version‡: 8107489-1

Sample Layers	Asbestos Content
Brown Woven Material	ND
Composite Non-Asbestos Content:	95% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-194, QMCM-ASBBLK78C-052617 Lab ID-Version‡: 8107490-1

Sample Layers	Asbestos Content
Brown Woven Material	ND
Brown Tar	ND
Composite Non-Asbestos Content:	90% Cotton
Sample Composite Homogeneity:	Moderate

Location: 240-80281-195, QMCM-ASBBLK79A-052617 Lab ID-Version‡: 8107491-1

Sample Layers	Asbestos Content
Brown Woven Material	ND
Black Tar	ND
Composite Non-Asbestos Content:	60% Cotton
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-196, QMCM-ASBBLK80A-052617 Lab ID-Version‡: 8107492-1

Sample Layers	Asbestos Content
Red Caulk	ND
Black Woven Material	45% Chrysotile
Composite Non-Asbestos Content:	30% Cotton
Sample Composite Homogeneity:	Moderate

Comments: 240-80281-197 and 240-80281-198 were not analyzed due to prior positive series.

Location: 240-80281-199, QMCM-ASBBLK81A-052617 Lab ID-Version‡: 8107495-1

Sample Layers	Asbestos Content
Brown Woven Material	ND
Composite Non-Asbestos Content:	95% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-200, QMCM-ASBBLK82A-052617 Lab ID-Version‡: 8107496-1

Sample Layers	Asbestos Content
Brown Woven Material	ND
Composite Non-Asbestos Content:	95% Cotton
Sample Composite Homogeneity:	Good

Location: 240-80281-201, QMCM-ASBBLK83A-052617 Lab ID-Version‡: 8107497-1

Sample Layers	Asbestos Content
Black Fibrous Material	90% Chrysotile 2% Crocidolite
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-202, QMCM-ASBBLK84A-052617 Lab ID-Version‡: 8107498-1

Sample Layers	Asbestos Content
Brown/Black Tar and Felt	60% Chrysotile
Sample Composite Homogeneity:	Moderate

Location: 240-80281-203, QMCM-ASBBLK85A-052617 Lab ID-Version‡: 8107499-1

Sample Layers	Asbestos Content
Off-White Cementitious Material	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-204, QMCM-ASBBLK85B-052617 Lab ID-Version‡: 8107500-1

Sample Layers	Asbestos Content
Off-White Cementitious Material	ND
Sample Composite Homogeneity:	Good

Location: 240-80281-205, QMCM-ASBBLK85C-052617 Lab ID-Version‡: 8107501-1

Sample Layers	Asbestos Content
Off-White Cementitious Material	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 240-80281-206, QMCM-ASBBLK86A-052617 Lab ID-Version‡: 8107502-1

Sample Layers	Asbestos Content
Brown Tar and Felt	70% Chrysotile
Sample Composite Homogeneity:	Moderate

Location: 240-80281-207, QMCM-ASBBLK87A-052617 Lab ID-Version‡: 8107503-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-208, QMCM-ASBBLK87B-052617 Lab ID-Version‡: 8107504-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: 240-80281-209, QMCM-ASBBLK87C-052617 Lab ID-Version‡: 8107505-1

Sample Layers	Asbestos Content
Black Tar and Felt	ND
Composite Non-Asbestos Content:	30% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

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CONTACT INFORMATION

Company:	MDEQ	Address:	55195 US 41 N. Calumet, MI 49913
Contact:	Amy Keranen	Special Instructions:	**Test until first positive.** Email results to: JBinkley@manniksmithgroup.com KERANENA@michigan.gov
Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)
ND – Next Business Day
SD – Same Business Day Rush*
*Please call Client Services for locations with Rush services

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis	Other Requests	Other Requests
transite siding	QMCM-ASBBLK01A-052417	B	STD		1305 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
transite siding	QMCM-ASBBLK01B-052417	B	STD		1305 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
transite siding	QMCM-ASBBLK01C-052417	B	STD		1305 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar roofing	QMCM-ASBBLK02A-052417	B	STD		1313 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar roofing	QMCM-ASBBLK02B-052417	B	STD		1313 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar roofing	QMCM-ASBBLK02C-052417	B	STD		1313 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
conveyor belt	QMCM-ASBBLK03A-052417	B	STD		1316 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
conveyor belt	QMCM-ASBBLK03B-052417	B	STD		1316 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
conveyor belt	QMCM-ASBBLK03C-052417	B	STD		1316 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
metallic roofing	QMCM-ASBBLK04A-052417	B	STD		1333 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
metallic roofing	QMCM-ASBBLK04B-052417	B	STD		1333 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1030
SO – Soil	O – Other:				

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CONTACT INFORMATION

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Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

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Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes
metallic roofing	QMCM-ASBBLK04C-052417	B	STD		1333 - 05/24/2017
black wire wrap	QMCM-ASBBLK05A-052417	B	STD		1339 - 05/24/2017
black wire wrap	QMCM-ASBBLK05B-052417	B	STD		1339 - 05/24/2017
black wire wrap	QMCM-ASBBLK05C-052417	B	STD		1339 - 05/24/2017
metallic paint roofing	QMCM-ASBBLK06A-052417	B	STD		1355 - 05/24/2017
metallic paint roofing	QMCM-ASBBLK06B-052417	B	STD		1355 - 05/24/2017
metallic paint roofing	QMCM-ASBBLK06C-052417	B	STD		1355 - 05/24/2017
silver felt paper	QMCM-ASBBLK07A-052417	B	STD		1357 - 05/24/2017
silver felt paper	QMCM-ASBBLK07B-052417	B	STD		1357 - 05/24/2017
silver felt paper	QMCM-ASBBLK07C-052417	B	STD		1357 - 05/24/2017
brownish fibrous string	QMCM-ASBBLK08A-052417	B	STD		1414 - 05/24/2017

ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

PCM Air		PLM Bulk					PLM Rock & Soil		Other Requests		
Fiber Count (NIOSH 7400)	OSHA with TWA	EPA Method 600/R-93/116	EPA Point Count (200 Point Count)	EPA Point Count (400 Point Count)	EPA Point Count (1000 Point Count)	Gravimetric Point Count	CARB 435 Method (Pre-crushed Sample)	CARB 435 Method (Regular Sample)	Lead Analysis		
☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
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☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1030
SO – Soil	O – Other:				

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Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

