



RTI Laboratories  
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Tuesday, January 26, 2016

Pam Horner  
USACE- Detroit District  
Environmental Analysis Branch  
477 Michigan Ave.  
Detroit, MI 48226  
TEL:  
FAX:

RE: St Marys River 201512

Work Order #: 1512488

Dear Pam Horner:

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

This report may only be reproduced in its entirety. Individual pages, reproduced without supporting documentation, do not contain related information and may be misinterpreted by other data reviewers.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in red ink, appearing to read "Charles O'Bryan", with a long horizontal flourish extending to the right.

Charles O'Bryan  
Director, Quality Management

# RTI Laboratories - Workorder Sample Summary

WO#: 1512488

Date Reported: 1/26/2016  
Original

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**Client:** USACE- Detroit District  
**Project:** St Marys River 201512

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Lab Sample ID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1512488-001A	SM-15-04		12/18/2015 11:50 AM	12/21/2015 12:31 PM	Soil
1512488-001B	SM-15-04		12/18/2015 11:50 AM	12/21/2015 12:31 PM	Soil
1512488-002A	SM-15-05		12/18/2015 12:10 PM	12/21/2015 12:31 PM	Soil
1512488-002B	SM-15-05		12/18/2015 12:10 PM	12/21/2015 12:31 PM	Soil
1512488-003A	SM-15-06		12/18/2015 12:25 PM	12/21/2015 12:31 PM	Soil
1512488-003B	SM-15-06		12/18/2015 12:25 PM	12/21/2015 12:31 PM	Soil
1512488-004A	SM-15-07		12/18/2015 12:40 PM	12/21/2015 12:31 PM	Soil
1512488-004B	SM-15-07		12/18/2015 12:40 PM	12/21/2015 12:31 PM	Soil

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

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Concentrations reported with a J flag in the Qual field are values below the reporting limit (RL) but greater than the established method detection limit (MDL). There is greater uncertainty associated with these results and data should be considered as estimated. These analytes are not routinely reviewed nor narrated below as to their potential for being laboratory artifacts.

Concentrations reported with an E flag in the Qual field are values that exceed the upper quantification range. There is greater uncertainty associated with these results and data should be considered as estimated.

Any comments or problems with the analytical events associated with this report are noted below.

**Sample Analysis:**

Samples were analyzed at the RTI Laboratories

Percent Moisture - ASTM-D2216

Mercury - SW7471B

Semi-Volatile Organic Compounds - SW8270D

**Analytical Comments for Test SW\_6010S:**

**Batch ID 38783:**

Sample 1512488-001BMS, Batch ID 38783 : Recoveries for Chromium, Copper, Iron and Manganese exceeded control limits.

Sample 1512488-001BMDS, Batch ID 38783 : Recoveries for Copper, Iron, Manganese and Nickel exceeded control limits. RPD results for Chromium and Copper exceeded control limits.

# RTI Laboratories - Analytical Report

WO#: 1512488

Date Reported: 1/26/2016  
Original

<b>Client:</b>	USACE- Detroit District	<b>Collection Date:</b>	12/18/2015 11:50:00 AM
<b>Project:</b>	St Marys River 201512		
<b>Lab ID:</b>	1512488-001	<b>Matrix:</b>	Soil
<b>Client Sample ID:</b>	SM-15-04		

Analysis	Result	Qual	DL	LOD	LOQ	Units	DF	Date Analyzed
<b>Metals, ICP/OES</b>			<b>Method: SW6010C</b>			<b>SW3050B</b>	<b>Analyst: BSK</b>	
Arsenic	1,700		430	590	1,200	µg/Kg-dry	1	1/19/2016 12:37 PM
Barium	5,300	J	180	3,000	5,900	µg/Kg-dry	1	1/19/2016 12:37 PM
Cadmium	43	J	20	30	150	µg/Kg-dry	1	1/19/2016 12:37 PM
Chromium	9,000		49	240	300	µg/Kg-dry	1	1/19/2016 12:37 PM
Copper	590	U	250	590	3,000	µg/Kg-dry	1	1/19/2016 12:37 PM
Iron	4,600,000		190,000	300,000	890,000	µg/Kg-dry	100	1/25/2016 10:35 AM
Lead	5,800		370	590	3,000	µg/Kg-dry	1	1/19/2016 12:37 PM
Manganese	67,000		110	150	590	µg/Kg-dry	1	1/19/2016 12:37 PM
Nickel	2,700	J	170	590	3,000	µg/Kg-dry	1	1/19/2016 12:37 PM
Selenium	890	U	690	890	1,200	µg/Kg-dry	1	1/19/2016 12:37 PM
Silver	150	U	26	150	590	µg/Kg-dry	1	1/19/2016 12:37 PM
Zinc	9,700		230	300	3,000	µg/Kg-dry	1	1/19/2016 12:37 PM
<b>Mercury</b>			<b>Method: SW7471B</b>			<b>SW7471B</b>	<b>Analyst: NK</b>	
Mercury	7.2	J	0.88	6.2	12	µg/Kg-dry	1	12/28/2015 1:10 PM
<b>PAH - Low Level S Semi-Volatile Organic Compounds</b>			<b>Method: SW8270D</b>			<b>SW3546</b>	<b>Analyst: MB</b>	
2-Methylnaphthalene	1.6	J	0.98	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Acenaphthene	6.2	U	1.5	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Acenaphthylene	18		1.6	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Anthracene	10		0.98	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Benzo(a)anthracene	34		1.7	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Benzo(a)pyrene	50		1.8	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Benzo(b)fluoranthene	55		1.9	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Benzo(e)pyrene	34		2.0	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Benzo(g,h,i)perylene	42		2.4	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Benzo(k)fluoranthene	19		2.4	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Chrysene	40		1.4	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Dibenz(a,h)anthracene	9.9		1.6	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Fluoranthene	57		0.98	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Fluorene	6.2	U	1.6	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Indeno(1,2,3-cd)pyrene	35		1.6	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Naphthalene	9.1		1.8	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Phenanthrene	18		1.2	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Pyrene	47		1.0	6.2	8.2	µg/Kg-dry	1	1/2/2016 6:26 PM
Surr: 2-Fluorobiphenyl	91.5			44-115		%Rec	1	1/2/2016 6:26 PM
Surr: Nitrobenzene-d5	90.4			37-122		%Rec	1	1/2/2016 6:26 PM
Surr: Terphenyl-d14	95.4			54-127		%Rec	1	1/2/2016 6:26 PM
<b>Percent Moisture</b>			<b>Method: ASTM-D2216</b>			<b>Analyst: PG</b>		
Percent Moisture	20		1.0	1.0	1.0	wt%	1	12/30/2015 11:30 AM

# RTI Laboratories - Analytical Report

WO#: 1512488

Date Reported: 1/26/2016  
Original

<b>Client:</b>	USACE- Detroit District	<b>Collection Date:</b>	12/18/2015 12:10:00 PM
<b>Project:</b>	St Marys River 201512		
<b>Lab ID:</b>	1512488-002	<b>Matrix:</b>	Soil
<b>Client Sample ID:</b>	SM-15-05		

Analysis	Result	Qual	DL	LOD	LOQ	Units	DF	Date Analyzed
<b>Metals, ICP/OES</b>			<b>Method: SW6010C</b>		<b>SW3050B</b>		<b>Analyst: BSK</b>	
Arsenic	2,000		460	630	1,300	µg/Kg-dry	1	1/19/2016 12:56 PM
Barium	6,700		190	3,100	6,300	µg/Kg-dry	1	1/19/2016 12:56 PM
Cadmium	42	J	21	31	160	µg/Kg-dry	1	1/19/2016 12:56 PM
Chromium	18,000		52	250	310	µg/Kg-dry	1	1/19/2016 12:56 PM
Copper	630	U	260	630	3,100	µg/Kg-dry	1	1/19/2016 12:56 PM
Iron	12,000,000		200,000	310,000	940,000	µg/Kg-dry	100	1/25/2016 10:36 AM
Lead	4,500		390	630	3,100	µg/Kg-dry	1	1/19/2016 12:56 PM
Manganese	130,000		120	160	630	µg/Kg-dry	1	1/19/2016 12:56 PM
Nickel	4,500		180	630	3,100	µg/Kg-dry	1	1/19/2016 12:56 PM
Selenium	940	U	730	940	1,300	µg/Kg-dry	1	1/19/2016 12:56 PM
Silver	160	U	28	160	630	µg/Kg-dry	1	1/19/2016 12:56 PM
Zinc	14,000		240	310	3,100	µg/Kg-dry	1	1/19/2016 12:56 PM
<b>Mercury</b>			<b>Method: SW7471B</b>		<b>SW7471B</b>		<b>Analyst: NK</b>	
Mercury	10	J	0.79	5.6	11	µg/Kg-dry	1	12/28/2015 1:11 PM
<b>PAH - Low Level S Semi-Volatile Organic Compounds</b>			<b>Method: SW8270D</b>		<b>SW3546</b>		<b>Analyst: MB</b>	
2-Methylnaphthalene	6.3	U	1.0	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Acenaphthene	6.3	U	1.5	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Acenaphthylene	11		1.6	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Anthracene	4.6	J	1.0	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Benzo(a)anthracene	21		1.7	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Benzo(a)pyrene	29		1.8	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Benzo(b)fluoranthene	34		2.0	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Benzo(e)pyrene	19		2.0	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Benzo(g,h,i)perylene	26		2.4	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Benzo(k)fluoranthene	10		2.4	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Chrysene	18		1.4	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Dibenz(a,h)anthracene	8.4	J	1.6	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Fluoranthene	28		1.0	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Fluorene	6.3	U	1.6	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Indeno(1,2,3-cd)pyrene	22		1.7	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Naphthalene	4.6	J	1.9	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Phenanthrene	11		1.2	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Pyrene	24		1.0	6.3	8.4	µg/Kg-dry	1	1/2/2016 7:43 PM
Surr: 2-Fluorobiphenyl	79.0			44-115		%Rec	1	1/2/2016 7:43 PM
Surr: Nitrobenzene-d5	77.8			37-122		%Rec	1	1/2/2016 7:43 PM
Surr: Terphenyl-d14	80.3			54-127		%Rec	1	1/2/2016 7:43 PM
<b>Percent Moisture</b>			<b>Method: ASTM-D2216</b>				<b>Analyst: PG</b>	
Percent Moisture	23		1.0	1.0	1.0	wt%	1	12/30/2015 11:30 AM

# RTI Laboratories - Analytical Report

WO#: 1512488

Date Reported: 1/26/2016

Original

Client: USACE- Detroit District  
 Project: St Marys River 201512  
 Lab ID: 1512488-003  
 Client Sample ID: SM-15-06

Collection Date: 12/18/2015 12:25:00 PM  
 Matrix: Soil

Analysis	Result	Qual	DL	LOD	LOQ	Units	DF	Date Analyzed
<b>Metals, ICP/OES</b>			<b>Method: SW6010C</b>			<b>SW3050B</b>	<b>Analyst: BSK</b>	
Arsenic	2,700		490	670	1,300	µg/Kg-dry	1	1/19/2016 12:57 PM
Barium	9,000		200	3,300	6,700	µg/Kg-dry	1	1/19/2016 12:57 PM
Cadmium	68	J	22	33	170	µg/Kg-dry	1	1/19/2016 12:57 PM
Chromium	7,100		55	270	330	µg/Kg-dry	1	1/19/2016 12:57 PM
Copper	670	U	280	670	3,300	µg/Kg-dry	1	1/19/2016 12:57 PM
Iron	12,000,000		210,000	330,000	1,000,000	µg/Kg-dry	100	1/25/2016 10:38 AM
Lead	9,200		420	670	3,300	µg/Kg-dry	1	1/19/2016 12:57 PM
Manganese	120,000		120	170	670	µg/Kg-dry	1	1/19/2016 12:57 PM
Nickel	4,100		190	670	3,300	µg/Kg-dry	1	1/19/2016 12:57 PM
Selenium	1,000	U	780	1,000	1,300	µg/Kg-dry	1	1/19/2016 12:57 PM
Silver	170	U	29	170	670	µg/Kg-dry	1	1/19/2016 12:57 PM
Zinc	23,000		260	330	3,300	µg/Kg-dry	1	1/19/2016 12:57 PM
<b>Mercury</b>			<b>Method: SW7471B</b>			<b>SW7471B</b>	<b>Analyst: NK</b>	
Mercury	13		0.77	5.4	11	µg/Kg-dry	1	12/28/2015 1:18 PM
<b>PAH - Low Level S Semi-Volatile Organic Compounds</b>			<b>Method: SW8270D</b>			<b>SW3546</b>	<b>Analyst: MB</b>	
2-Methylnaphthalene	11		1.0	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Acenaphthene	11		1.6	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Acenaphthylene	62		1.7	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Anthracene	64		1.0	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Benzo(a)anthracene	260		1.8	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Benzo(a)pyrene	270		1.9	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Benzo(b)fluoranthene	310		2.1	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Benzo(e)pyrene	160		2.1	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Benzo(g,h,i)perylene	170		2.5	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Benzo(k)fluoranthene	130		2.5	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Chrysene	200		1.5	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Dibenz(a,h)anthracene	43		1.7	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Fluoranthene	520		1.0	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Fluorene	17		1.7	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Indeno(1,2,3-cd)pyrene	150		1.8	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Naphthalene	41		1.9	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Phenanthrene	210		1.2	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Pyrene	400		1.1	6.6	8.8	µg/Kg-dry	1	1/2/2016 8:09 PM
Surr: 2-Fluorobiphenyl	73.5			44-115		%Rec	1	1/2/2016 8:09 PM
Surr: Nitrobenzene-d5	73.1			37-122		%Rec	1	1/2/2016 8:09 PM
Surr: Terphenyl-d14	76.5			54-127		%Rec	1	1/2/2016 8:09 PM
<b>Percent Moisture</b>			<b>Method: ASTM-D2216</b>			<b>Analyst: PG</b>		
Percent Moisture	26		1.0	1.0	1.0	wt%	1	12/30/2015 11:30 AM

# RTI Laboratories - Analytical Report

WO#: 1512488

Date Reported: 1/26/2016  
Original

<b>Client:</b>	USACE- Detroit District	<b>Collection Date:</b>	12/18/2015 12:40:00 PM
<b>Project:</b>	St Marys River 201512		
<b>Lab ID:</b>	1512488-004	<b>Matrix:</b>	Soil
<b>Client Sample ID:</b>	SM-15-07		

Analysis	Result	Qual	DL	LOD	LOQ	Units	DF	Date Analyzed
<b>Metals, ICP/OES</b>			<b>Method: SW6010C</b>		<b>SW3050B</b>		<b>Analyst: BSK</b>	
Arsenic	1,900		410	560	1,100	µg/Kg-dry	1	1/19/2016 12:59 PM
Barium	6,300		170	2,800	5,600	µg/Kg-dry	1	1/19/2016 12:59 PM
Cadmium	43	J	19	28	140	µg/Kg-dry	1	1/19/2016 12:59 PM
Chromium	18,000		46	220	280	µg/Kg-dry	1	1/19/2016 12:59 PM
Copper	560	U	230	560	2,800	µg/Kg-dry	1	1/19/2016 12:59 PM
Iron	6,300,000		180,000	280,000	840,000	µg/Kg-dry	100	1/25/2016 10:39 AM
Lead	4,500		350	560	2,800	µg/Kg-dry	1	1/19/2016 12:59 PM
Manganese	55,000		100	140	560	µg/Kg-dry	1	1/19/2016 12:59 PM
Nickel	3,300		160	560	2,800	µg/Kg-dry	1	1/19/2016 12:59 PM
Selenium	840	U	650	840	1,100	µg/Kg-dry	1	1/19/2016 12:59 PM
Silver	140	U	25	140	560	µg/Kg-dry	1	1/19/2016 12:59 PM
Zinc	15,000		220	280	2,800	µg/Kg-dry	1	1/19/2016 12:59 PM

<b>Mercury</b>			<b>Method: SW7471B</b>		<b>SW7471B</b>		<b>Analyst: NK</b>	
Mercury	26		0.74	5.2	10	µg/Kg-dry	1	12/28/2015 1:20 PM

<b>PAH - Low Level S Semi-Volatile Organic Compounds</b>			<b>Method: SW8270D</b>		<b>SW3546</b>		<b>Analyst: MB</b>	
2-Methylnaphthalene	4.2	J	0.99	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Acenaphthene	2.5	J	1.5	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Acenaphthylene	21		1.6	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Anthracene	14		0.99	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Benzo(a)anthracene	43		1.7	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Benzo(a)pyrene	62		1.8	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Benzo(b)fluoranthene	68		2.0	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Benzo(e)pyrene	41		2.0	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Benzo(g,h,i)perylene	51		2.4	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Benzo(k)fluoranthene	22		2.4	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Chrysene	46		1.4	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Dibenz(a,h)anthracene	12		1.6	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Fluoranthene	63		0.99	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Fluorene	2.5	J	1.6	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Indeno(1,2,3-cd)pyrene	41		1.7	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Naphthalene	18		1.8	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Phenanthrene	20		1.2	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Pyrene	56		1.0	6.3	8.4	µg/Kg-dry	1	1/2/2016 8:35 PM
Surr: 2-Fluorobiphenyl	80.8			44-115		%Rec	1	1/2/2016 8:35 PM
Surr: Nitrobenzene-d5	80.6			37-122		%Rec	1	1/2/2016 8:35 PM
Surr: Terphenyl-d14	86.7			54-127		%Rec	1	1/2/2016 8:35 PM

<b>Percent Moisture</b>			<b>Method: ASTM-D2216</b>				<b>Analyst: PG</b>	
Percent Moisture	20		1.0	1.0	1.0	wt%	1	12/30/2015 11:30 AM

# RTI Laboratories - DATES REPORT

WO#: 1512488

Date Reported: 1/26/2016  
Original

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
1512488-001A	SM-15-04	12/18/2015 11:50 AM	Soil	SW_8270S-LL-Semi-Volatile Organic Compounds	12/30/2015 9:12 AM		1/2/2016 6:26 PM
1512488-001B	SM-15-04	12/18/2015 11:50 AM	Soil	SW_7471S-Mercury	12/28/2015 7:20 AM		12/28/2015 1:10 PM
				SW_6010S-Metals, ICP/OES	12/30/2015 8:22 AM		1/19/2016 12:37 PM
				SW_6010S-Metals, ICP/OES	12/30/2015 8:22 AM		1/25/2016 10:35 AM
				PMOIST-Percent Moisture	12/30/2015 11:30 AM		12/30/2015 11:30 AM
1512488-002A	SM-15-05	12/18/2015 12:10 PM	Soil	SW_8270S-LL-Semi-Volatile Organic Compounds	12/30/2015 9:12 AM		1/2/2016 7:43 PM
1512488-002B	SM-15-05	12/18/2015 12:10 PM	Soil	SW_7471S-Mercury	12/28/2015 7:20 AM		12/28/2015 1:11 PM
				SW_6010S-Metals, ICP/OES	12/30/2015 8:22 AM		1/19/2016 12:56 PM
				SW_6010S-Metals, ICP/OES	12/30/2015 8:22 AM		1/25/2016 10:36 AM
				PMOIST-Percent Moisture	12/30/2015 11:30 AM		12/30/2015 11:30 AM
1512488-003A	SM-15-06	12/18/2015 12:25 PM	Soil	SW_8270S-LL-Semi-Volatile Organic Compounds	12/30/2015 9:12 AM		1/2/2016 8:09 PM
1512488-003B	SM-15-06	12/18/2015 12:25 PM	Soil	SW_7471S-Mercury	12/28/2015 7:20 AM		12/28/2015 1:18 PM
				SW_6010S-Metals, ICP/OES	12/30/2015 8:22 AM		1/19/2016 12:57 PM
				SW_6010S-Metals, ICP/OES	12/30/2015 8:22 AM		1/25/2016 10:38 AM
				PMOIST-Percent Moisture	12/30/2015 11:30 AM		12/30/2015 11:30 AM
1512488-004A	SM-15-07	12/18/2015 12:40 PM	Soil	SW_8270S-LL-Semi-Volatile Organic Compounds	12/30/2015 9:12 AM		1/2/2016 8:35 PM
1512488-004B	SM-15-07	12/18/2015 12:40 PM	Soil	SW_7471S-Mercury	12/28/2015 7:20 AM		12/28/2015 1:20 PM
				SW_6010S-Metals, ICP/OES	12/30/2015 8:22 AM		1/19/2016 12:59 PM
				SW_6010S-Metals, ICP/OES	12/30/2015 8:22 AM		1/25/2016 10:39 AM
				PMOIST-Percent Moisture	12/30/2015 11:30 AM		12/30/2015 11:30 AM



# RTI Laboratories - QC SUMMARY REPORT

WO#: 1512488

Date Reported: 1/26/2016  
Original

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

**Batch ID:** 38762

Sample ID: <b>MB-38762</b>	Samp Type: <b>MBLK</b>	Test Code: <b>SW_7471S</b>	Units: <b>µg/Kg</b>	Prep Date: <b>12/28/2015</b>	RunNo: <b>83218</b>						
Client ID: <b>PBS</b>	Batch ID: <b>38762</b>	TestNo: <b>SW7471A SW7471B</b>	Analysis Date: <b>12/28/2015</b>	SeqNo: <b>1617977</b>							
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual

Mercury	1.8	12									J
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Sample ID: <b>LCS-38762</b>	Samp Type: <b>LCS</b>	Test Code: <b>SW_7471S</b>	Units: <b>µg/Kg</b>	Prep Date: <b>12/28/2015</b>	RunNo: <b>83218</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>38762</b>	TestNo: <b>SW7471A SW7471B</b>	Analysis Date: <b>12/28/2015</b>	SeqNo: <b>1617978</b>							
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual

Mercury	60	12	57.69	0	104	80	124				
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Sample ID: <b>1512447-002AMS</b>	Samp Type: <b>MS</b>	Test Code: <b>SW_7471S</b>	Units: <b>µg/Kg</b>	Prep Date: <b>12/28/2015</b>	RunNo: <b>83218</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>38762</b>	TestNo: <b>SW7471A SW7471B</b>	Analysis Date: <b>12/28/2015</b>	SeqNo: <b>1617980</b>							
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual

Mercury	110	11	52.63	45.87	112	80	124				
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Sample ID: <b>1512447-002AMSD</b>	Samp Type: <b>MSD</b>	Test Code: <b>SW_7471S</b>	Units: <b>µg/Kg</b>	Prep Date: <b>12/28/2015</b>	RunNo: <b>83218</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>38762</b>	TestNo: <b>SW7471A SW7471B</b>	Analysis Date: <b>12/28/2015</b>	SeqNo: <b>1617981</b>							
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual

Mercury	87	7.3	36.59	45.87	112	80	124	105.0	18.9	20	
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# RTI Laboratories - QC SUMMARY REPORT

