



# Analytical Laboratory Report

Report ID: S10084.01(01)  
Generated on 12/09/2019

## Report to

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Attention: Micky Leonard  
EGLE - Water Resources Div.  
525 West Allegan St.  
P.O. Box 30242  
Lansing, MI 48909

Phone: 248-763-1635 FAX: 517-241-3571  
Email: LeonardM4@michigan.gov

Additional Contacts: Josh Peters

## Report produced by

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## Report Summary

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Lab Sample ID(s): S10084.01-S10084.03  
Project: Revere Copper & Brass  
Collected Date(s): 12/06/2019  
Submitted Date/Time: 12/06/2019 15:57  
Sampled by: Josh Peters / Micky Leonard  
P.O. #: 761-NPDP3-8400

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (\*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory Report

## Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

## Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

## Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



# Analytical Laboratory Report

## Method Summary

Method	Version
SW3510C	SW 846 Method 3510C Revision 3 December 1996
SW8270D	SW 846 Method 8270D Revision 4 February 2007



# Analytical Laboratory Report

## Sample Summary (3 samples)

Sample ID	Sample Tag	Location	Matrix	Collected Date/Time
S10084.01	Upstream		Wastewater	12/06/19 12:50
S10084.02	Site		Wastewater	12/06/19 13:08
S10084.03	Downstream		Wastewater	12/06/19 13:20



# Analytical Laboratory Report

Lab Sample ID: S10084.01

Sample Tag: Upstream

Location:

Collected Date/Time: 12/06/2019 12:50

Matrix: Wastewater

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	1L Amber	None	Yes	2.9	IR

**Extraction / Prep.**

Parameter	Result	Method	Run Date	Analyst	Flags
PNA Extraction	Completed	SW3510C	12/09/19 11:55	PL	

**Organics - Semi-Volatiles**

**Polynuclear Aromatic Hydrocarbon, Method: SW8270D, Run Date: 12/09/19 15:18, Analyst: PL**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Chrysene	Not detected	1		ug/L	2	218-01-9	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Pyrene	Not detected	5		ug/L	2	129-00-0	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
1-Methylnaphthalene	Not detected	5		ug/L	2	90-12-0	



# Analytical Laboratory Report

Lab Sample ID: S10084.02

Sample Tag: Site

Location:

Collected Date/Time: 12/06/2019 13:08

Matrix: Wastewater

COC Reference:

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	1L Amber	None	Yes	2.9	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
PNA Extraction	Completed	SW3510C	12/09/19 11:55	PL	

### Organics - Semi-Volatiles

Polynuclear Aromatic Hydrocarbon, Method: SW8270D, Run Date: 12/09/19 15:36, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Chrysene	Not detected	1		ug/L	2	218-01-9	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Pyrene	Not detected	5		ug/L	2	129-00-0	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
1-Methylnaphthalene	Not detected	5		ug/L	2	90-12-0	



# Analytical Laboratory Report

Lab Sample ID: S10084.03

Sample Tag: Downstream

Location:

Collected Date/Time: 12/06/2019 13:20

Matrix: Wastewater

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	1L Amber	None	Yes	2.9	IR

**Extraction / Prep.**

Parameter	Result	Method	Run Date	Analyst	Flags
PNA Extraction	Completed	SW3510C	12/09/19 11:55	PL	

**Organics - Semi-Volatiles**

**Polynuclear Aromatic Hydrocarbon, Method: SW8270D, Run Date: 12/09/19 15:53, Analyst: PL**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acenaphthene	Not detected	5		ug/L	2	83-32-9	
Acenaphthylene	Not detected	5		ug/L	2	208-96-8	
Anthracene	Not detected	5		ug/L	2	120-12-7	
Benzo(a)anthracene	Not detected	1		ug/L	2	56-55-3	
Benzo(a)pyrene	Not detected	1		ug/L	2	50-32-8	
Benzo(b)fluoranthene	Not detected	1		ug/L	2	205-99-2	
Benzo(k)fluoranthene	Not detected	1		ug/L	2	207-08-9	
Benzo(ghi)perylene	Not detected	1		ug/L	2	191-24-2	
Chrysene	Not detected	1		ug/L	2	218-01-9	
Dibenzo(ah)anthracene	Not detected	2		ug/L	2	53-70-3	
Fluoranthene	Not detected	1		ug/L	2	206-44-0	
Fluorene	Not detected	5		ug/L	2	86-73-7	
Indeno(1,2,3-cd)pyrene	Not detected	2		ug/L	2	193-39-5	
Naphthalene	Not detected	5		ug/L	2	91-20-3	
Phenanthrene	Not detected	2		ug/L	2	85-01-8	
Pyrene	Not detected	5		ug/L	2	129-00-0	
2-Methylnaphthalene	Not detected	5		ug/L	2	91-57-6	
1-Methylnaphthalene	Not detected	5		ug/L	2	90-12-0	