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ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis		
brownish fibrous string	QMCM-ASBBLK08B-052417	B	STD		1414 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
brownish fibrous string	QMCM-ASBBLK08C-052417	B	STD		1414 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
brown suspect TSI	QMCM-ASBBLK09A-052417	B	STD		1420 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar mastic	QMCM-ASBBLK10A-052417	B	STD		1420 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar mastic	QMCM-ASBBLK10B-052417	B	STD		1420 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar mastic	QMCM-ASBBLK10C-052417	B	STD		1420 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
rubber coated fabric	QMCM-ASBBLK11A-052417	B	STD		1440 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
rubber coated fabric	QMCM-ASBBLK11B-052417	B	STD		1440 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
rubber coated fabric	QMCM-ASBBLK11C-052417	B	STD		1440 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tubing	QMCM-ASBBLK12A-052417	B	STD		1451 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tubing	QMCM-ASBBLK12B-052417	B	STD		1451 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[signature] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape			[signature]	6-1-17 1030
D – Dust	R – Rock				
SO – Soil	O – Other:				

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CONTACT INFORMATION

Company:	MDEQ	Address:	55195 US 41 N. Calumet, MI 49913
Contact:	Amy Keranen	Special Instructions:	**Test until first positive.** Email results to: JBinkley@manniksmithgroup.com KERANENA@michigan.gov
Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

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ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis	Other Requests	Other Requests
black tubing	QMCM-ASBBLK12C-052417	B	STD		1451 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black wrapped tubing	QMCM-ASBBLK13A-052417	B	STD		1505 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black wrapped tubing	QMCM-ASBBLK13B-052417	B	STD		1505 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black wrapped tubing	QMCM-ASBBLK13C-052417	B	STD		1505 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
woven wire wrap	QMCM-ASBBLK14A-052417	B	STD		1514 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
woven wire wrap	QMCM-ASBBLK14B-052417	B	STD		1514 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
woven wire wrap	QMCM-ASBBLK14C-052417	B	STD		1514 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
green shingle	QMCM-ASBBLK15A-052417	B	STD		1524 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
green shingle	QMCM-ASBBLK15B-052417	B	STD		1524 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
green shingle	QMCM-ASBBLK15C-052417	B	STD		1524 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black felt paper roofing	QMCM-ASBBLK16A-052417	B	STD		1527 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1030
SO – Soil	O – Other:				

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black felt paper roofing	QMCM-ASBBLK16B-052417	B	STD		1527 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black felt paper roofing	QMCM-ASBBLK16C-052417	B	STD		1527 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
white TSI	QMCM-ASBBLK17A-052417	B	STD		1600 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
white TSI	QMCM-ASBBLK17B-052417	B	STD		1600 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
white TSI	QMCM-ASBBLK17C-052417	B	STD		1600 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black solid tubing	QMCM-ASBBLK18A-052417	B	STD		1610 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black solid tubing	QMCM-ASBBLK18B-052417	B	STD		1610 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black solid tubing	QMCM-ASBBLK18C-052417	B	STD		1610 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
white wiring wrap	QMCM-ASBBLK19A-052417	B	STD		1614 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black gasket	QMCM-ASBBLK20A-052417	B	STD		1616 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black gasket	QMCM-ASBBLK20B-052417	B	STD		1616 - 05/24/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1930
SO – Soil	O – Other:				

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black gasket	QMCM-ASBBLK20C-052417	B	STD		1616 - 05/24/2017
black caulking	QMCM-ASBBLK21A-052417	B	STD		1635 - 05/24/2017
black caulking	QMCM-ASBBLK21B-052417	B	STD		1635 - 05/24/2017
black caulking	QMCM-ASBBLK21C-052417	B	STD		1635 - 05/24/2017
yellow fire bricks	QMCM-ASBBLK22A-052517	B	STD		0900 - 05/25/2017
yellow fire bricks	QMCM-ASBBLK22B-052517	B	STD		0900 - 05/25/2017
yellow fire bricks	QMCM-ASBBLK22C-052517	B	STD		0900 - 05/25/2017
rope gasket	QMCM-ASBBLK23A-052517	B	STD		0905 - 05/25/2017
rope gasket	QMCM-ASBBLK23B-052517	B	STD		0905 - 05/25/2017
rope gasket	QMCM-ASBBLK23C-052517	B	STD		0905 - 05/25/2017
silo shingle	QMCM-ASBBLK24A-052517	B	STD		0910 - 05/25/2017

ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

PCM Air		PLM Bulk					PLM Rock & Soil		Other Requests		
Fiber Count (NIOSH 7400)	OSHA with TWA	EPA Method 600/R-93/116	EPA Point Count (200 Point Count)	EPA Point Count (400 Point Count)	EPA Point Count (1000 Point Count)	Gravimetric Point Count	CARB 435 Method (Pre-crushed Sample)	CARB 435 Method (Regular Sample)	Lead Analysis		
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SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[signature] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[signature]	6-1-17 1030
SO – Soil	O – Other:				

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SSF, CA: 6000 Shoreline Court, Suite 205, South San Francisco, CA 94080 * **(866) 888-6653**

CONTACT INFORMATION

Company:	MDEQ	Address:	55195 US 41 N. Calumet, MI 49913
Contact:	Amy Keranen	Special Instructions:	**Test until first positive.** Email results to: JBinkley@manniksmithgroup.com KERANENA@michigan.gov
Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)
ND – Next Business Day
SD – Same Business Day Rush*
*Please call Client Services for locations with Rush services

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis		
silo shingle	QMCM-ASBBLK24B-052517	B	STD		0910 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
silo shingle	QMCM-ASBBLK24C-052517	B	STD		0910 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray mastic	QMCM-ASBBLK25A-052517	B	STD		0911 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray mastic	QMCM-ASBBLK25B-052517	B	STD		0911 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray mastic	QMCM-ASBBLK25C-052517	B	STD		0911 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fibrous belt	QMCM-ASBBLK26A-052517	B	STD		0919 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fibrous belt	QMCM-ASBBLK26B-052517	B	STD		0919 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fibrous belt	QMCM-ASBBLK26C-052517	B	STD		0919 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray gasket	QMCM-ASBBLK27A-052517	B	STD		0921 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
felt roofing w/ mastic	QMCM-ASBBLK28A-052517	B	STD		0928 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
felt roofing w/ mastic	QMCM-ASBBLK28B-052517	B	STD		0928 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSU	5/31/17 1600	VVS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1030
SO – Soil	O – Other:				

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Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)
ND – Next Business Day
SD – Same Business Day Rush*
*Please call Client Services for locations with Rush services

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ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis		
felt roofing w/ mastic	QMCM-ASBBLK28C-052517	B	STD		0928 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar roofing	QMCM-ASBBLK29A-052517	B	STD		0935 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar roofing	QMCM-ASBBLK29B-052517	B	STD		0935 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar roofing	QMCM-ASBBLK29C-052517	B	STD		0935 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
woven hose	QMCM-ASBBLK30A-052517	B	STD		0940 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
woven hose	QMCM-ASBBLK30B-052517	B	STD		0940 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black/metallic roofing	QMCM-ASBBLK31A-052517	B	STD		0951 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black/metallic roofing	QMCM-ASBBLK31B-052517	B	STD		0951 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black/metallic roofing	QMCM-ASBBLK31C-052517	B	STD		0951 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar roofing	QMCM-ASBBLK32A-052517	B	STD		0958 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tar roofing	QMCM-ASBBLK32B-052517	B	STD		0958 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape			[illegible]	6-1-17 1070
D – Dust	R – Rock				
SO – Soil	O – Other:				

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CONTACT INFORMATION

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Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)
ND – Next Business Day
SD – Same Business Day Rush*
*Please call Client Services for locations with Rush services

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ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis		
black tar roofing	QMCM-ASBBLK32C-052517	B	STD		0958 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black wire wrap	QMCM-ASBBLK33A-052517	B	STD		1003 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
woven layers	QMCM-ASBBLK34A-052517	B	STD		1015 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black layered felt paper	QMCM-ASBBLK35A-052517	B	STD		1037 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
conveyor belt	QMCM-ASBBLK36A-052517	B	STD		1048 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
conveyor belt	QMCM-ASBBLK36B-052517	B	STD		1048 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray woven tubing	QMCM-ASBBLK37A-052517	B	STD		1116 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray woven tubing	QMCM-ASBBLK37B-052517	B	STD		1116 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray woven tubing	QMCM-ASBBLK37C-052517	B	STD		1116 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
white woven screen	QMCM-ASBBLK38A-052517	B	STD		1125 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black tape wrapped hose	QMCM-ASBBLK39A-052517	B	STD		1130 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock				6-1-17 1030
SO – Soil	O – Other:				

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PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)
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Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes
black tape wrapped hose	QMCM-ASBBLK39B-052517	B	STD		1130 - 05/25/2017
black tape wrapped hose	QMCM-ASBBLK39C-052517	B	STD		1130 - 05/25/2017
black linoleum	QMCM-ASBBLK40A-052517	B	STD		1138 - 05/25/2017
white linoleum	QMCM-ASBBLK41A-052517	B	STD		1139 - 05/25/2017
white layered gasket	QMCM-ASBBLK42A-052517	B	STD		1150 - 05/25/2017
white layered gasket	QMCM-ASBBLK42B-052517	B	STD		1150 - 05/25/2017
white layered gasket	QMCM-ASBBLK42C-052517	B	STD		1150 - 05/25/2017
transite tile	QMCM-ASBBLK43A-052517	B	STD		1155 - 05/25/2017
transite tile	QMCM-ASBBLK43B-052517	B	STD		1155 - 05/25/2017
transite tile	QMCM-ASBBLK43C-052517	B	STD		1155 - 05/25/2017
black transite tile	QMCM-ASBBLK44A-052517	B	STD		1200 - 05/25/2017

ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

PCM Air		PLM Bulk					PLM Rock & Soil		Other Requests		
Fiber Count (NIOSH 7400)	OSHA with TWA	EPA Method 600/R-93/116	EPA Point Count (200 Point Count)	EPA Point Count (400 Point Count)	EPA Point Count (1000 Point Count)	Gravimetric Point Count	CARB 435 Method (Pre-crushed Sample)	CARB 435 Method (Regular Sample)	Lead Analysis		
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SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1030
SO – Soil	O – Other:				

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PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

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Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis	Other Requests	Other Requests
black transite tile	QMCM-ASBBLK44B-052517	B	STD		1200 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black transite tile	QMCM-ASBBLK44C-052517	B	STD		1200 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
metallic/black roofing	QMCM-ASBBLK45A-052517	B	STD		1212 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
metallic/black roofing	QMCM-ASBBLK45B-052517	B	STD		1212 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
metallic/black roofing	QMCM-ASBBLK45C-052517	B	STD		1212 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black gasket	QMCM-ASBBLK46A-052517	B	STD		1236 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fabric tubing	QMCM-ASBBLK47A-052517	B	STD		1311 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fabric tubing	QMCM-ASBBLK47B-052517	B	STD		1311 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fabric tubing	QMCM-ASBBLK47C-052517	B	STD		1311 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray woven fabric	QMCM-ASBBLK48A-052517	B	STD		1315 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray woven fabric	QMCM-ASBBLK48B-052517	B	STD		1315 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] NSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1030
SO – Soil	O – Other:				

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SSF, CA: 6000 Shoreline Court, Suite 205, South San Francisco, CA 94080 * **(866) 888-6653**

CONTACT INFORMATION

Company:	MDEQ	Address:	55195 US 41 N. Calumet, MI 49913
Contact:	Amy Keranen	Special Instructions:	**Test until first positive.** Email results to: JBinkley@manniksmithgroup.com KERANENA@michigan.gov
Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)
ND – Next Business Day
SD – Same Business Day Rush*
*Please call Client Services for locations with Rush services

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes
gray woven fabric	QMCM-ASBBLK48C-052517	B	STD		1315 - 05/25/2017
coated fabric gasket	QMCM-ASBBLK49A-052517	B	STD		1316 - 05/25/2017
red/gray belting	QMCM-ASBBLK50A-052517	B	STD		1318 - 05/25/2017
asphaltic roofing	QMCM-ASBBLK51A-052517	B	STD		1325 - 05/25/2017
asphaltic roofing	QMCM-ASBBLK51B-052517	B	STD		1325 - 05/25/2017
asphaltic roofing	QMCM-ASBBLK51C-052517	B	STD		1325 - 05/25/2017
black felt paper roofing	QMCM-ASBBLK52A-052517	B	STD		1332 - 05/25/2017
black felt paper roofing	QMCM-ASBBLK52B-052517	B	STD		1332 - 05/25/2017
black felt paper roofing	QMCM-ASBBLK52C-052517	B	STD		1332 - 05/25/2017
felt paper w/ silver paint	QMCM-ASBBLK53A-052517	B	STD		1335 - 05/25/2017
felt paper w/ silver paint	QMCM-ASBBLK53B-052517	B	STD		1335 - 05/25/2017

ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

PCM Air		PLM Bulk					PLM Rock & Soil		Other Requests		
Fiber Count (NIOSH 7400)	OSHA with TWA	EPA Method 600/R-93/116	EPA Point Count (200 Point Count)	EPA Point Count (400 Point Count)	EPA Point Count (1000 Point Count)	Gravimetric Point Count	CARB 435 Method (Pre-crushed Sample)	CARB 435 Method (Regular Sample)	Lead Analysis		
☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
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☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
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☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock				6-1-17 1020
SO – Soil	O – Other:				

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Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

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ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis		
felt paper w/ silver paint	QMCM-ASBBLK53C-052517	B	STD		1335 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
green floral linoleum	QMCM-ASBBLK54A-052517	B	STD		1337 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
green patterned linoleum	QMCM-ASBBLK55A-052517	B	STD		1337 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
red patterned linoleum	QMCM-ASBBLK56A-052517	B	STD		1337 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
pink layered linoleum	QMCM-ASBBLK57A-052517	B	STD		1337 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black asphaltic tar roofing	QMCM-ASBBLK58A-052517	B	STD		1443 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black asphaltic tar roofing	QMCM-ASBBLK58B-052517	B	STD		1443 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black asphaltic tar roofing	QMCM-ASBBLK58C-052517	B	STD		1443 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black roofing w/ specks	QMCM-ASBBLK59A-052517	B	STD		1450 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black roofing w/ specks	QMCM-ASBBLK59B-052517	B	STD		1450 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black roofing w/ specks	QMCM-ASBBLK59C-052517	B	STD		1450 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1030
SO – Soil	O – Other:				

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Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

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ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis		
dark gray/white TSI	QMCM-ASBBLK60A-052517	B	STD		1500 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
dark gray/white TSI	QMCM-ASBBLK60B-052517	B	STD		1500 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
dark gray/white TSI	QMCM-ASBBLK60C-052517	B	STD		1500 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
woven material w/ yellow	QMCM-ASBBLK61A-052517	B	STD		1513 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
red/black woven fabric	QMCM-ASBBLK62A-052517	B	STD		1519 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
red/black woven fabric	QMCM-ASBBLK62B-052517	B	STD		1519 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
red/black woven fabric	QMCM-ASBBLK62C-052517	B	STD		1519 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray layered fabric	QMCM-ASBBLK63A-052517	B	STD		1535 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray layered fabric	QMCM-ASBBLK63B-052517	B	STD		1535 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray layered fabric	QMCM-ASBBLK63C-052517	B	STD		1535 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
fire door TSI	QMCM-ASBBLK64A-052517	B	STD		1540 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1030
SO – Soil	O – Other:				

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CONTACT INFORMATION

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Contact:	Amy Keranen	Special Instructions:	**Test until first positive.** Email results to: JBinkley@manniksmithgroup.com KERANENA@michigan.gov
Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

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ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis		
fire door TSI	QMCM-ASBBLK64B-052517	B	STD		1540 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
fire door TSI	QMCM-ASBBLK64C-052517	B	STD		1540 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black/gray shingles	QMCM-ASBBLK65A-052517	B	STD		1546 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black/gray shingles	QMCM-ASBBLK65B-052517	B	STD		1546 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black/gray shingles	QMCM-ASBBLK65C-052517	B	STD		1546 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
white belting	QMCM-ASBBLK66A-052517	B	STD		1522 - 05/25/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
window glazing	QMCM-ASBBLK67A-052617	B	STD		1413 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
window glazing	QMCM-ASBBLK67B-052617	B	STD		1413 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
window glazing	QMCM-ASBBLK67C-052617	B	STD		1413 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
slate sheeting	QMCM-ASBBLK68A-052617	B	STD		1420 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
slate sheeting	QMCM-ASBBLK68B-052617	B	STD		1420 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[signature] MSG	5/31/17 1600	UPS	
B – Bulk	T – Tape			[signature]	6-1-17 1030
D – Dust	R – Rock				
SO – Soil	O – Other:				

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slate sheeting	QMCM-ASBBLK68C-052617	B	STD		1420 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fabric tubing	QMCM-ASBBLK69A-052617	B	STD		1423 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fabric tubing	QMCM-ASBBLK69B-052617	B	STD		1423 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fabric tubing	QMCM-ASBBLK69C-052617	B	STD		1423 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
white/black fabric	QMCM-ASBBLK70A-052617	B	STD		1427 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black foundation mastic	QMCM-ASBBLK71A-052617	B	STD		1438 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black foundation mastic	QMCM-ASBBLK71B-052617	B	STD		1438 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black foundation mastic	QMCM-ASBBLK71C-052617	B	STD		1438 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
loose tar mastic	QMCM-ASBBLK72A-052617	B	STD		1442 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
loose tar mastic	QMCM-ASBBLK72B-052617	B	STD		1442 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
loose tar mastic	QMCM-ASBBLK72C-052617	B	STD		1442 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible] MSCG	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[illegible]	6-1-17 1030
SO – Soil	O – Other:				

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ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis	Other Requests	Other Requests
gray woven material	QMCM-ASBBLK73A-052617	B	STD		1447 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray woven material	QMCM-ASBBLK73B-052617	B	STD		1447 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray woven material	QMCM-ASBBLK73C-052617	B	STD		1447 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
beige TSI	QMCM-ASBBLK74A-052617	B	STD		1456 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
beige TSI	QMCM-ASBBLK74B-052617	B	STD		1456 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
beige TSI	QMCM-ASBBLK74C-052617	B	STD		1456 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fibrous material	QMCM-ASBBLK75A-052617	B	STD		1500 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fibrous material	QMCM-ASBBLK75B-052617	B	STD		1500 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black fibrous material	QMCM-ASBBLK75C-052617	B	STD		1500 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black mesh imprint felt paper	QMCM-ASBBLK76A-052617	B	STD		1505 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
black mesh imprint felt paper	QMCM-ASBBLK76B-052617	B	STD		1505 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[illegible]	5/31/17 1600	UPS	
B – Bulk	T – Tape			[illegible]	6-1-17 1030
D – Dust	R – Rock				
SO – Soil	O – Other:				

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CHAIN OF CUSTODY
www.EMLabPK.com

EMLab P&K
A TestAmerica Company

New Jersey: 3000 Lincoln Drive East, Suite A, Marlton, NJ 08053 * **(866) 871-1984**
Phoenix, AZ: 1501 West Knudsen Drive, Phoenix, AZ 85027 * **(800) 651-4802**
SSF, CA: 6000 Shoreline Court, Suite 205, South San Francisco, CA 94080 * **(866) 888-6653**

CONTACT INFORMATION

Company:	MDEQ	Address:	55195 US 41 N, Calumet, MI 49913
Contact:	Amy Keranen	Special Instructions:	**Test until first positive.** Email results to: JBinkley@manniksmithgroup.com KERANENA@michigan.gov
Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
Project Description:	Abandoned Mining Wastes		
Project Zip Code:	49934	Sampling Date & Time:	5/24-26/2017
PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)
ND – Next Business Day
SD – Same Business Day Rush*
*Please call Client Services for locations with Rush services

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes
black mesh imprint felt paper	QMCM-ASBBLK76C-052617	B	STD		1505 - 05/26/2017
red woven fabric	QMCM-ASBBLK77A-052617	B	STD		1510 - 05/26/2017
red woven fabric	QMCM-ASBBLK77B-052617	B	STD		1510 - 05/26/2017
red woven fabric	QMCM-ASBBLK77C-052617	B	STD		1510 - 05/26/2017
black woven material	QMCM-ASBBLK78A-052617	B	STD		1527 - 05/26/2017
black woven material	QMCM-ASBBLK78B-052617	B	STD		1527 - 05/26/2017
black woven material	QMCM-ASBBLK78C-052617	B	STD		1527 - 05/26/2017
black mastic w/ fabric	QMCM-ASBBLK79A-052617	B	STD		1528 - 05/26/2017
layered gasket	QMCM-ASBBLK80A-052617	B	STD		1542 - 05/26/2017
layered gasket	QMCM-ASBBLK80B-052617	B	STD		1542 - 05/26/2017
layered gasket	QMCM-ASBBLK80C-052617	B	STD		1542 - 05/26/2017

ASBESTOS ANALYSIS

REQUESTED SERVICES (Check boxes below)

PCM Air		PLM Bulk					PLM Rock & Soil		Other Requests		
Fiber Count (NIOSH 7400)	OSHA with TWA	EPA Method 600/R-93/116	EPA Point Count (200 Point Count)	EPA Point Count (400 Point Count)	EPA Point Count (1000 Point Count)	Gravimetric Point Count	CARB 435 Method (Pre-crushed Sample)	CARB 435 Method (Regular Sample)	Lead Analysis		
☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
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☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	MSG	5/31/17 1600	WS	
B – Bulk	T – Tape				
D – Dust	R – Rock				6-1-17 1030
SO – Soil	O – Other:				

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at http://www.emlab.com/s/main/serviceterms.html

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SSF, CA: 6000 Shoreline Court, Suite 205, South San Francisco, CA 94080 * **(866) 888-6653**

ASBESTOS ANALYSIS

CONTACT INFORMATION

Company:	MDEQ	Address:	55195 US 41 N. Calumet, MI 49913
Contact:	Amy Keranen	Special Instructions:	**Test until first positive.** Email results to: JBinkley@marniksmithgroup.com KERANENA@michigan.gov
Phone:	906-337-0389		

PROJECT INFORMATION

Project ID:	310000098		
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PO Number:	17 44251 30843 456457 00	Sampled By:	A. Miller

TURN AROUND TIME CODES (TAT)

STD – Standard (DEFAULT)
ND – Next Business Day
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*Please call Client Services for locations with Rush services

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

REQUESTED SERVICES (Check boxes below)

Sample ID	Description	Sample Type (Below)	TAT (Above)	Total Volume (Air Samples only)	Notes	PCM Air: Fiber Count (NIOSH 7400)	PCM Air: OSHA with TWA	PLM Bulk: EPA Method 600/R-93/116	PLM Bulk: EPA Point Count (200 Point Count)	PLM Bulk: EPA Point Count (400 Point Count)	PLM Bulk: EPA Point Count (1000 Point Count)	PLM Bulk: Gravimetric Point Count	PLM Rock & Soil: CARB 435 Method (Pre-crushed Sample)	PLM Rock & Soil: CARB 435 Method (Regular Sample)	Other Requests: Lead Analysis		
gray woven fabric	QMCM-ASBBLK81A-052617	B	STD		1543 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray/brown woven fabric	QMCM-ASBBLK82A-052617	B	STD		1544 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
gray coated felt paper	QMCM-ASBBLK83A-052617	B	STD		1545 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
felt paper roofing	QMCM-ASBBLK84A-052617	B	STD		1557 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
ligth yellow fire bricks	QMCM-ASBBLK85A-052617	B	STD		1558 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
light yellow fire bricks	QMCM-ASBBLK85B-052617	B	STD		1558 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
light yellow fire bricks	QMCM-ASBBLK85C-052617	B	STD		1558 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
metallic roofing	QMCM-ASBBLK86A-052617	B	STD		1559 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
tar pebble felt paper roofing	QMCM-ASBBLK87A-052617	B	STD		1600 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
tar pebble felt paper roofing	QMCM-ASBBLK87B-052617	B	STD		1600 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐
tar pebble felt paper roofing	QMCM-ASBBLK87C-052617	B	STD		1600 - 05/26/2017	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐

SAMPLE TYPE CODES		RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
A – Air	W – Wipe	[signature]	5/31/17 1600	UPS	
B – Bulk	T – Tape				
D – Dust	R – Rock			[signature]	6-1-17 1030
SO – Soil	O – Other:				

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TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 80281
Canton Facility

Client MDEQ Site Name _____ Cooler unpacked by:

Cooler Received on 6-1-17 Opened on 6-1-17

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.4** °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
   IR GUN #36 (CF **+0**°C) Observed Cooler Temp. 22.6 °C Corrected Cooler Temp. 22.6 °C
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No
   -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 11-15 have been checked at the originating laboratory.
11. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC697954**
12. Were VOAs on the COC? Yes No
13. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
15. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

17. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

18. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____.

AMY KERANEN
906-3370389
MDEQ
55195 US 41 NORTH
CALUMET MI 49913

6 LBS

1 OF 1

DWT: 16,10,9

SHIP TO:
KRIS BROOKS
3309669790
TESTAMERICA
4101 SHUFFEL ST. NW
NORTH CANTON OH 44720-6900

OH 447 9-10

UPS NEXT DAY AIR

TRACKING #: 1Z 863 AV0 24 9349 4018

1

BILLING: P/P
SIGNATURE REQUIRED

Reference#1: 1744251308434564 15700

UPS 19.2.05 WNINV50 8760A 04/2017

APPENDIX K

ABANDONED CONTAINERS AND RPM SUMMARY

APPENDIX K
Table 1
Abandoned Containers and RPM Summary
Quincy Mining Company Mason Operations Area
Abandoned Mining Wastes - Torch Lake Non-Superfund Site

Container Number	Container Identification	Inspection (Sample) Date	Property Identification Number	Laboratory Work Order Number	Longitude	Latitude	Description	Notes	Container Intact?	Container Empty?	Waste Characterization					Available Laboratory Analyses																	
											Hazardous Waste	Non-Hazardous Waste	TSCA Waste	RCRA Empty Drum	Unknown - Requires Characterization if Not Empty	TCLP Herbicides	TCLP Pesticides	TCLP VOCs	TCLP SVOCs	TCLP Mercury	TCLP Metals	Reactive Sulfide	Reactive Cyanide	pH	Paint Filter	Flash Point	VOCs	PNAs	Mercury	Metals	PCBs	Herbicides	Pesticides	Moisture
Abandoned Containers - Quincy Mining Company Area, West of M-26																																	
1	QMCM-DRUM#1	4/21/2017	009-023-001-00	NA	-88.4594331700	47.1492415343	Crushed, rusted, highly weathered and damaged drum	Unknown contents near creasing, includes slag near top of drum	No	Unk					X																			
2	QMCM-DRUM#2	4/21/2017	009-023-001-00	NA	-88.4602280851	47.1478355976	Rusted, crushed drum carcass, no visible top or bottom	Partially buried	No	Yes				X																			
3	QMCM-CONTAINER#3	4/24/2017	009-023-001-00	NA	-88.4609967027	47.1468162504	Quart-sized rusted container labeled "Quality Plus" Motor Oil	Empty	Yes	Yes				X																			
4	QMCM-DRUM#4	4/24/2017	009-023-001-00	NA	-88.4605851406	47.1466005012	Rusted drum, top and bottom appear missing, crushed to approximately 6 inches	Appears to be filled with possibly soil, leaf debris	No	Unk					X																			
5	QMCM-DRUM#5	4/24/2017	009-023-001-00	NA	-88.4603331744	47.1466053233	Crushed, rusted drum, open at one end	Appears to be empty and filled with leaf debris, partially buried	No	Unk					X																			
6	QMCM-DRUM#6	4/24/2017	009-023-001-00	NA	-88.4599987625	47.1471122719	Partially buried drum carcass	Filled with visible leaf debris, other contents not visible, missing lid	No	Unk					X																			
7	QMCM-DRUM#7	4/24/2017	009-023-001-00	NA	-88.4603345909	47.1464850429	Rusted and crumpled drum carcass	Observed along south edge of Stamp Mill No.1 building, partially buried	No	Yes				X																				
8	QMCM-DRUM#8	4/24/2017	009-023-001-00	NA	-88.4603449897	47.1463118682	Crushed drum with rusted hole	Partially buried, appears empty, contents unknown	No	Unk					X																			
9, 10, 13	CONTAINER#9	4/24/2017	009-023-001-00	NA	-88.4612696930	47.1463490633	Three 5-gallon plastic containers: two white/clear with blue tops, one full, second partially full, third white/clear with a red top, container cracked and empty	Content unknown, appears to be a dark liquid, labels are weathered and illegible	Yes	No					X																			
12	QMCM-DRUM#10	4/24/2017	009-023-001-00	NA	-88.4610407332	47.1464989873	Rusted drum, bulging at both ends, container is split along one end	Content unknown	Yes	No					X																			
Residual Processing Material - Quincy Mining Company Area, West of M-26																																	
1	QMCM-RPM04-0"-6"	4/21/2017 (5/16/2017)	009-023-001-00	17051193	-88.4590257127	47.1492734028	Black debris is tar-like, exudes shiny substance and contains fibrous-like material within black material	Pile of black debris approximately 15 feet in diameter, sampled as QMCM-RPM04-0"-6" on 05/16/2017, initially observed as RPM1 on 4/21/2017, estimated 5 tons of material at 6 inch depth	NA	NA		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	QMCM-RPM05-0"-6"	4/21/2017 (5/16/2017)	009-023-001-00	17051193	-88.4590031274	47.1488659314	Yellow and orange rubbery mesh-imprinted material in small pieces, appears to be flexible, contains mesh imprinted on one side and is smooth on the opposite	Material is situated in two scattered piles nearby and is mixed with wood pieces and other debris, sampled as QMCM-RPM05-0"-6" on 05/16/2017, initially observed as RPM2 on 4/21/2017, estimated 0.25 tons of material at 3 inch depth	NA	NA	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	QMCM-RPM01-0"-6"	4/21/2017 (5/16/2017)	009-023-001-00	17051193	-88.4590444022	47.1489160228	Potential tailing debris, has a copper-like, green coloring	Small pieces concentrated in an area scattered with wood debris and concrete pieces, sampled as QMCM-RPM01-0"-6" on 05/16/2017, initially observed as RPM3 on 4/21/2017, estimated 0.5 tons of material at 6 inch depth	NA	NA		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4	QMCM-RPM06-0"-6"	4/24/2017 (5/16/2017)	009-023-001-00	17051193	-88.4605907395	47.1465491844	Thick brown sludge-like material	Found beneath rusted metal roofing of thickener in Mineral House, material is mixed with leaf and wood debris, sampled as QMCM-RPM06-0"-6" on 05/16/2017, initially observed as RPM4 on 4/24/2017, estimated 40 tons of material at 9 inch depth	NA	NA		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

APPENDIX K
Table 1
Abandoned Containers and RPM Summary
Quincy Mining Company Mason Operations Area
Abandoned Mining Wastes - Torch Lake Non-Superfund Site

Container Number	Container Identification	Inspection (Sample) Date	Property Identification Number	Laboratory Work Order Number	Longitude	Latitude	Description	Notes	Container Intact?	Container Empty?	Waste Characterization					Available Laboratory Analyses																		
											Hazardous Waste	Non-Hazardous Waste	TSCA Waste	RCRA Empty Drum	Unknown - Requires Characterization if Not Empty	TCLP Herbicides	TCLP Pesticides	TCLP VOCs	TCLP SVOCs	TCLP Mercury	TCLP Metals	Reactive Sulfide	Reactive Cyanide	pH	Paint Filter	Flash Point	VOCs	PNAs	Mercury	Metals	PCBs	Herbicides	Pesticides	Moisture
Abandoned Containers - Quincy Mining Company Area, East of M-26																																		
1-5	QMCM-DRUM-DumpArea#1a	4/24/2017	099-023-001-00	NA	-88.4567271816	47.1484288019	5 visible drum carcasses, rusted, includes various drum pieces within the area	Partially buried within Dump Area #1	No	Yes				X																				
6	QMCM-DRUM-DumpArea#1b	4/24/2017	099-023-001-00	NA	-88.4567603811	47.1483250539	Drum pieces of various sizes	Partially buried within Dump Area #1	No	Yes				X																				
7	QMCM-DRUM-DumpArea#1c	4/24/2017	099-023-001-00	NA	-88.4567105511	47.1482473116	Drum carcass, rusted	Partially buried within Dump Area #1	No	Yes				X																				
8, 9	QMCM-DRUM-DumpArea#1d	4/24/2017	099-023-001-00	NA	-88.4567185614	47.1482251958	2 drum carcasses, rusted	Partially buried within Dump Area #1	No	Yes				X																				
10, 11	QMCM-DRUM-DumpArea#1e	4/24/2017	099-023-001-00	NA	-88.4566682496	47.1484478296	2 drum carcasses, rusted	Partially buried within Dump Area #1																										
12	QMCM-DRUM-DumpArea #1f	4/24/2017	099-023-001-00	NA	-88.4567457513	47.1482589034	Crushed drum	Empty, within Dump Area #1	Yes	Yes				X																				
13	QMCM-DRUM-DumpArea#1g	4/24/2017	099-023-001-00	NA	-88.4568617004	47.1482218302	5-gallon empty can	Within Dump Area #1	Yes	Yes				X																				
14	QMCM-DRUM-DumpArea#2	4/24/2017	099-023-001-00	NA	-88.4564673273	47.1482841810	Drum carcass, rusted	Within Dump Area #2	No	Unk					X																			
15	QMCM-DRUM#11	4/24/2017	099-023-001-00	NA	-88.4575390582	47.1479436512	Crushed, rusted drum, partially flattened	Appears empty, unknown if contents are present	No	Unk					X																			
16	QMCM-DRUM#12	4/24/2017	099-023-001-00	NA	-88.4576601711	47.1480427452	Crushed, rusted drum, flattened	Appears empty, unknown if contents are present, located on top of overgrown debris pile	No	Unk					X																			
17	QMCM-DRUM#13	4/24/2017	099-023-001-00	NA	-88.4577095222	47.1480390992	Crushed, rusted drum carcass	Located on top of overgrown debris pile	No	Unk					X																			
18	QMCM-DRUM#14	4/24/2017	099-023-001-00	NA	-88.4575898377	47.1471040953	Crushed drum	Partially buried, located on west side of Quincy Creek Bank	Yes	Unk					X																			
19	QMCM-DRUM#15	4/24/2017	099-023-001-00	NA	-88.4572678883	47.1470208203	Rusted, crushed, drum carcass	Partially buried	No	Yes				X																				
20	QMCM-DRUM#16	4/24/2017	099-023-001-00	NA	-88.4582588289	47.1465334899	Buried rusted, drum, unknown if visible piece is carcass or complete drum	Appears empty, unknown if contents are present	Unk	Unk					X																			
21	QMCM-DM02-0"-6"	4/24/2017 (5/17/2017)	099-023-001-00	17051193	-88.4582677269	47.1463922030	Flattened drum carcass, rusted, surrounded by granular tan colored substance	Sampled as QMCM-DM02-0"-6" on 05/17/2017, initially observed as DRUM17 on 4/24/2017, estimated 0.5 tons of material assuming full 55 gallon drum	No	No		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
22	QMCM-DRUM#30	5/4/2017	099-023-001-00	NA	-88.4634906777	47.1419134436	Rusted drum, partially crushed and buried	Appears empty, unknown if contents are present	No	Unk					X																			
23	QMCM-DRUM#31	5/4/2017	099-023-001-00	NA	-88.4634697012	47.1418070528	Rusted, partially sunk drum with stick-up (petcock) bung, top and bottom intact	No oil sheen in water surrounding it	No	Yes				X																				
24-47	QMCM-DRUM#32	5/4/2017	099-023-001-00	NA	-88.4636273252	47.1419761299	Approximately 24 rusted drum top and bottoms, some folded/crushed	Partially buried in railroad grade, at least one contains a label that reads: Dow Chemical Company	No	Yes				X																				
48	QMCM-DRUM#33	5/4/2017	099-023-001-00	NA	-88.4632764262	47.1419856226	Rusted drum, both ends intact, with bullet hole at one end	Strong petroleum-like odor when near	Yes	Unk					X																			
49	QMCM-DRUM#34	5/4/2017	099-023-001-00	NA	-88.4632146944	47.1420725469	Rusted black painted drum, appears to have a lid inside	Partially buried, unknown if contents are present	No	Unk					X																			
50	QMCM-DRUM#35	5/4/2017	099-023-001-00	NA	-88.4629063852	47.1422412683	Black, rusted drum, no visible top, approximately 10 inches of the drum is visible	Partially buried, contents unknown with only visible leaf litter	No	Unk					X																			
51	QMCM-DRUM#36	5/4/2017	099-023-001-00	NA	-88.4627442044	47.1424147012	Flattened drum carcass	Partially buried, unknown if contents are present	No	Unk					X																			

APPENDIX K
Table 1
Abandoned Containers and RPM Summary
Quincy Mining Company Mason Operations Area
Abandoned Mining Wastes - Torch Lake Non-Superfund Site

Container Number	Container Identification	Inspection (Sample) Date	Property Identification Number	Laboratory Work Order Number	Longitude	Latitude	Description	Notes	Container Intact?	Container Empty?	Waste Characterization					Available Laboratory Analyses																	
											Hazardous Waste	Non-Hazardous Waste	TSCA Waste	RCRA Empty Drum	Unknown - Requires Characterization if Not Empty	TCLP Herbicides	TCLP Pesticides	TCLP VOCs	TCLP SVOCs	TCLP Mercury	TCLP Metals	Reactive Sulfide	Reactive Cyanide	pH	Paint Filter	Flash Point	VOCs	PNAs	Mercury	Metals	PCBs	Herbicides	Pesticides	Moisture
Abandoned Containers - Quincy Mining Company Area																																	
1	QMCM-DRUM#18	4/24/2017	009-023-001-70	NA	-88.4585493132	47.1463169691	Drum buried with only top portion of rim visible	Buried near SE side of coal bin, contents unknown, but contains visible leaf litter	No	Unk					X																		
2	QMCM-DM03-0"-6"	4/24/2017 (5/17/2017)	009-023-001-70	17051193	-88.4587615772	47.1463336414	Drum carcass without top or bottom, rusted, partially flattened	Crystallized material spilling out, contents unknown, appears to be white and solid, sampled as QMCM-DM03-0"-6" on 5/17/2017, initially observed as DRUM19 on 4/24/2017, estimated 0.5 tons of material assuming full 55 gallon drum	No	No		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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Abandoned Containers - Quincy Stamp Sands Area																																		
1	QMCM-DRUM#20	5/3/2017	009-026-003-00	NA	-88.4641026234	47.1404060552	Buried crushed drum, appears to have rolled top and is hollow underneath	Potential carcass	No	Unk					X																			
2	QMCM-DRUM#22	5/3/2017	009-026-003-00	NA	-88.4647149651	47.1398770331	Rusted drum, buried in hillside, unknown if contents are present		No	Unk					X																			
3	CONTAINER#23	5/3/2017	009-026-003-00	NA	-88.4643529238	47.1397842994	Rusted container approximately 10 inches in height; contains a valve on top; approximately 3L	Potentially pressurized	Yes	Unk					X																			
4	QMCM-DRUM#24	5/3/2017	009-026-003-00	NA	-88.4642938806	47.1397794392	Rusted drum, has black tar mastic on sides	Appears to be empty	Yes	Yes				X																				
5	QMCM-DRUM#25	5/3/2017	009-026-003-00	NA	-88.4643460426	47.1397068601	Rusted Drum, circular hole on one end, intact bottom	Unknown if contents are present	Yes	Unk					X																			
6	QMCM-DRUM#26	5/3/2017	009-026-003-00	NA	-88.4643723287	47.1396970559	Rusted drum, open on one end, intact on other end	Unknown if contents are present	Yes	Unk					X																			
7 - 11	QMCM-DRUM#27	5/3/2017	009-026-003-00	NA	-88.4648395756	47.1397641373	Five rusted, crushed drums	Partially buried, potentially more buried, unknown if contents are present	No	Unk					X																			
12	QMCM-DRUM#28	5/3/2017	009-026-003-00	NA	-88.4654878705	47.1391560684	Rusted, crushed drum	Partially buried, unknown if contents are present	No	Unk					X																			
13	QMCM-DRUM#29	5/3/2017	009-026-003-00	NA	-88.4647022150	47.1393138556	Rusted and black, crushed drum	Partially buried, unknown if contents are present	No	Unk					X																			
14 - 21	QMCM-DRUM#37	5/3/2017	009-026-003-00	NA	-88.4650891722	47.1402198866	Eight concrete filled rusted drums arranged in a rectangle	Partially sunken into ground, one drum on its side	Yes	No																								
22, 23	QMCM-DRUM#38	5/3/2017	009-026-003-00	NA	-88.4654411316	47.1397590897	Two rusted, crushed, drums,	Partially buried, sound empty, galvanized container is located with drums	Yes	Unk					X																			
24	QMCM-DRUM#39	5/4/2017	009-026-003-00	NA	-88.4656736087	47.1398860076	Crushed drum, bottom partially intact, embossed with: S.T.C. at one end	Partially buried, dark brown, sandy granular material inside	No	No					X																			
25	QMCM-DRUM#40	5/4/2017	009-026-003-00	NA	-88.4658705550	47.1398810434	Crushed, rusted drum	Partially buried drum, unknown if contents are present	No	Unk					X																			
26	QMCM-DRUM#41	5/4/2017	009-026-003-00	NA	-88.4659917280	47.1398266426	Rusted drum with bullet holes; feels empty	Located near ORV trail	Yes	Yes																								
27	QMCM-DRUM#42	5/4/2017	009-026-003-00	NA	-88.4666645296	47.1387262981	Crushed, empty drum		No	Yes				X																				
28	CONTAINER#43	5/4/2017	009-026-003-00	NA	-88.4668413584	47.1384866208	Automobile fuel tank, rusted	Partially buried	Yes	Unk					X																			
29	QMCM-DRUM#44	5/4/2017	009-026-003-00	NA	-88.4659753296	47.1386380034	Crushed drum	Unknown if contents are present	No	Unk					X																			
30	QMCM-DRUM#45	5/4/2017	009-026-003-00	NA	-88.4672200085	47.1382262668	Crushed, empty drum, flattened		No	Yes				X																				
31	QMCM-DRUM#46	5/4/2017	009-026-003-00	NA	-88.4664017685	47.1395086921	Crushed, rusted	Partially buried	No	Unk					X																			
Residual Processing Material - Quincy Stamp Sands Area																																		
1	QMCM-RPM07-0"-6"	4/25/2017 (5/17/2017)	009-026-003-00	17051193	-88.4633420188	47.1407832108	Brown/gray fine grained sandy material with hardened appearance on top.	Located on concrete slab, approximately 5' x 12', near edge of Shore Plant Pond; sampled as QMCM-RPM07-0"-6" on 5/17/2017, initially observed with SACM62 on 4/25/2017; estimated 1.5 tons of material at 6 inch depth	NA	NA		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	QMCM-RPM03-0"-6"	5/3/2017 (5/17/2017)	009-026-003-00	17051193	-88.4643664475	47.1406739869	Dark brown/black, greasy globular, tar-like, hardened material on concrete walls and in piles beneath concrete arches	Appears to start at top of concrete and follows the wall down, appears to have formed hardened piles at bottom; sampled as QMCM-RPM03-0"-6" on 5/17/2017; initially observed as RPM5 and RPM6 on 5/3/2017; estimated 0.3 tons of material at 6 inch depth	NA	NA		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3	QMCM-RPM02-0"-6"	9/10/2013 (5/17/2017)	009-026-003-00	17051193	-88.4642343133	47.1404023777	Brown, medium grained material with gravel pieces	Located on concrete foundation, resample of SS03 (9/10/2013); estimated 0.25 tons of material at 6 inch depth	NA	NA		X				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X