WO#: 1512488

Date Reported: 1/26/2016  
Original

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

**Batch ID:** 38783

Sample ID: <b>MB-38783</b>	Samp Type: <b>MBLK</b>	Test Code: <b>SW_6010S</b>	Units: <b>µg/Kg</b>	Prep Date: <b>12/30/2015</b>	RunNo: <b>83562</b>						
Client ID: <b>PBS</b>	Batch ID: <b>38783</b>	TestNo: <b>SW6010B SW3050B</b>	Analysis Date: <b>1/19/2016</b>	SeqNo: <b>1624425</b>							
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
Arsenic	1,000	1,000									U
Barium	5,000	5,000									U
Cadmium	120	120									U
Chromium	250	250									U
Copper	2,500	2,500									U
Iron	7,500	7,500									U
Lead	2,500	2,500									U
Manganese	500	500									U
Nickel	2,500	2,500									U
Selenium	1,000	1,000									U
Silver	500	500									U
Zinc	2,500	2,500									U

Sample ID: <b>LCS-38783</b>	Samp Type: <b>LCS</b>	Test Code: <b>SW_6010S</b>	Units: <b>µg/Kg</b>	Prep Date: <b>12/30/2015</b>	RunNo: <b>83562</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>38783</b>	TestNo: <b>SW6010B SW3050B</b>	Analysis Date: <b>1/19/2016</b>	SeqNo: <b>1624426</b>							
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
Arsenic	11,000	1,000	12,500	0	89.9	82	111				
Barium	11,000	5,000	12,500	0	91.9	83	113				
Cadmium	12,000	120	12,500	0	95.3	82	113				
Chromium	12,000	250	12,500	0	94.5	85	113				
Copper	12,000	2,500	12,500	0	94.7	81	117				
Iron	130,000	7,500	125,000	0	100	81	118				
Lead	12,000	2,500	12,500	0	95.1	81	112				
Manganese	12,000	500	12,500	0	96.0	84	114				
Nickel	14,000	2,500	12,500	0	109	83	113				
Selenium	11,000	1,000	12,500	0	90.9	78	111				
Silver	12,000	500	12,500	0	92.9	82	112				
Zinc	12,000	2,500	12,500	0	92.4	82	113				

# RTI Laboratories - QC SUMMARY REPORT

WO#: 1512488

Date Reported: 1/26/2016  
Original

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

**Batch ID:** 38783

Sample ID:	1512488-001BMS	Samp Type:	MS	Test Code:	SW_6010S	Units:	µg/Kg-dry	Prep Date:	12/30/2015	RunNo:	83562
Client ID:	SM-15-04MS1	Batch ID:	38783	TestNo:	SW6010B	SW3050B		Analysis Date:	1/19/2016	SeqNo:	1624428
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
Arsenic	14,000	1,100	13,820	1,707	86.2	82	111				
Barium	20,000	5,500	13,820	5,315	107	83	113				
Cadmium	13,000	140	13,820	42.78	94.6	82	113				
Chromium	16,000	280	13,820	8,974	53.7	85	113				Q
Copper	2,100	2,800	13,820	0	15.5	81	117				JQ
Iron	5,300,000	8,300	138,200	4,028,000	922	81	118				JQ
Lead	18,000	2,800	13,820	5,762	88.0	81	112				
Manganese	94,000	550	13,820	66,670	200	84	114				Q
Nickel	18,000	2,800	13,820	2,700	113	83	113				
Selenium	12,000	1,100	13,820	0	87.6	78	111				
Silver	12,000	550	13,820	0	89.5	82	112				
Zinc	23,000	2,800	13,820	9,689	99.8	82	113				

Sample ID:	1512488-001BMSD	Samp Type:	MSD	Test Code:	SW_6010S	Units:	µg/Kg-dry	Prep Date:	12/30/2015	RunNo:	83562
Client ID:	SM-15-04SD1	Batch ID:	38783	TestNo:	SW6010B	SW3050B		Analysis Date:	1/19/2016	SeqNo:	1624429
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
Arsenic	16,000	1,200	14,870	1,707	93.2	82	111	13,630	13.4	20	
Barium	22,000	5,900	14,870	5,315	112	83	113	20,170	8.54	20	
Cadmium	15,000	150	14,870	42.78	98.6	82	113	13,120	11.4	20	
Chromium	22,000	300	14,870	8,974	88.6	85	113	16,390	29.9	20	R
Copper	2,800	3,000	14,870	0	18.6	81	117	2,137	25.7	20	JRQ
Iron	5,700,000	8,900	148,700	4,028,000	1,140	81	118	5,303,000	7.68	20	JQ
Lead	18,000	3,000	14,870	5,762	82.1	81	112	17,920	0.325	20	
Manganese	100,000	590	14,870	66,670	221	84	114	94,280	5.44	20	Q
Nickel	20,000	3,000	14,870	2,700	119	83	113	18,260	11.2	20	Q
Selenium	14,000	1,200	14,870	0	92.1	78	111	12,110	12.4	20	
Silver	14,000	590	14,870	0	95.7	82	112	12,360	14.1	20	
Zinc	25,000	3,000	14,870	9,689	104	82	113	23,490	7.06	20	

# RTI Laboratories - QC SUMMARY REPORT

WO#: 1512488

Date Reported: 1/26/2016  
Original

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

**Batch ID:** 38784

Sample ID:	MB-38784	Samp Type:	MBLK	Test Code:	SW_8270S-LL	Units:	µg/Kg	Prep Date:	12/30/2015	RunNo:	83326
Client ID:	PBS	Batch ID:	38784	TestNo:	SW8270C	SW3546		Analysis Date:	1/2/2016	SeqNo:	1619886
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
2-Methylnaphthalene	6.6	6.6									U
Acenaphthene	6.6	6.6									U
Acenaphthylene	6.6	6.6									U
Anthracene	6.6	6.6									U
Benzo(a)anthracene	6.6	6.6									U
Benzo(a)pyrene	6.6	6.6									U
Benzo(b)fluoranthene	6.6	6.6									U
Benzo(g,h,i)perylene	6.6	6.6									U
Benzo(k)fluoranthene	6.6	6.6									U
Chrysene	6.6	6.6									U
Dibenz(a,h)anthracene	6.6	6.6									U
Fluoranthene	6.6	6.6									U
Fluorene	6.6	6.6									U
Indeno(1,2,3-cd)pyrene	6.6	6.6									U
Naphthalene	6.6	6.6									U
Phenanthrene	6.6	6.6									U
Pyrene	6.6	6.6									U
Surr: 2-Fluorobiphenyl	760		831.1		91.6	44	115				
Surr: Nitrobenzene-d5	750		831.1		90.8	37	122				
Surr: Terphenyl-d14	790		831.1		95.5	54	127				

Sample ID:	LCS-38784	Samp Type:	LCS	Test Code:	SW_8270S-LL	Units:	µg/Kg	Prep Date:	12/30/2015	RunNo:	83326
Client ID:	LCSS	Batch ID:	38784	TestNo:	SW8270C	SW3546		Analysis Date:	1/2/2016	SeqNo:	1619887
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
2-Methylnaphthalene	570	6.7	665.3	0	86.3	38	122				
Acenaphthene	550	6.7	665.3	0	82.8	40	123				
Acenaphthylene	560	6.7	665.3	0	84.4	32	132				
Anthracene	590	6.7	665.3	0	88.1	47	123				
Benzo(a)anthracene	580	6.7	665.3	0	87.6	49	126				
Benzo(a)pyrene	630	6.7	665.3	0	94.6	45	129				

# RTI Laboratories - QC SUMMARY REPORT

WO#: 1512488

Date Reported: 1/26/2016  
Original

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

**Batch ID:** 38784

Sample ID:	LCS-38784	Samp Type:	LCS	Test Code:	SW_8270S-LL	Units:	µg/Kg	Prep Date:	12/30/2015	RunNo:	83326
Client ID:	LCSS	Batch ID:	38784	TestNo:	SW8270C	SW3546		Analysis Date:	1/2/2016	SeqNo:	1619887
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	580	6.7	665.3	0	87.5	45	132				
Benzo(g,h,i)perylene	590	6.7	665.3	0	88.6	43	134				
Benzo(k)fluoranthene	660	6.7	665.3	0	99.9	47	132				
Chrysene	590	6.7	665.3	0	89.0	50	124				
Dibenz(a,h)anthracene	610	6.7	665.3	0	91.0	45	134				
Fluoranthene	600	6.7	665.3	0	90.2	50	127				
Fluorene	560	6.7	665.3	0	84.9	43	125				
Indeno(1,2,3-cd)pyrene	620	6.7	665.3	0	93.2	45	133				
Naphthalene	560	6.7	665.3	0	83.6	35	123				
Phenanthrene	570	6.7	665.3	0	85.5	50	121				
Pyrene	600	6.7	665.3	0	90.0	47	127				
Surr: 2-Fluorobiphenyl	730		831.7		88.3	44	115				
Surr: Nitrobenzene-d5	740		831.7		88.9	37	122				
Surr: Terphenyl-d14	800		831.7		95.6	54	127				

Sample ID:	1512488-001AMS	Samp Type:	MS	Test Code:	SW_8270S-LL	Units:	µg/Kg-dry	Prep Date:	12/30/2015	RunNo:	83326
Client ID:	SM-15-04MS1	Batch ID:	38784	TestNo:	SW8270C	SW3546		Analysis Date:	1/2/2016	SeqNo:	1619889
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
2-Methylnaphthalene	710	8.3	828.3	1.649	85.5	38	122				
Acenaphthene	710	8.3	828.3	0	85.3	40	123				
Acenaphthylene	730	8.3	828.3	17.73	85.6	32	132				
Anthracene	770	8.3	828.3	10.31	91.2	47	123				
Benzo(a)anthracene	760	8.3	828.3	34.21	87.8	49	126				
Benzo(a)pyrene	830	8.3	828.3	50.29	94.3	45	129				
Benzo(b)fluoranthene	790	8.3	828.3	54.83	88.8	45	132				
Benzo(g,h,i)perylene	790	8.3	828.3	42.46	90.3	43	134				
Benzo(k)fluoranthene	790	8.3	828.3	19.37	93.6	47	132				
Chrysene	790	8.3	828.3	40.40	90.1	50	124				
Dibenz(a,h)anthracene	780	8.3	828.3	9.893	92.6	45	134				
Fluoranthene	820	8.3	828.3	56.89	91.6	50	127				

# RTI Laboratories - QC SUMMARY REPORT

WO#: 1512488

Date Reported: 1/26/2016  
Original

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

**Batch ID:** 38784

Sample ID:	1512488-001AMS	Samp Type:	MS	Test Code:	SW_8270S-LL	Units:	µg/Kg-dry	Prep Date:	12/30/2015	RunNo:	83326
Client ID:	SM-15-04MS1	Batch ID:	38784	TestNo:	SW8270C	SW3546		Analysis Date:	1/2/2016	SeqNo:	1619889
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
Fluorene	720	8.3	828.3	0	87.3	43	125				
Indeno(1,2,3-cd)pyrene	810	8.3	828.3	35.45	93.7	45	133				
Naphthalene	700	8.3	828.3	9.069	83.1	35	123				
Phenanthrene	750	8.3	828.3	17.73	89.0	50	121				
Pyrene	820	8.3	828.3	46.58	92.9	47	127				
Surr: 2-Fluorobiphenyl	920		1,035		88.9	44	115				
Surr: Nitrobenzene-d5	920		1,035		88.4	37	122				
Surr: Terphenyl-d14	970		1,035		94.0	54	127				

Sample ID:	1512488-001AMSD	Samp Type:	MSD	Test Code:	SW_8270S-LL	Units:	µg/Kg-dry	Prep Date:	12/30/2015	RunNo:	83326
Client ID:	SM-15-04SD1	Batch ID:	38784	TestNo:	SW8270C	SW3546		Analysis Date:	1/2/2016	SeqNo:	1619890
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
2-Methylnaphthalene	700	8.3	826.4	1.649	84.1	38	122	709.8	1.94	25	
Acenaphthene	670	8.3	826.4	0	81.3	40	123	706.5	5.03	25	
Acenaphthylene	700	8.3	826.4	17.73	82.4	32	132	726.4	3.89	25	
Anthracene	730	8.3	826.4	10.31	87.0	47	123	765.7	4.88	25	
Benzo(a)anthracene	720	8.3	826.4	34.21	83.2	49	126	761.6	5.36	25	
Benzo(a)pyrene	800	8.3	826.4	50.29	90.6	45	129	831.2	3.94	25	
Benzo(b)fluoranthene	780	8.3	826.4	54.83	87.2	45	132	790.6	1.92	25	
Benzo(g,h,i)perylene	760	8.3	826.4	42.46	86.7	43	134	790.6	4.08	25	
Benzo(k)fluoranthene	770	8.3	826.4	19.37	91.0	47	132	794.3	2.98	25	
Chrysene	740	8.3	826.4	40.40	85.1	50	124	786.9	5.64	25	
Dibenz(a,h)anthracene	750	8.3	826.4	9.893	90.1	45	134	776.5	2.93	25	
Fluoranthene	770	8.3	826.4	56.89	86.4	50	127	815.4	5.66	25	
Fluorene	700	8.3	826.4	0	84.6	43	125	723.1	3.37	25	
Indeno(1,2,3-cd)pyrene	780	8.3	826.4	35.45	90.7	45	133	811.3	3.34	25	
Naphthalene	670	8.3	826.4	9.069	80.0	35	123	697.4	3.98	25	
Phenanthrene	710	8.3	826.4	17.73	83.3	50	121	755.0	6.75	25	
Pyrene	760	8.3	826.4	46.58	85.9	47	127	815.8	7.55	25	
Surr: 2-Fluorobiphenyl	880		1,033		85.4	44	115		0	25	

# RTI Laboratories - QC SUMMARY REPORT

WO#: 1512488

Date Reported: 1/26/2016  
Original

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

**Batch ID:** 38784

Sample ID:	<b>1512488-001AMSD</b>	Samp Type:	<b>MSD</b>	Test Code:	<b>SW_8270S-LL</b>	Units:	<b>µg/Kg-dry</b>	Prep Date:	<b>12/30/2015</b>	RunNo:	<b>83326</b>
Client ID:	<b>SM-15-04SD1</b>	Batch ID:	<b>38784</b>	TestNo:	<b>SW8270C</b>	<b>SW3546</b>		Analysis Date:	<b>1/2/2016</b>	SeqNo:	<b>1619890</b>
Analyte	Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	880		1,033		85.2	37	122		0	25	
Surr: Terphenyl-d14	940		1,033		90.6	54	127		0	25	

# RTI Laboratories - QC SUMMARY REPORT

WO#: 1512488

Date Reported: 1/26/2016  
Original

**Client:** USACE- Detroit District

**Project:** St Marys River 201512

**Batch ID:** R83279

Sample ID:	<b>1512488-001BDUP</b>	Samp Type:	<b>DUP</b>	Test Code:	<b>PMOIST</b>	Units:	<b>wt%</b>	Prep Date:	<b>12/30/2015</b>	RunNo:	<b>83279</b>	
Client ID:	<b>SM-15-04LR1</b>	Batch ID:	<b>R83279</b>	TestNo:	<b>D2216</b>			Analysis Date:	<b>12/30/2015</b>	SeqNo:	<b>1618841</b>	
Analyte		Result	LOQ	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Value	%RPD	RPDLimit	Qual
Percent Moisture		20	1.0						19.96	2.10	20	



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**DEFINITIONS:**

DF: Dilution factor; the dilution factor applied to the prepared sample.

DL: Detection Limit; The lowest concentration of analyte that can be detected by the method in the applicable matrix.

DUP: Duplicate; aliquots of a sample taken from the same container under laboratory conditions and processed and analyzed independently, used to calculate Precision (%RPD).

LCS: Laboratory Control Sample; prepared by adding a known amount of target analytes to a specified amount of clean matrix and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: A duplicate LCS sample, used to calculate both Accuracy (%REC) and Precision (%RPD)

LOD: Limit of Detection; a laboratory verified concentration that can be detected at three times greater than the noise level. This concentration is equal to or greater than the DL.

LOQ: Limit of Quantitation; The lowest verified limit to which data is quantified without qualifications. Analyte concentrations below the LOQ are reported with a "J" qualifier.

MBLK: Method Blank; a sample of similar matrix that does not contain target analytes or interference that may impact the analytical results and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, used to assess and verify that the analytical process is free of contamination.

Mg/Kg or mg/L: Units of part per million (PPM) – milligram per Kilogram (W/W) or milligram per Liter (W/V).

MS: Matrix Spike; prepared by adding a known amount of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: A duplicate MS sample, used to calculate both Accuracy (%REC) and Precision (%RPD)

% REC: Percent Recovery of a known spike (SPK); a measure of accuracy expressed as a percentage of a measured (recovered) concentration compared to the known concentration (SPK) added to the sample. This is compared to the Low Limit and High Limit.

% RPD: Relative Percent Difference; a measure of precision expressed as a percentage of the difference between two duplicates relative to the average concentration. This is compared to the RPD Limit.

Qual: Qualifier that applies to the analyte reported

SPK: Spike; used in the QC section for both SPK Value and SPK Ref Val

Ug/Kg or ug/L: Units of part per billion (PPB) – microgram per Kilogram (W/W) or microgram per Liter (W/V).

**QUALIFIERS:**

\*: Reported value exceeds the maximum allowed concentration by regulation or permit.

B: Analyte detected in the associated Method Blank at a concentration greater than 1/2 the LOQ

G: ICB/CCB result is greater than the MDL

H: Holding time for preparation or analysis has been exceeded

J: Estimated result. Greater uncertainty is associated with this result and data reported is estimated.

M: Manual Integration used to determine area response

P: Second column RPD exceeds 40%

Q: % REC exceeded control limits. When applied to sample analytes - denotes an associated LCS recovery that exceeded control limits.

R: % RPD exceeds control limits

T: MBLK result is greater than 1/2 of the LOQ

U: The analyte concentration is less than the DL. The result is reported as less than the LOD

X: Matrix spike recovery for the noted analyte exceeded control limits. Applied to the MS/MSD parent sample.

Y: Percent Difference/Drift in the associated CCV exceeded acceptance criteria.

Z: Percent Difference/Drift in the associated ICV exceeded acceptance criteria.



# RTI LABORATORIES

RTI WORK ORDER NO: 1512488

## CHAIN OF CUSTODY

**Environmental Sciences Division**

31628 Glendale Street  
Livonia MI, 48150

**Materials Testing Division**

33080 Industrial Road  
Livonia, MI 48150

PAGE: 1 OF: 1

PHONE: (734) 422-8000  
FAX: (734) 422-5342  
www.rtilab.com

Please Include Email Address of Report Recipient !!!

SUBMITTING COMPANY: <u>U.S. Army Corps of Engineers - Detroit</u>		REPORT TO (Name): <u>PAN Horner</u>	BILL TO: <u>AL Mozal</u>
PROJECT NAME: <u>St. Mary's River</u>	PROJECT #:	COMPANY: <u>US Army Corps of Engineers</u>	COMPANY: <u>US Army Corps of Engineers</u>
SAMPLING LOCATION (STATE or COUNTRY): <u>St. Mary's River, SSM, MI</u>		ADDRESS: <u>477 Michigan Ave</u>	ADDRESS: <u>600 Luke Ave South</u>
SPECIAL INSTRUCTIONS / COMMENTS:		CITY, STATE, ZIP: <u>Detroit, MI 48226</u>	CITY, STATE, ZIP: <u>Duluth, MN 55802</u>
		PHONE: <u>(313) 226-6748</u>	P.O NUMBER: <u>Email invoice to:</u>
		EMAIL (OR FAX IF NO EMAIL AVAILABLE): <u>Pan.Horner@USACE.army.mil</u>	

SAMPLER'S PRINTED NAME: <u>ALAN Mozal</u>	SAMPLER'S SIGNATURE: <u>[Signature]</u>	TESTS REQUESTED: <u>Alon, E. Mozal @ USACE, army, MI</u>
--	--	---

ITEM NUMBER	SAMPLE I.D.	DATE SAMPLED	TIME SAMPLED (24-hour format)	MATRIX CODE (see codes below)	NBR OF BOTTLES	NBR OF CONTAINERS AND PRESERVATIVES										pH Acceptable? Y N n/a (Lab only)	COMMENTS Methanol Preserved Weights HOT Sample Notation Additional Sample Description, Air Volume, etc.							
						NONE	HCL	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	Methanol	OTHER	BAH'S	PISTALS										
1	<u>SM-15-04</u>	<u>12-18-15</u>	<u>1150</u>	<u>5</u>	<u>2</u>	<u>X</u>																		
2	<u>SM-15-05</u>	<u>↓</u>	<u>1210</u>	<u>3</u>	<u>↓</u>	<u>X</u>																		
3	<u>SM-15-06</u>	<u>↓</u>	<u>1225</u>	<u>↓</u>	<u>↓</u>	<u>X</u>																		
4	<u>SM-15-07</u>	<u>↓</u>	<u>1240</u>	<u>↓</u>	<u>↓</u>	<u>X</u>																		
5																								
6																								
7																								
8																								
9																								
10																								

Relinquished By: <u>[Signature]</u>	Date: <u>12-18-15</u>	Time: <u>1400</u>	Received By: <u>[Signature]</u>	Date: <u>12-18-15</u>	Time: <u>12:31</u>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

**REPORT TRANSMITTAL DESIRED:**

HARDCOPY (extra cost)     FAX     EMAIL     ONLINE

ALL REPORTING IS VIA THE RTI "FLASHPOINT" ONLINE SYSTEM UNLESS OTHERWISE SPECIFIED

TURNAROUND DESIRED: Standard  RUSH: Next BD  2nd BD  3rd BD

Note: RUSH requests will incur surcharges!

Temp of samples: 0.3 °C FOR LAB USE ONLY    On Wet Ice?

Comments: Flash

Distribution: White - Lab; Pink - Field    See reverse side for Laboratory Terms and Conditions of Service

MATRIX CODES:    A = AIR    SD = SOLID    DW = DRINKING WATER    SL = SLUDGE    GW = GROUNDWATER    SV = SOLVENT WASTE    L = LIQUID    W = WATER    O = OIL    WP = WIPE    WW = WASTE WATER    SW = SURFACE WATER    S = SOIL

**CUSTODY SEALS**

Date 12-18-2015

Signature *Alvin S. [unclear]*

**CUSTODY SEALS**

Date 12-18-2015

Signature *Alvin S. [unclear]*

ORIGIN ID: CIUA (734) 422-8000  
KURT BUNKER  
US ARMY CORPS OF ENGINEERS  
119 EAST WATER STREET

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ACTWGT: 20.00 LB  
CAD: 104185643/NET3670  
DIMS: 26x16x14 IN

SAULT SAINTE MARIE, MI 49783  
UNITED STATES US

BILL SENDER

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**RTI LABORATORIES**  
**31628 GLENDALE**

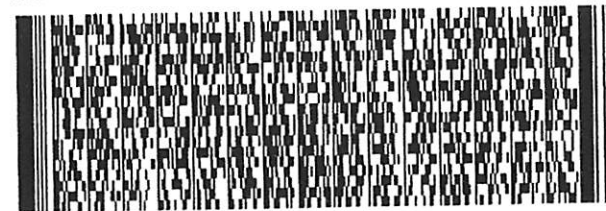
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(734) 422-8000  
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