# Merit Laboratories Login Checklist

Lab Set ID:S10084

Attention: Micky Leonard  
Address: EGLE - Water Resources Div.  
525 West Allegan St.  
P.O. Box 30242  
Lansing, MI 48909

Client:MIDEQ (MI Dept. of Environment, Great Lakes, and Energy)

Project: Revere Copper & Brass

Submitted: 12/06/2019 15:57 Login User: SRS

Phone: 248-763-1635 FAX: 517-241-3571  
Email: LeonardM4@michigan.gov

Selection	Description	Note
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## Sample Receiving

- |     |  |  |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 2.9 |
| 02. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Received on ice/ cooling process begun                 |
| 03. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples shipped  |
| 04. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples left in 24 hr. drop box                        |
| 05. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Are there custody seals/tape or is the drop box locked |

## Chain of Custody

- |     |  |  |
|-----|--|--|
| 06. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC adequately filled out                |
| 07. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | COC signed and relinquished to the lab   |
| 08. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sample tag on bottles match COC          |
| 09. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Subcontracting needed? Subcontracted to: |

## Preservation

- |     |  |   |
|-----|--|---|
| 10. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do sample have correct chemical preservation        |
| 11. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Completed pH checks on preserved samples? (no VOAs) |
| 12. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Did any samples need to be preserved in the lab?    |

## Bottle Conditions

- |     |  |   |
|-----|--|---|
| 13. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | All bottles intact                            |
| 14. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Appropriate analytical bottles are used       |
| 15. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Merit bottles used                            |
| 16. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Sufficient sample volume received             |
| 17. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | Samples require laboratory filtration         |
| 18. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples submitted within holding time         |
| 19. | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | Do water VOC or TOX bottles contain headspace |

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: \_\_\_\_\_ Date: \_\_\_\_\_



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C.O.C. PAGE # 1 OF 1

**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME **Micky Leonard**  
 COMPANY **Michigan Department of Environmental Quality-WRD-FOS-PSM**  
 ADDRESS **525 West Allegan St.**  
 CITY **Lansing** STATE **MI** ZIP CODE **48933**  
 PHONE NO. **248-763-1635** FAX NO. P.O. NO. QUOTE NO.  
 E-MAIL ADDRESS **leonardm4@michigan.gov; jetersj2@michigan.gov**

CONTACT NAME **761NPDP3, 8400, County #**  SAME  
 COMPANY  
 ADDRESS  
 CITY STATE ZIP CODE  
 PHONE NO. E-MAIL ADDRESS

PROJECT NO./NAME \*\*\* **Revere Copper & Brass** SAMPLER(S) - PLEASE PRINT/SIGN NAME **Josh Peters John Peters Micky Leonard**  
 TURNAROUND TIME REQUIRED  1 DAY  2 DAYS  3 DAYS  STANDARD  OTHER  
 DELIVERABLES REQUIRED  STD  LEVEL II  LEVEL III  LEVEL IV  EDD  OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

**ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)**

MERIT LAB NO. <small>FOR LAB USE ONLY</small>	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>2</sub>	MeOH	OTHER	# Containers & Preservatives
	DATE	TIME											
10084.01	12/6/19	12:50	Upstream	ww	1	x							
.02	12/6/19	13:08	Site	ww	1	x							
.03	12/6/19	13:20	Downstream	ww	1	y							

CATIONS	ANIONS	PH	TEMP	TOC	TSS	COND	DO	ORP	CHL	TR	SR	CO <sub>2</sub>	AMMONIA	AMMONIUM	NITRATES	NITRITES	PHOSPHATE	SILICA	FLUORIDE	CHLORIDE	SULFATE	COD	BOD	PERMANGANATE	HEAVY METALS	TRACE ORGANICS	OTHER	

Certifications  
 OHIO VAP  Drinking Water  
 DoD  NPDES  
 Project Locations  
 Detroit  New York  
 Other \_\_\_\_\_  
 Special Instructions

RELINQUISHED BY: **John Peters** EGLE  Sampler DATE **12/6/19** TIME **15:57**  
 RECEIVED BY: **Sam** DATE **12/6/19** TIME **15:57**

RELINQUISHED BY: DATE TIME  
 RECEIVED BY: DATE TIME  
 SEAL NO. SEAL INTACT YES  NO  INITIALS  
 SEAL NO. SEAL INTACT YES  NO  INITIALS  
 NOTES: TEMP. ON ARRIVAL **2.9**

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE