APPENDIX A
FIELD DATA RECORDS

APPENDIX A-1
2016 SEDIMENT SAMPLE FIELD DATA RECORDS

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	NA
Location ID:	ADD-02	**Sample Crew:**	KB, JP
Date:	07/22/2016	**Latitude/Longitude:**	44.6431/-67.7201
Sample ID:	ADD-02_072216_SED_03	**Sample Time:**	16:44
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

medium brown over gray, loose, fine, silty, no odor

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz glass, 2 oz plastic, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless steel spoon

Notes:

Access .3 miles off 187 from RTE 1 take right onto red brick road, first fork turn right, then take a sharp right hand turn with the road, park/ turn around at red bucket, high clearance vehicle required, take path leading west from red bucket downhill onto marsh

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	BO-05	**Sample Crew:**	KB, JP
Date:	07/20/2016	**Latitude/Longitude:**	44 45.874 -68 47.922
Sample ID:	BO-05_072016_SED_03	**Sample Time:**	14:00
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

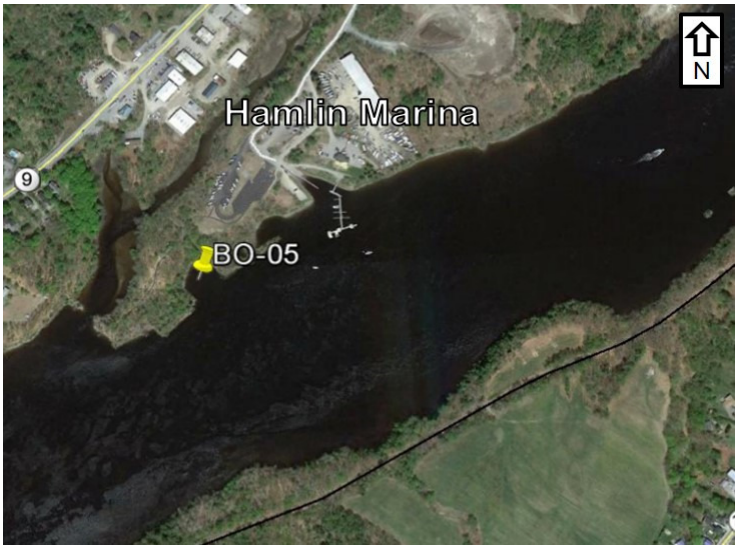
Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Brown- gray, soft, silt, fine, no odor

Sample Interval (ft bgs):	0.00	to	0.5	**QC Collected:**	No
Sample Collection Methods:	Hand Auger			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz glass, 2oz plastic, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Other(s): Hand auger
,

Notes:

Water depth: 7.5 feet, bottom soft, outgoing tide

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	E-01-01	**Sample Crew:**	DOL, DY
Date:	07/28/2016	**Latitude/Longitude:**	44.4823 -68.8278
Sample ID:	E-01-01_072816_SED_03	**Sample Time:**	11:40
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Black clayey silt, ML, sulfur odor, soft plasticity, no organics, 100% moisture

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket, Ponar			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	E-01-03	**Sample Crew:**	DOL, DY
Date:	07/28/2016	**Latitude/Longitude:**	44.4824 -68.8085
Sample ID:	E-01-03_072816_SED_03	**Sample Time:**	15:10
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

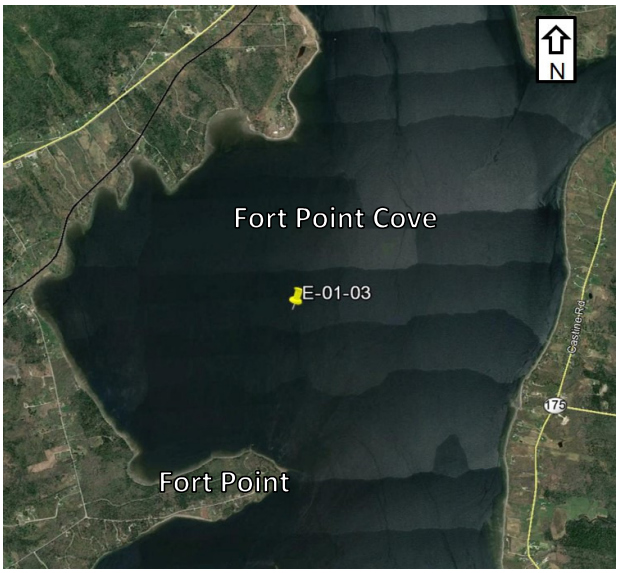
Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Brown silt with trace sand, ML, no odor, no plasticity, 100% moisture

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket, Ponar			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	E-01-04	**Sample Crew:**	DOL, DY
Date:	07/28/2016	**Latitude/Longitude:**	44.4816 -68.7985
Sample ID:	E-01-04_072816_SED_03	**Sample Time:**	15:50
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

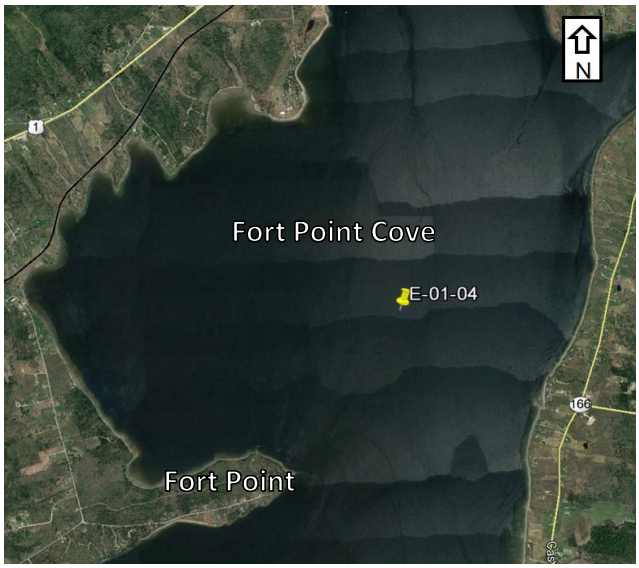
Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Brown silt with trace sand, ML, no odor, no plasticity, 100% moisture

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket, Ponar			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	ES-02	**Sample Crew:**	DOL, DY
Date:	07/27/2016	**Latitude/Longitude:**	44.5399 -68.7659
Sample ID:	ES-02_072716_SED_03	**Sample Time:**	08:50
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Black silt with trace organics and trace shell fragments, ML, slight odor, 100% moisture

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket, Ponar			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	ES-04	**Sample Crew:**	DOL, DY
Date:	07/28/2016	**Latitude/Longitude:**	44.454 -68.8935
Sample ID:	ES-04_072816_SED_03	**Sample Time:**	10:30
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Dark gray silt with trace sand, ML, no odor, no plasticity, 100% moisture

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket, Ponar			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	ES-13	**Sample Crew:**	DRY, DOL
Date:	7/27/2016	**Latitude/Longitude:**	44.5049 -68.7717
Sample ID:	ES-13_072716_SED_03	**Sample Time:**	11:30
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Dark Gray, silt with trace sand and many woodchips, ML, few live mussels

Sample Interval (ft bgs):	0.0	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Matt Martin

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	OB-05	**Sample Crew:**	DRY, DOL
Date:	7/26/2016	**Latitude/Longitude:**	44.7055 -68.8379
Sample ID:	OB-05_072616_SED_03	**Sample Time:**	12:00
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Brown, Silt, ML, 100% moisture, no odor

Sample Interval (ft bgs):	0.0	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	NA
Location ID:	OV-01	**Sample Crew:**	DL, KB, JP
Date:	07/22/2016	**Latitude/Longitude:**	44.8564 -68.6796
Sample ID:	OV-01_072216_SED_03	**Sample Time:**	11:22
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

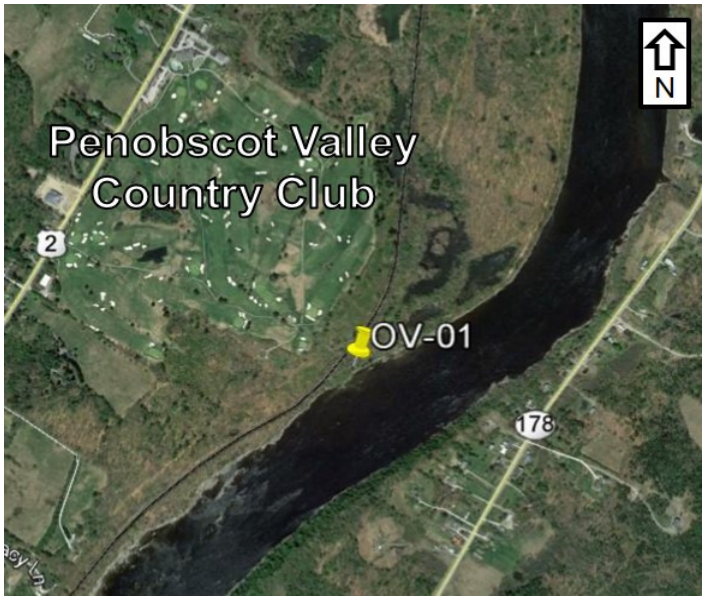
Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Brown, sandy gravel, coarse, no odor

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon and bucket			**Duplicate ID:**	N/A
Sample Container Type(s):	2oz glass, 2oz plastic, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Other(s): Plastic bucket
,

Notes:

Access from golf course, path next to portable toilet/ hole 6 at back of course comes out at rail road tracks, second path across tracks to left comes out to river, rocky, suction pipe intake runs down hill from golf course into river, sample location not in water

Sediment sampling was conducted according to the following SOPs included in the QAPP
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	NA
Location ID:	OV-02	**Sample Crew:**	DL, KB, JP
Date:	07/22/2016	**Latitude/Longitude:**	44.8372 -68.7014
Sample ID:	OV-02_072216_SED_03	**Sample Time:**	10:33
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

light gray brown, silt, trace gravel, trace organic, earthy odor

Sample Interval (ft bgs):	0.00	to	0.2	**QC Collected:**	No
Sample Collection Methods:	Spoon			**Duplicate ID:**	N/A
Sample Container Type(s):	2oz glass, 2oz plastic, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon
,

Notes:

Worms present, access from rock St at lemon St, the bend next to outfall 10, no boat access, waders not needed

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	NA
Location ID:	OV-04	**Sample Crew:**	DL, KB, JP
Date:	07/22/2016	**Latitude/Longitude:**	44.875418 -68.674063
Sample ID:	OV-04_072216_SED_03	**Sample Time:**	09:35
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

light gray, medium sand, no odor, no organic

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	spoon/ bucket			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz glass, 2oz plastic, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Other(s): Plastic bucket
,

Notes:

Woody debris in river, sample location across from yellow house on margin street, Orono, near shore on ayers island, waders required, no boat access

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-17-High	**Sample Crew:**	D Lovejoy, J Pallozzi
Date:	07/21/2016	**Latitude/Longitude:**	44.623436 -68.854723
Sample ID:	W-17-High_072116_SED_03	**Sample Time:**	09:25
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

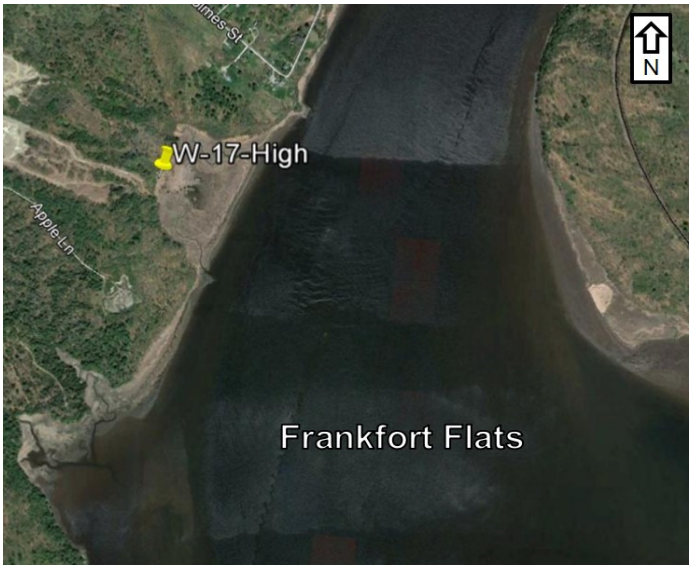
Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Black, fine, silt, no odor, 2 photos (location, sample)

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Stainless steel spoon			**Duplicate ID:**	N/A
Sample Container Type(s):	2oz glass, 2oz plastic, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon
,

Notes:

Sample taken at edge of marsh/grass

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-17-Intertidal	**Sample Crew:**	DOL, DY
Date:	07/26/2016	**Latitude/Longitude:**	44.6185 -68.856
Sample ID:	W-17-Intertidal_072616_SED_03	**Sample Time:**	14:30
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

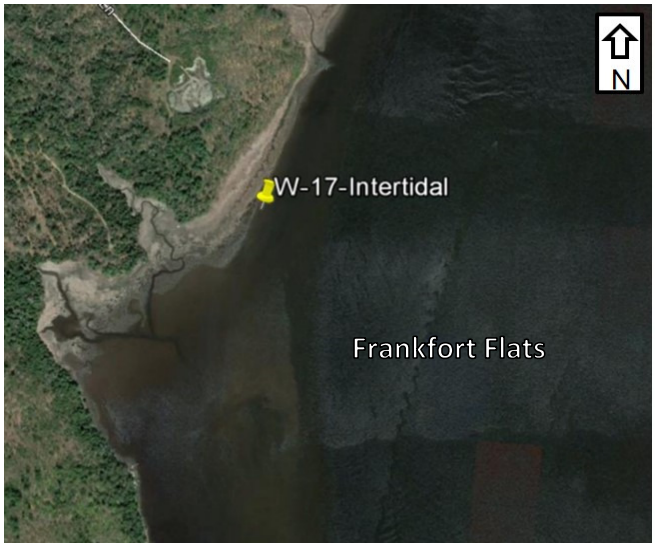
Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Dark brown silty sand with trace gravel, trace shell fragments, and trace woodchips, SM, 100% moisture, no odor

Sample Interval (ft bgs):	0.0	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket, Ponar			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-17-Low	**Sample Crew:**	DOL, DY
Date:	07/26/2016	**Latitude/Longitude:**	44.6186 -68.8558
Sample ID:	W-17-Low_072616_SED_03	**Sample Time:**	14:45
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Dark brown silt with trace sand, ML, no woodchips, no odor, 100% moisture

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	Yes Duplicate, MS, MSD
Sample Collection Methods:	Spoon, Bucket, Ponar			**Duplicate ID:**	W-17-Low_072616_SED_03_DUP
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	W-17-Low_072616_SED_03_MS
Preservatives:	4 C			**MSD ID:**	W-17-Low_072616_SED_03_MD
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-17-Mid	**Sample Crew:**	D Lovejoy, J Pallozzi
Date:	07/21/2016	**Latitude/Longitude:**	44.623052 -68.853576
Sample ID:	W-17-Mid_072116_SED_03	**Sample Time:**	10:00
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

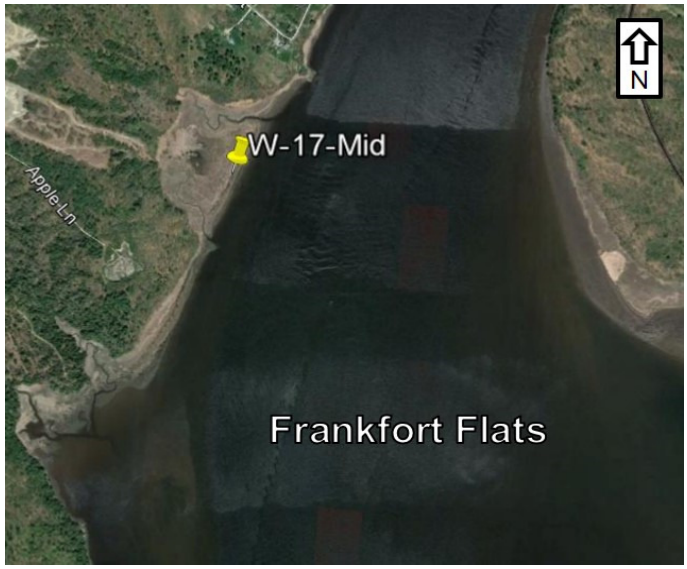
Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Black silt, trace organic matter, possible roots, fine, no odor, trace sand

Sample Interval (ft bgs):	0.00	to	0.5	**QC Collected:**	No
Sample Collection Methods:	Hand auger			**Duplicate ID:**	N/A
Sample Container Type(s):	2oz glass, 2oz plastic, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Other(s): Hand auger
,

Notes:

Sample taken at mid tide where water meets shore.

Sediment sampling was conducted according to the following SOPs included in the QAPP
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-21-High	**Sample Crew:**	DOL, DY
Date:	07/25/2016	**Latitude/Longitude:**	44.5807 -68.8577
Sample ID:	W-21-High_072516_SED_03	**Sample Time:**	13:40
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Black silt with trace organics, ML, 100% moisture

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Sppn, Hand auger			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Hand Auger
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:		**Vessel:**	Henri's Mud Skiff
Location ID:	W-21-Intertidal	**Sample Crew:**	DOL, DY
Date:	07/25/2016	**Latitude/Longitude:**	44.5808 -68.8573
Sample ID:	W-21-Intertidal_072516_SED_03	**Sample Time:**	14:45
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Black andgreenish gray sandy silt, SM-ML, 100% moisture

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket, Ponar			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-21-Low	**Sample Crew:**	DOL, DY
Date:	07/25/2016	**Latitude/Longitude:**	44.5808 -68.8572
Sample ID:	W-21-Low_072516_SED_03	**Sample Time:**	14:05
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

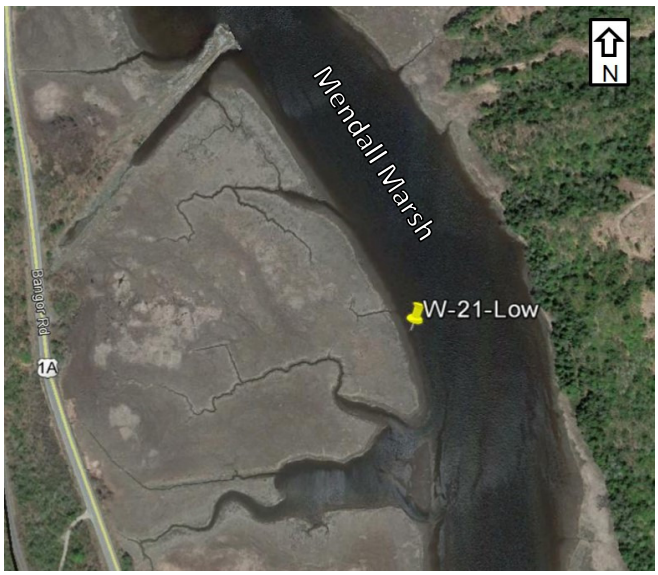
Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Black and greenish gray silt, ML, 100% moisture

Sample Interval (ft bgs):	0.0	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket, Ponar			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-21-Mid	**Sample Crew:**	DOL, DY
Date:	07/25/2016	**Latitude/Longitude:**	44.581 68.8556
Sample ID:	W-21-MID_072516_SED_03	**Sample Time:**	15:00
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

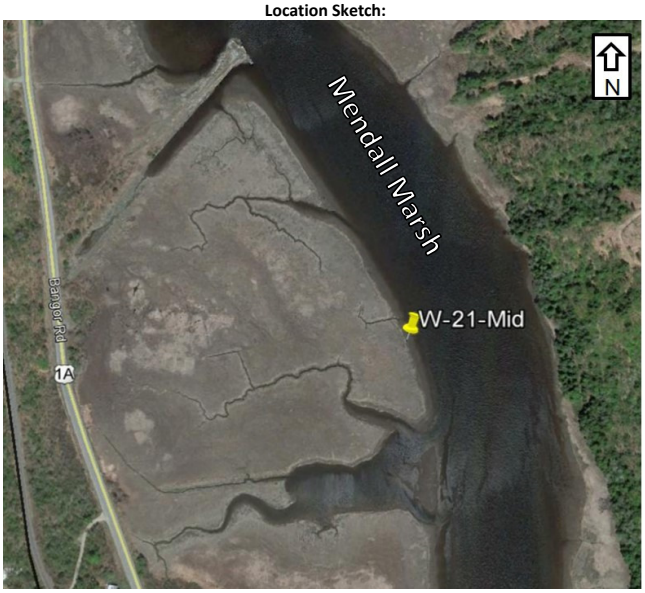
Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Dark gray clayey silt with trace shell fragments, CL-ML, 100% moisture

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Hand auger			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Hand Auger
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	NA
Location ID:	W-21-UM-Central-C	**Sample Crew:**	MKM, JPP
Date:	07/27/2016	**Latitude/Longitude:**	44.5803 -68.8609
Sample ID:	W-21UM-Central-C_072716_SED_03	**Sample Time:**	11:47
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

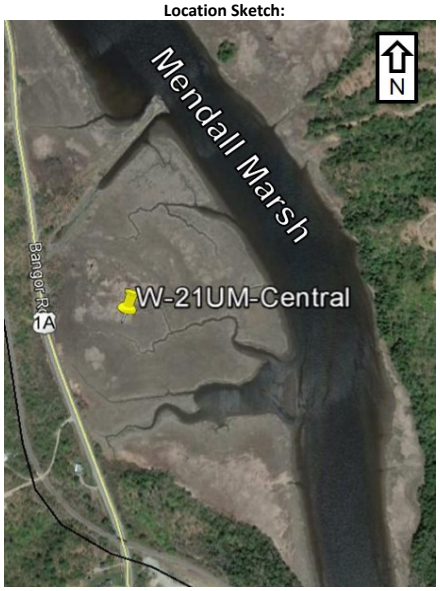
Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Light brown, silt with trace fine sand, moist, sulfur odor, OL, soft

Sample Interval (ft bgs):	0.00 to 0.4	**QC Collected:**	No
Sample Collection Methods:	Grab with shovel	**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic	**MS ID:**	N/A
Preservatives:	4 C	**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)		

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Other(s): Shovel
,

Notes:

Access same as W-21-UM-West, approx 100m from road, location appears to be in phase two test plot area

This location is the same as proposed MMSW-C

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-21-UM-East-C	**Sample Crew:**	DOL, DY
Date:	07/25/2016	**Latitude/Longitude:**	44.5806 -68.8577
Sample ID:	W-21UM-East-C_072516_SED_03	**Sample Time:**	13:50
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Black silt with some organics, ML, 100% moisture

Sample Interval (ft bgs):	0.00 to 0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon Hand auger	**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic	**MS ID:**	N/A
Preservatives:	4 C	**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)		

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Hand Auger
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	NA
Location ID:	W-21-UM-South	**Sample Crew:**	MKM, JPP
Date:	07/27/2016	**Latitude/Longitude:**	44.5564 -68.8583
Sample ID:	W-21UM-South_072716_SED_03	**Sample Time:**	10:08
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Greenish gray, clay with many organics (abundant roots), OL, fine, medium stiff, wet, no odor

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Grab w/ shovel			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Hand Auger,Other(s): Shovel
,

Notes:

Location 55m off road and pre-marked with small wooden post with white tape

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	NA
Location ID:	W-21-UM-West-A	**Sample Crew:**	MKM, JPP
Date:	07/27/2016	**Latitude/Longitude:**	44.5808 -68.8615
Sample ID:	W-21UM-West-A_072716_SED_03	**Sample Time:**	11:02
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Greenish gray brown, silt, sulfur odor, wet, soft, OL, heavy organics/roots

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Grab with shovel			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Other(s): Shovel
,

Notes:

Access approx 50m off road by foot

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Skiff
Location ID:	W-61_Int	**Sample Crew:**	KB, BW
Date:	11/08/2016	**Latitude/Longitude:**	44.50514167 -68.77183033
Sample ID:	W-61_Int_110816_SED_03	**Sample Time:**	13:30
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Fine sandy silt. Odor sulfery well sorted. Saturated. Wood chips at 0.1. Non plastic cohesive. 0-0.1 2.5y 4/2.
0.1-3 2.5 y 3/1 organic litter dense trace silt non plastic cohesive Labeled in photo

Sample Interval (ft bgs):	0	to	.3	**QC Collected:**	No
Sample Collection Methods:	Push core			**Duplicate ID:**	N/A
Sample Container Type(s):	8 oz plastic, 8 oz AG, 1 gal zip			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Notes:

Wetland samples

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Instruments (Manufacturer, Model, and SN):

Stainless Steel Spoon,Other(s): Push core tube
,

Technician Signature:

Technician Name:

Brad Wolfe

QA/QC'd by:	**Kendra C. Bavor**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Skiff
Location ID:	W-61-High	**Sample Crew:**	KB, BW
Date:	11/08/2016	**Latitude/Longitude:**	44.50593867 -68.77289483
Sample ID:	W-61-High_110816_SED_03	**Sample Time:**	14:30
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Leaf matter and acorns on surface. Amphapods below leaves.
0-0.1 black organic leaves non plastic crumbly slight cohesive. Moist
0.1-0.3 ft 5y 4/1 silty fine sand nonplastic cohesive. Moist no odor Photo w label look se

Sample Interval (ft bgs):	0	to	0.30	**QC Collected:**	No
Sample Collection Methods:	Stainless spoon grab			**Duplicate ID:**	N/A
Sample Container Type(s):	8 oz plastic, 8 oz AG, 1 gal zip			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Notes:

Wetland sediment samples

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Instruments (Manufacturer, Model, and SN):

Stainless Steel Spoon
,

Technician Signature:

Technician Name:

Brad Wolfe

QA/QC'd by: Kendra C. Bavor **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Skiff
Location ID:	W-61-Low	**Sample Crew:**	KB, BW
Date:	11/08/2016	**Latitude/Longitude:**	44.505900 -68.772800
Sample ID:	W-61-Low_110816_SED_03	**Sample Time:**	14:00
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

0-0.3 feet 5y 4/2 cohesive dense nonplastic organic fine roots. Fine silt trace sand Photo w label

Sample Interval (ft bgs):	0	to	.3	**QC Collected:**	No
Sample Collection Methods:	SS Spoon			**Duplicate ID:**	N/A
Sample Container Type(s):	8 oz plastic, 8 oz AG, 1 gal zip			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Notes:

Wetland sediment

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Instruments (Manufacturer, Model, and SN):

Stainless Steel Spoon
,

Technician Signature:

Technician Name:

Brad Wolfe

QA/QC'd by: Kendra C. Bavor **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Skiff
Location ID:	W-61-Mid	**Sample Crew:**	KB, BW
Date:	11/08/2016	**Latitude/Longitude:**	44.50597317 -68.77282933
Sample ID:	W-61-Mid_110816_SED_03	**Sample Time:**	14:15
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

0-0.3 ft 5y 4.2 fine dense to ot matter silt plastic cohesive moist no odor Photo with label. Plus looking south

Sample Interval (ft bgs):	0	to	.3	**QC Collected:**	No
Sample Collection Methods:	Grab with stainless spoon			**Duplicate ID:**	N/A
Sample Container Type(s):	8 oz plastic, 8 oz AG, 1 gal zip			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Notes:

Wetland sediment

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Instruments (Manufacturer, Model, and SN):

Stainless Steel Spoon
,

Technician Signature:

Technician Name:

Brad Wolfe

QA/QC'd by: Kendra C. Bavor **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Skiff
Location ID:	W-63_Int	**Sample Crew:**	KB, BW
Date:	11/08/2016	**Latitude/Longitude:**	44.70900403 -68.83844564
Sample ID:	W-61-INT_110816_SED_03	**Sample Time:**	16:40
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

0-0.15y 4/2 silt saturated non plastic non competent no odor no organics
0.1-0.2 5y 4/1
0.2-0.3 5y 5/1 Photo of sample in push core tube

Sample Interval (ft bgs):	0	to	.3	**QC Collected:**	No
Sample Collection Methods:	Push core and stainless spoon			**Duplicate ID:**	N/A
Sample Container Type(s):	8 oz plastic, 8 oz AG, 1 gal zip			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Notes:

Cove location is ~ 10,000 feet south of Southern Cove (Holtrachem). Wetland sediment

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Instruments (Manufacturer, Model, and SN):

Stainless Steel Spoon
,

Technician Signature:

Technician Name:

Brad Wolfe

QA/QC'd by: Kendra C. Bavor **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Skiff
Location ID:	W-63-High	**Sample Crew:**	KB, BW
Date:	11/08/2016	**Latitude/Longitude:**	44.70897383 -68.83822017
Sample ID:	W-63-High_110816_SED_03	**Sample Time:**	16:10
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

0-0.3 ft grey1 6/10y stiff plastic competent clay damp Photo w label

Sample Interval (ft bgs):	0	to	.3	**QC Collected:**	No
Sample Collection Methods:	Stainless spoon grab			**Duplicate ID:**	N/A
Sample Container Type(s):	8 oz plastic, 8 oz AG , 1 gal zip			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Notes:

Wetland sediment

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Instruments (Manufacturer, Model, and SN):

Stainless Steel Spoon
,

Technician Signature:

Technician Name:

Brad Wolfe

QA/QC'd by: Kendra C. Bavor **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Skiff
Location ID:	W-63-Low	**Sample Crew:**	KB, BW
Date:	11/08/2016	**Latitude/Longitude:**	44.708996 -68.838254
Sample ID:	W-63-Low_110816_SED_03	**Sample Time:**	16:30
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Surface is leaf covered with tan grey 5y 5/2
0-0.3 5y 4/1 grey with black mottled Fine sand with silt. No odor nonplastic wet not competent minimal organic Photo w labels

Sample Interval (ft bgs):	0	to	.3	**QC Collected:**	No
Sample Collection Methods:	Stainless spoon grab			**Duplicate ID:**	N/A
Sample Container Type(s):	8 oz plastic, 8 oz AG, 1 gal zip			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Notes:

Wetland sediment

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Instruments (Manufacturer, Model, and SN):

Stainless Steel Spoon
,

Technician Signature:

Technician Name:

Brad Wolfe

QA/QC'd by: Kendra C. Bavor **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Skiff
Location ID:	W-63-Mid	**Sample Crew:**	KB, BW
Date:	11/08/2016	**Latitude/Longitude:**	44.70901317 -68.838201
Sample ID:	W-63-Mid_110816_SED_03	**Sample Time:**	16:20
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

5y 5/1 fine sandy silt moist organics. Mottled black. Non plastic non competent. Photo w label plus mottled

Sample Interval (ft bgs):	0	to	.3	**QC Collected:**	No
Sample Collection Methods:	Stainless spoon grab			**Duplicate ID:**	N/A
Sample Container Type(s):	8 oz plastic, 8 oz AG, 1 gal zip			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Notes:

Wetland sediment

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Instruments (Manufacturer, Model, and SN):

Stainless Steel Spoon
,

Technician Signature:

Technician Name:

Brad Wolfe

QA/QC'd by: Kendra C. Bavor **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-65-High	**Sample Crew:**	DOL, DY
Date:	07/25/2016	**Latitude/Longitude:**	44.5855 -68.8574
Sample ID:	W-65-High_072516_SED_03	**Sample Time:**	15:30
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Dark brown silt with some roots and organics, ML, 60% moisture, slight sulfur odor

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Hand auger			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Hand Auger
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-65-Intertidal	**Sample Crew:**	DOL, DY
Date:	07/25/2016	**Latitude/Longitude:**	44.5848 -68.8591
Sample ID:	W-65-Intertidal_072516_SED_03	**Sample Time:**	16:10
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Gray silty sand with trace gravel, poorly graded, SM, 100% moisture

Sample Interval (ft bgs):	0.00 to 0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Bucket, Ponar	**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic	**MS ID:**	N/A
Preservatives:	4 C	**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)		

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Plastic bucket,Ponar
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-65-Low	**Sample Crew:**	DOL, DY
Date:	07/25/2016	**Latitude/Longitude:**	44.585 -68.8592
Sample ID:	W-65-Low_072516_SED_03	**Sample Time:**	15:50
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Gray clayey silt, CL-ML, 100% moisture, no odor

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Hand auger			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:

Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Hand Auger
,

Notes:

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** D1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SEDIMENT (GRAB)

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Subcontract:	None	**Vessel:**	Henri's Mud Skiff
Location ID:	W-65-Mid	**Sample Crew:**	DOL, DY
Date:	07/25/2016	**Latitude/Longitude:**	44.5855 -68.8579
Sample ID:	W-65-Mid_072516_SED_03	**Sample Time:**	15:40
Sample Collected (Y/N):	Yes		

SEDIMENT SAMPLE

Description

Color, Grain Size (i.e. coarse, fine), moisture, plasticity, odor, photo number, etc.

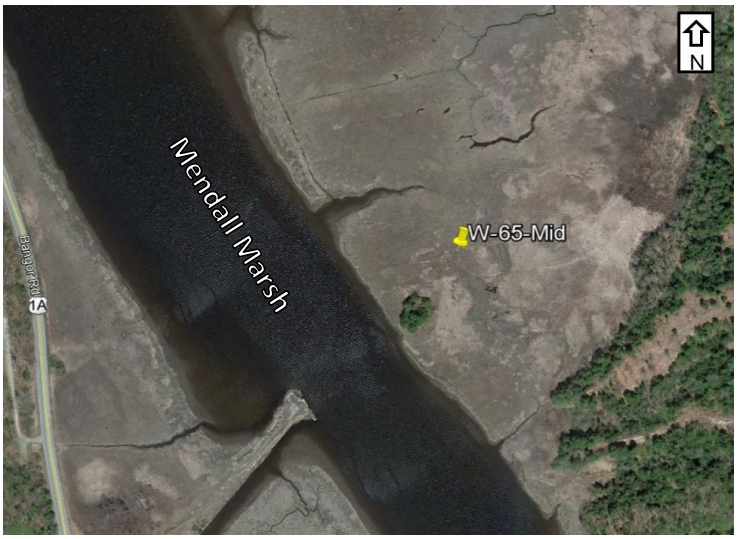
Wetland Sediment Description

- High (*Marsh) –tree line*
- Mid (*Marsh) – Center of marsh platform*
- Low (Marsh) – Marsh grass/mud interchange
- Intertidal – within the daily tide cycle
- Subtidal – below tide cycle

Dark brown silt with many roots, ML, 70% moisture, musty odor

Sample Interval (ft bgs):	0.00	to	0.3	**QC Collected:**	No
Sample Collection Methods:	Spoon, Hand auger			**Duplicate ID:**	N/A
Sample Container Type(s):	2 oz plastic, 2 oz glass, 8 oz plastic			**MS ID:**	N/A
Preservatives:	4 C			**MSD ID:**	N/A
Analysis/Method(s):	Mercury (1631e), Methyl Mercury (1630), TOC (Lloyd-Kahn), Grain Size (D422)				

Location Sketch:



Instruments (Manufacturer, Model, and Serial No.):

Stainless Steel Spoon,Hand Auger
,

Notes:

This location is the same a proposed location MMSE-1

Sediment sampling was conducted according to the following SOPs included in the QAPP;
SOP S-6 Sediment Sampling
SOP S-7 Procedures for Description and ID of Soils
SOP S-17 Decontamination of Field Equipment

Technician Signature:

Technician Name:

David Young

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

APPENDIX A-2
2016 WATER QUALITY SAMPLE FIELD DATA RECORDS

SURFACE WATER SAMPLING RECORD

Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	OV-02	05/26/16
PROJECT NUMBER 3616166052.04.04	**START TIME** 1245	**END TIME** 1320
SAMPLE ID OV02_~~250516~~ 0526 16_SW_10 (KCB 05/26/16)	**SAMPLE TIME** 1300	**PAGE** 1 of 1
Lat. 44.837249	**Long.** -68.701445	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 5 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 460 ML/MIN

TIDE DIRECTION: [ ] INCOMING [✓] OUTGOING

FIELD SKETCH: [✓] YES [ ] NO

PURGE VOLUME: 1000 ML

WATER QUALITY PARAMETERS:

Parameter	Value	Units
TEMPERATURE	21.31	°C
SPEC. COND.	0.433	mS/cm
PH	8.18	pH Units
ORP	100.2	mV
TURBIDITY	1.03	NTUs
DO	7.90	mg/L
SALINITY	0.29	ppt

EQUIPMENT USED:

- [ ] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP Peristaltic Pump (Geopump)
- [X] FILTER DOC - .45 micron
- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] ____

[ ] FIELD DUPLICATE COLLECTED
DUP. ID ____
TIME ____

[ ] MATRIX SPIKE COLLECTED
MS ID ____
TIME ____

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID ____
TIME ____

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

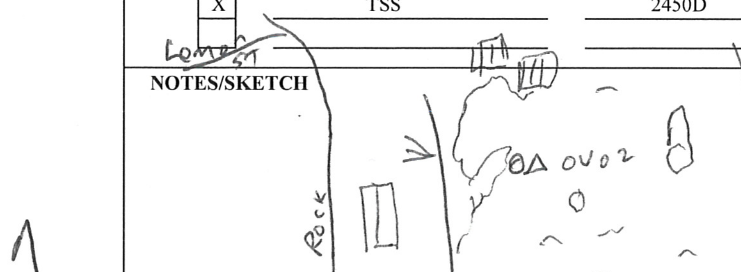
WATER QUALITY MET	MODEL NO. YSI 556 MPS	UNIT ID NO.	PINE 024218
TURBIDITY METER	MODEL NO. Hach 2100Q	UNIT ID NO.	PINE 025976

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	✓
X	Dissolved Mercury	1631e	4°c	250 ml PETG	✓
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	✓
X	Dissolve Methyl Mercury	1630	4°c	250 ml Borosilicate Glass	✓
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	✓
X	TSS	2450D	4°c	1 L Plastic	✓

NOTES/SKETCH

Loc: 44.8375 N
-68.7015 W



Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be lab filtered to avoid cross contamination in the field.

Sampler Signature: K. Bauer   Print Name: KENDRA BAUER

Checked By: Brad Schoonover   Date: 6/9/2016

SURFACE WATER SAMPLING RECORD

Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ1b-C	05/26/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	1602	1647
SAMPLE ID	**SAMPLE TIME**	**PAGE**
WQ1b-C_052616_SW_10	1620	1 of 1
Lat. 44° 42.565' N	Long. 68° 50.341' W	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 11.5 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 500 ML/MIN

TIDE DIRECTION: [ ] INCOMING [✓] OUTGOING

FIELD SKETCH: [✓] YES [ ] NO

PURGE VOLUME: 1000 ML

WATER QUALITY PARAMETERS:

TEMPERATURE	20.59	°C
SPEC. COND.	3.051	mS/cm
PH	7.98	pH Units
ORP	92.6	mV
TURBIDITY	5.79	NTUs
DO	7.66	mg/L
SALINITY	1.62	ppt

EQUIPMENT USED:

- [ ] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP Peristaltic Pump (Geopump)
- [X] FILTER DOC - .45 micron
- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] ____

[✓] FIELD DUPLICATE COLLECTED
DUP. ID WQ1b-C_052616_SW_10_DUP
TIME ____

[✓] MATRIX SPIKE COLLECTED
MS ID WQ1b-C_052616_SW_10_MS
TIME ____

[✓] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID WQ1b-C_052616_SW_10_MD
TIME

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

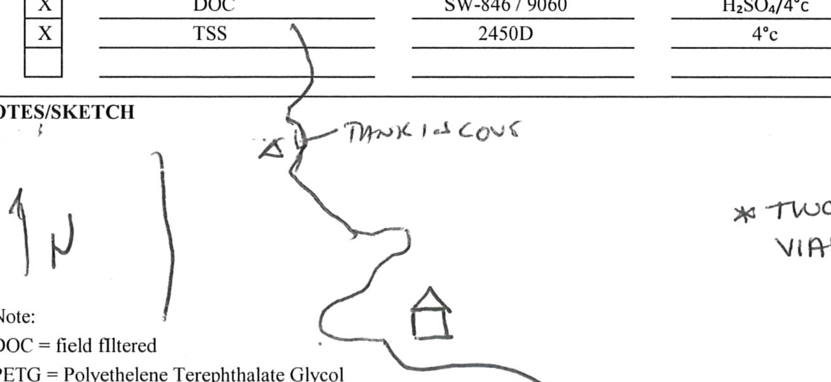
SAMPLING EQUIPMENT

WATER QUALITY MET	MODEL NO.	YSI 556 MPS	UNIT ID NO.	PINE 024218
TURBIDITY METER	MODEL NO.	Hach 2100 Q	UNIT ID NO.	PINE 025976

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	✓
X	Dissolved Mercury	1631e	4°c	250 ml PETG	✓
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	✓
X	Dissolve Methyl Mercury	1630	4°c	250 ml Borosilicate Glass	✓
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	✓
X	TSS	2450D	4°c	1 L Plastic	✓

NOTES/SKETCH



LOC: 44.7162 N
-68.8362 W

* TWO FILTERS USED FOR DOC VIALS -

Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be lab filtered to avoid cross contamination in the field.

Sampler Signature: [signature] Print Name: RONDRA BAVOR

Checked By: [signature] Date: 6/9/2016

P:\Projects\USDC - Penobscot River\4.0_Deliverables\4.2_Work_Plans\2016 Surface Water Sampling\Surface Water Sampling FDR.xlsx 5/24/2016

SURFACE WATER SAMPLING RECORD

amec foster wheeler
Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ2-C	05/27/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	0800	0832
SAMPLE ID	**SAMPLE TIME**	**PAGE**
WQ2-C_052716_SW_10	0800	1 of 1
Lat. 44° 37.699' N	**Long.** 68° 50.559' W	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 17.9 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 500 ML/MIN

TIDE DIRECTION: [ ] INCOMING [/] OUTGOING

FIELD SKETCH: [/] YES [ ] NO

PURGE VOLUME: 1000 ML

WATER QUALITY PARAMETERS:

TEMPERATURE	16.74	°C
SPEC. COND.	9.1163	mS/cm
PH	7.14	pH Units
ORP	245.8	mV
TURBIDITY	21.0	NTUs
DO	8.53	mg/L
SALINITY	5.14	ppt

EQUIPMENT USED:

- [ ] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP — Peristaltic Pump (Geopump)
- [X] FILTER — DOC - .45 micron

- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ]

[ ] FIELD DUPLICATE COLLECTED
DUP. ID
TIME

[ ] MATRIX SPIKE COLLECTED
MS ID
TIME

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID
TIME

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

WATER QUALITY MET — MODEL NO. YSI 556 MPS — UNIT ID NO. PINE 024218
TURBIDITY METER — MODEL NO. Hach 2100Q — UNIT ID NO. PINE 0259716

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	Y
X	Dissolved Mercury	1631e	4°c	250 ml PETG	Y
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	Y
X	Dissolve Methyl Mercury	1630	4°c	250 ml Borosilicate Glass	Y
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	Y
X	TSS	2450D	4°c	1 L Plastic	Y

NOTES/SKETCH

LOC: 44.6320 N
-68.8418 W

Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be lab-filtered to avoid cross contamination in the field.

Sampler Signature: Print Name: KENDRA BAKER

Checked By: Date: 6/9/2016

SURFACE WATER SAMPLING RECORD

Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ3-L	05/26/16
PROJECT NUMBER 3616166052.04.04	START TIME 14:58	END TIME 15:23
SAMPLE ID WQ3-L_05~~05~~ 26 16_SW_10 KLB 05/26/16	SAMPLE TIME 1510	PAGE 1 of 1
Lat. 44° 34.497 N	Long. 068° 48.528 W	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 24.0 FT.
DEPTH OF SAMPLE BELOW WATER SURFACE: 1.0 FT.

SAMPLING FLOW RATE: 500 ML/MIN
TIDE DIRECTION: [ ] INCOMING [X] OUTGOING
FIELD SKETCH: [X] YES [ ] NO

PURGE VOLUME: 1000 ML

WATER QUALITY PARAMETERS:

Parameter	Value	Units
TEMPERATURE	14.83	°C
SPEC. COND.	29.78	mS/cm
PH	7.77	pH Units
ORP	193.2	mV
TURBIDITY	4.45	NTUs
DO	9.55	mg/L
SALINITY	18.51	ppt

EQUIPMENT USED:

- [ ] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP Peristaltic Pump (Geopump)
- [X] FILTER DOC - .45 micron
- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] ______

[ ] FIELD DUPLICATE COLLECTED
DUP. ID ______
TIME ______

[ ] MATRIX SPIKE COLLECTED
MS ID ______
TIME ______

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID ______
TIME ______

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

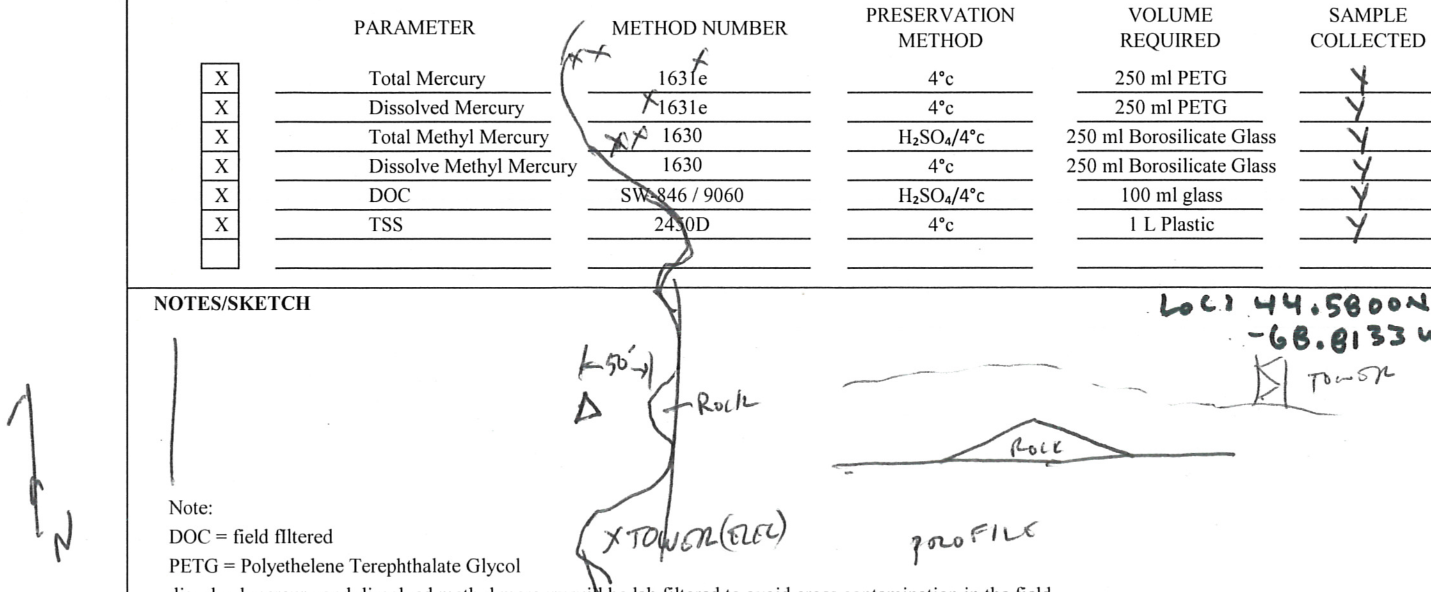
WATER QUALITY MET	MODEL NO. YSI 556 MPS	UNIT ID NO.	PINE 024218
TURBIDITY METER	MODEL NO. Hach 2100 Q	UNIT ID NO.	PINE 025976

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	Y
X	Dissolved Mercury	1631e	4°c	250 ml PETG	Y
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	Y
X	Dissolve Methyl Mercury	1630	4°c	250 ml Borosilicate Glass	Y
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	Y
X	TSS	2540D	4°c	1 L Plastic	Y

NOTES/SKETCH

Loc: 44.5800 N
-68.8133 W



Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be lab filtered to avoid cross contamination in the field.

Sampler Signature: [signature] Print Name: KENDRA BAVOL

Checked By: [signature] Date: 6/9/2016

SURFACE WATER SAMPLING RECORD

Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	ES-15	05/26/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	0838	0903
SAMPLE ID 0526 ES-15_260516_SW_10	**SAMPLE TIME** 0850	**PAGE** 1 of 1
Lat. 44° 31.154' N (Lat/Long 5/26/16)	**Long.** 68° 47.752' W	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 14.3 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 500 ML/MIN

TIDE DIRECTION: [ ] INCOMING [/] OUTGOING

FIELD SKETCH: [/] YES [ ] NO

PURGE VOLUME: 1000 ML

WATER QUALITY PARAMETERS:

TEMPERATURE	12.63	°C
SPEC. COND.	29.09	mS/cm
PH	7.95	pH Units
ORP	190.2	mV
TURBIDITY	5.93	NTUs
DO	8.50	mg/L
SALINITY	17.97	ppt

[ ] FIELD DUPLICATE COLLECTED
DUP. ID _____
TIME _____

[ ] MATRIX SPIKE COLLECTED
MS ID _____
TIME _____

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID _____
TIME _____

EQUIPMENT USED:

[ ] BEAKER
[ ] BOTTLE
[ ] PACS BOMB
[X] PUMP Peristaltic Pump (Geopump)
[X] FILTER DOC - .45 micron

[X] 5 ft of lab precleaned 1/4 " Teflon Tubing
[X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

[ ] STREAM
[X] RIVER
[ ] LAKE
[ ] POND
[ ] SEEP
[ ] _____

DECON FLUIDS USED

[ ] ALL USED
[ ] LIQUINOX/DI H_2O SOLUTION
[ ] DEIONIZED WATER
[ ] POTABLE WATER
[ ] NITRIC ACID
[ ] HEXANE
[ ] ETHYL ALCOHOL
[X] N/A

SAMPLING EQUIPMENT

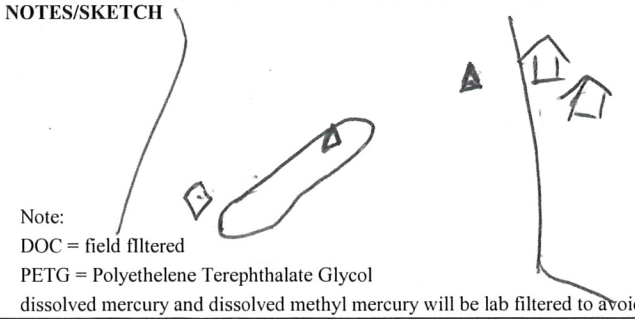
WATER QUALITY MET MODEL NO. YSI 556 MPS UNIT ID NO. PINE 024218
TURBIDITY METER MODEL NO. Hach 2100 Q UNIT ID NO. PINE 025976

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	Y
X	Dissolved Mercury	1631e	4°c	250 ml PETG	Y
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	Y
X	Dissolve Methyl Mercury	1630	4°c	250 ml Borosilicate Glass	Y
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	Y
X	TSS	2450D	4°c	1 L Plastic	Y

NOTES/SKETCH

LOC: 44.5251 N
-68.7982 W



Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be lab filtered to avoid cross contamination in the field.

1 BROKEN 40mL DOC BOTTLE AFTER SAMPLING

Sampler Signature: [signature] Print Name: KENDRA DAVIS

Checked By: Bud Sikkema Date: 6/9/2016

SURFACE WATER SAMPLING RECORD

Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ-ECH	05/26/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	0650	0737
SAMPLE ID	**SAMPLE TIME**	**PAGE**
WQ-ECH_~~260~~0526 16_SW_10 (KOB 05/26/16)	0705	1 of 1
Lat. 44 31.328	Long. -68° 45.315	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 8.5 FT.
DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 400 ML/MIN
TIDE DIRECTION: [ ] INCOMING [X] OUTGOING
FIELD SKETCH: [X] YES [ ] NO

PURGE VOLUME: 1000 ML

WATER QUALITY PARAMETERS:

Parameter	Value	Units
TEMPERATURE	13.26	°C
SPEC. COND.	30.27	mS/cm
PH	7.70	pH Units
ORP	241.2	mV
TURBIDITY	9.79	NTUs
DO	8.75	mg/L
SALINITY	18.83	ppt

EQUIPMENT USED:

- [ ] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP Peristaltic Pump (Geopump)
- [X] FILTER DOC - .45 micron
- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] ______

[ ] FIELD DUPLICATE COLLECTED
DUP. ID ______
TIME ______

[ ] MATRIX SPIKE COLLECTED
MS ID ______
TIME ______

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID ______
TIME ______

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

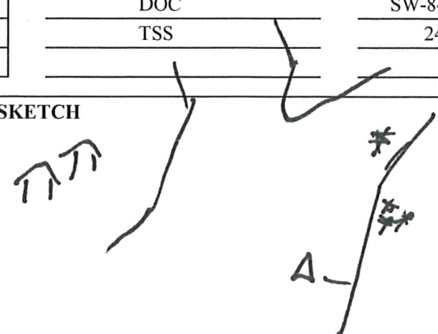
WATER QUALITY MET	MODEL NO.	YSI 556 MPS	UNIT ID NO.	PINE 024218
TURBIDITY METER	MODEL NO.	Hach 2100Q	UNIT ID NO.	PINE 025976

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	Y
X	Dissolved Mercury	1631e	4°c	250 ml PETG	Y
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	Y
X	Dissolve Methyl Mercury	1630	4°c	250 ml Borosilicate Glass	Y
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	Y
X	TSS	2450D	4°c	1 L Plastic	Y

NOTES/SKETCH

Loc: 44.5276 N
-68.7550



Note:
DOC = field fIltered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be lab filtered to avoid cross contamination in the field.

Sampler Signature: [signature] Print Name: KENDRA BAVOK

Checked By: [signature] Date: 6/9/2016

SURFACE WATER SAMPLING RECORD

amec foster wheeler

Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ-FPT	05/26/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	0749	0822
SAMPLE ID	**SAMPLE TIME**	**PAGE**
WQ - FPT_~~260516~~ 0526 _SW_10 KLB (05/26/16)	0810	1 of 1
Lat. 44° 28.532 N	**Long.** 68° 48.142' W	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 47.8 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 450 ML/MIN

TIDE DIRECTION: [ ] INCOMING [✓] OUTGOING

FIELD SKETCH: [✓] YES [ ] NO

PURGE VOLUME: 1000 ML

WATER QUALITY PARAMETERS:

Parameter	Value	Units
TEMPERATURE	11.59	°C
SPEC. COND.	36.62	mS/cm
PH	7.99	pH Units
ORP	185.0	mV
TURBIDITY	3.42	NTUs
DO	8.99	mg/L
SALINITY	23.21	ppt

EQUIPMENT USED:

- [ ] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP Peristaltic Pump (Geopump)
- [X] FILTER DOC - .45 micron
- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] ______

[ ] FIELD DUPLICATE COLLECTED
DUP. ID ______
TIME ______

[ ] MATRIX SPIKE COLLECTED
MS ID ______
TIME ______

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID ______
TIME ______

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

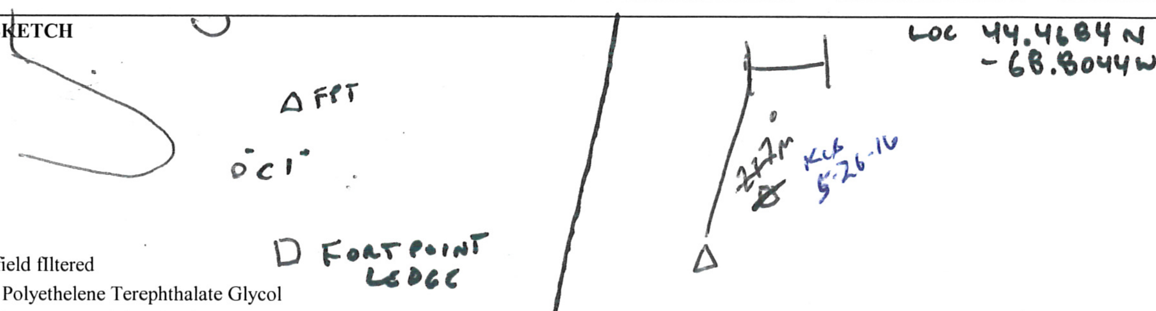
SAMPLING EQUIPMENT

WATER QUALITY MET	MODEL NO.	YSI 556 MPS	UNIT ID NO.	PINE 024218
TURBIDITY METER	MODEL NO.	Hach 2100Q	UNIT ID NO.	PINE 025976

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	Y
X	Dissolved Mercury	1631e	4°c	250 ml PETG	Y
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	Y
X	Dissolve Methyl Mercury	1630	4°c	250 ml Borosilicate Glass	Y
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	Y
X	TSS	2450D	4°c	1 L Plastic	Y

NOTES/SKETCH



Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be lab filtered to avoid cross contamination in the field.

Sampler Signature: K. Baur Print Name: Kendra Bauer

Checked By: Brad Schoonover Date: 6/9/2016 D Fort Point Ledge

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Penobscot River - 2016 Surface Water Sampling
PROJECT NUMBER: 3616166052
PROJECT LOCATION: Winterport, Maine
WEATHER CONDITIONS (AM): 55°F, CLEAR
WEATHER CONDITIONS (PM): 70°F CLEAR

TASK NO: .04.04 DATE: 5/26/16
SAMPLING CREW: Kendra Bavor, Julie Polazzi
SAMPLER NAME: "
SAMPLER SIGNATURE: K. B
CHECKED BY: BJS DATE: 6/9/16

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556 MPS
UNIT ID NO.: 024218 PINE

AM CALIBRATION — Start Time 0502 / End Time 0532

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	3.99	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.00	+/- 0.1 pH Units	7.0	7.03	+/- 0.3 pH Units
pH (10)	SU	10.0	10.02	+/- 0.1 pH Units			
Redox	+/- mV	240	240.1	+/- 10 mV	240	235.1	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5% of standard	1.413	1.403	+/- 5% of standard
Salinity	ppt		0.71			0.68	
DO (saturated)	%	100	100.9	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	9.12	9.10	+/- 0.2 mg/L	8.8	8.61	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1		≤ 0.5 mg/L			
Temperature	°C		20.36			22.35	
Baro. Press.	mmHg		766.01			767	

POST CALIBRATION CHECK — Start Time 0627 / End Time 0641

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100Q
UNIT ID NO.: 0259716 PINE

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
<0.1 Standard	NTU	10 ~~<0.1~~	9.80	10 ~~<0.1~~	9.87	+/- 0.3 NTU of stan.
20 Standard	NTU	20	19.5	20	19.6	+/- 5% of standard
100 Standard	NTU	100	101	100	102	+/- 5% of standard
800 Standard	NTU	800	798	800	805	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

Background	ppmv	<0.1		<0.1	within 5 ppmv of BG
Span Gas	ppmv	100		100	+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

Methane	%	50		50	+/- 10% of standard
O_2	%	20.9	KB 5-26-16	20.9	+/- 10% of standard
H_2S	ppmv	25		25	+/- 10% of standard
CO	ppmv	50		50	+/- 10% of standard

OTHER METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

See Notes Below for Additional Information

☐ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L): Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	5GL345	12/17
pH (7)	5AA012	1/17
pH (10)	5AA012	1/17
ORP	8032	9/19
Conductivity	6GC544	3/17
10 ~~<0.1~~ Turb. Stan.	A5161	9/16
20 Turb. Stan.	A5170	9/16
100 Turb. Stan.	A5162	9/16
800 Turb. Stan.	A5167	9/16
PID Span Gas		
O_2-LEL Span Gas		
Other		

NOTES:
SALINITY RECORDED DURING CONDUCTIVITY CALIBRATION.

amec foster wheeler
511 Congress Street, Portland Maine 04101

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additional acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

FRIDAY

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Penobscot River - 2016 Surface Water Sampling
PROJECT NUMBER: 3616166052
PROJECT LOCATION: Winterport, Maine
WEATHER CONDITIONS (AM): OVERCAST, 50-60°
WEATHER CONDITIONS (PM): OVERCAST, 50-60°

TASK NO: .04.04 DATE: 5/26/16 KB
SAMPLING CREW: Kendra Bavor, Julie Polazzi
SAMPLER NAME: "
SAMPLER SIGNATURE: [signature]
CHECKED BY: BJS DATE: 6/9/16

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556 MPS
UNIT ID NO.: 024218 PINE

AM CALIBRATION Start Time 0645 /End Time 0705

POST CALIBRATION CHECK Start Time 1039 /End Time 1046

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	3.99	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.00	+/- 0.1 pH Units	7.0	7.03	+/- 0.3 pH Units
pH (10)	SU	10.0	10.00	+/- 0.1 pH Units			
Redox	+/- mV	240	240.1	+/- 10 mV	240	240.1	+/- 10 mV
Conductivity	mS/cm	1.413	1.412	+/- 0.5% of standard	1.413	1.421	+/- 5% of standard
Salinity	ppt		0.71			0.71	
DO (saturated)	%	100	99.3	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.8	8.62	+/- 0.2 mg/L	9.00	8.96	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1	—	≤ 0.5 mg/L			
Temperature	°C		22.28			20.53	
Baro. Press.	mmHg		767			767	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100Q
UNIT ID NO.: 0259760 PINE

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
<0.1 Standard	NTU	10 ~~<0.1~~	9.87	10 ~~<0.1~~	10.1	+/- 0.3 NTU of stan.
20 Standard	NTU	20	19.6	20	20.4	+/- 5% of standard
100 Standard	NTU	100	102	100	105	+/- 5% of standard
800 Standard	NTU	800	805	800	810	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

KCP 5-27-16

Methane	%	50		50	+/- 10% of standard
O_2	%	20.9		20.9	+/- 10% of standard
H_2S	ppmv	25		25	+/- 10% of standard
CO	ppmv	50		50	+/- 10% of standard

OTHER METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

See Notes Below for Additional Information

☐ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L) Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	5GL345	12/17
pH (7)	5AA012	1/17
pH (10)	5AA012	1/17
ORP	8032	9/19
Conductivity	16GC544	3/17
10 Turb. Stan.	A5161	9/16
20 Turb. Stan.	A5170	9/16
100 Turb. Stan.	A5162	9/16
800 Turb. Stan.	A5167	9/16
PID Span Gas		
O_2-LEL Span Gas		
Other		

NOTES:

amec foster wheeler
511 Congress Street, Portland Maine 04101

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additional acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

eurofins | Frontier Global Sciences

Chain of Custody Record & Laboratory Analysis Request: Air, Water, Sediments, Plant and Animal Tissue, Hydrocarbon & Other Samples

11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
Phone: 425-686-1996
Fax: 425-686-3096
info@frontiergs.com
http://www.frontiergs.com

Page 1 of 1

Client: AMEC FOSTER WHEELER	Contact: DENISE KING
Address: 511 CONGRESS ST PORTLAND ME 04101	Phone: 9786929090 Fax: 978 692 6633
	E-mail: denise.king@amecfw.com
Project Name: PENOBSCOT RIVER	Contract/PO:
Report To: DENISE KING	Invoice To: ROD PENDLETON
Address: 271 MILL RD CHELMSFORD, MA 01824	Address: 511 CONGRESS ST PORTLAND, ME 04101
Phone: 978 692 7090 Fax: 978 692 6633	Phone: 207 775 5401 Fax: 207 772 4762
E-mail: denise.king@amecfw.com	E-mail: rod.pendleton@amecfw.com

No.	Engraved Bottle ID	Sample ID	# of Bottles	Matrix	Date & Time	Sampled By	Field Filtered (Y/N)	Field Preserved: Total MeHg L-1 H_2SO_4 HNO_3 HCl BrCl Other (%)	Analyses Requested: T/D Hg 1631e	T/D MeHg 1630						
1		WQ2-C_052716_SW-10	4	SB	5/27/16 0800	KB	N	X	2	2						
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																

EFGS PM:
Date:
TAT (business days): **20** (std)
15 10 5 4 3 2 24 hrs.
(For TAT < 10 days, contact PM. Surcharges apply for expedited TAT)
Saturday delivery? ☒ Y ☐ N (If yes, please contact PM)
EDD ☒ Y ☐ N
QA ☐ Standard ☐ High

Comments

per contract - questions - Denise King
- Total MeHg preserved w/ H_2SO_4

AIRBILL:
8756-4740-9209

For Laboratory Use Only	
COC Seal:	Comments:
Cooler Temp:	
Carrier:	
VTSR:	
# of Coolers:	

Matrix Codes:
FW: Fresh Water
WW: Waste Water
SB: Sea and Brackish Water
SS: Soil and Sediment
TS: Plant and Animal Tissue
HC: Hydrocarbons
TR: Trap
OT: Other

Relinquished By:	Received By:	Received By:
Name: JULIE PALLOZZI	Name:	Name:
Organization: AMEC FW	Organization:	Organization:
Date & Time: 5/27/16	Date & Time:	Date & Time:
Tracking number:		

Sample Disposal:
☐ Return (shipping fees may apply)
☒ Standard Disposal – 30 Days after report
☐ Retain for ____ weeks after report (storage fees may apply)

By signing, you declare that you agree with EFGS' terms and conditions, and that you authorize EFGS to perform the specified analyses.

Customer Approval: Julie Pallozzi Date: 5/27/16

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL — World Class Chemistry
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Date Rec'd in Lab:

ALPHA Job #:

Client Information

Client: AMEC FOSTER WHEELER
Address: 511 CONGRESS ST
PORTLAND, ME 04101
Phone: 207 775 5401
Email: rod.pendleton@amecfw.com

Project Information

Project Name: PENOBSCOT RIVER
Project Location: PENOBSCOT RIVER
Project #: 3616166052
Project Manager: ROD PENDLETON
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due:

Report Information - Data Deliverables

☐ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program Criteria

Additional Project Information:

CONTACT DENISE KIAC W/ QUESTIONS
TEL: 978-692-9090
AIRBILL: 8756 4740 9161

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2; SVOC: ☐ ABN ☐ PAH; METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15; METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13; EPH: ☐ Ranges & Targets ☐ Ranges Only; VPH: ☐ Ranges & Targets ☐ Ranges Only; ☐ PCB ☐ PEST; TPH: ☐ Quant Only ☐ Fingerprint; DOC SW-846 9060 2-Year AS; TSS 2450D 1LP 4DEG C

SAMPLE INFO — Filtration: ☒ Field ☐ Lab to do; Preservation: ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	DOC SW-846 9060	TSS 2450D	Sample Comments	TOTAL # BOTTLES
	OV02_052616_SW_10	5/26/16	1300	SW	KB	X	X		3
	ES-15_052616_SW_10	5/26/16	0850	↓	↓	X	X	1 DOC VIAL BROKE	2
	WQ-ECH_052616_SW_10	5/26/16	0705	↓	↓	X	X		3
	WQ-FPT_052616_SW_10	5/26/16	0810	↓	↓	X	X		3
	WQ3-L_052616_SW_10	5/26/16	1510	↓	↓	X	X		3
	WQ16-C_052616_SW_10	5/26/16	1620	↓	↓	X	X		3
	WQ16-C_052616_SW_10_DUP	↓	↓	↓	↓	X	X		3
	WQ16-C_052616_SW_10_MS	↓	↓	↓	↓	X	X		3
	WQ16-C_052616_SW_10_MD	↓	↓	↓	↓	X	X		3
	WQ2-C_052716_SW_10	5/27/16	0850	↓	↓	X	X		3
					Container Type	A	P		
					Preservative	D	A	TOTAL	29

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5/27/16 948		

SURFACE WATER SAMPLING RECORD

amec foster wheeler

Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	OV-02	6/29/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	1444	1510
SAMPLE ID	**SAMPLE TIME**	**PAGE**
OV02_062916_SW_10	1500	1 of 1
Lat. * 44.837249	**Long.** 68.701445	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 2 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 600 ML/MIN

TIDE DIRECTION: [ ] INCOMING [X] OUTGOING

FIELD SKETCH: [ ] YES [ ] NO

TOTAL PURGE VOLUME: 1000 ML

WATER QUALITY PARAMETERS:

TEMPERATURE	23.42	°C
SPEC. COND.	0.077	mS/cm
PH	7.69	pH Units
ORP	182.2	mV
TURBIDITY	1.59	NTUs
DO	7.33	mg/L
SALINITY	0.03	ppt

EQUIPMENT USED:

- [X] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP Peristaltic Pump (Geopump)
- [X] FILTER DOC - .45 micron

- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] _____

[ ] FIELD DUPLICATE COLLECTED
DUP. ID _____
TIME _____

[ ] MATRIX SPIKE COLLECTED
MS ID NA
TIME _____

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID _____
TIME _____

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

WATER QUALITY MET MODEL NO. YSI 556 MPS UNIT ID NO. M015-09

TURBIDITY METER MODEL NO. Hach 2100Q UNIT ID NO. M024-28

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	
X	Dissolved Mercury	1631e	4°c	250 ml PETG	
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	
X	Dissolve Methyl Mercury	1630	H_2SO_4/ 4°c	250 ml Borosilicate Glass	
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	
X	TSS	2450D	4°c	1 L Plastic	

NOTES/SKETCH

*TARGET, ACTUAL LAT/LONG NOT TAKEN.

Note:
DOC = field fltered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be ~~lab filtered to avoid cross contamination in the field.~~ FIELD FILTERED JP 6/29/16

Sampler Signature: Print Name:

Checked By: [signature] Date: 8/5/16

SURFACE WATER SAMPLING RECORD

amec foster wheeler
Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ1b-C	6/29/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	1030	1049
SAMPLE ID	**SAMPLE TIME**	**PAGE**
WQ1b-C_062916_SW_10	1040	1 of 1
Lat. 44° 42.572	**Long.** 68° 50.352	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 12.2 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 600 ML/MIN

TIDE DIRECTION: [ ] INCOMING [X] OUTGOING

FIELD SKETCH: [X] YES [ ] NO

TOTAL PURGE VOLUME: 1 GAL ~~ML~~

WATER QUALITY PARAMETERS:

TEMPERATURE	22.605	°C
SPEC. COND.	2.706	mS/cm
PH	8.02	pH Units
ORP	203.9	mV
TURBIDITY	29.3	NTUs
DO	6.98	mg/L
SALINITY	1.50	ppt

EQUIPMENT USED:

- [X] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP — Peristaltic Pump (Geopump)
- [X] FILTER — DOC - .45 micron

- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ]

[ ] FIELD DUPLICATE COLLECTED
DUP. ID
TIME

[ ] MATRIX SPIKE COLLECTED
MS ID NA
TIME

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID
TIME

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

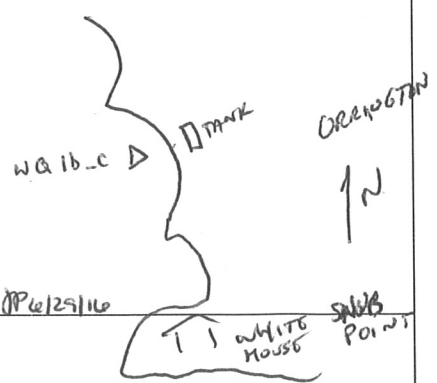
WATER QUALITY MET — MODEL NO. YSI 556 MPS — UNIT ID NO. M015-09

TURBIDITY METER — MODEL NO. Hach 2100Q — UNIT ID NO. M024-28

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	
X	Dissolved Mercury	1631e	4°c	250 ml PETG	
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	
X	Dissolve Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	
X	TSS	2450D	4°c	1 L Plastic	

NOTES/SKETCH NOT TO SCALE



Note:
DOC = field flltered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be lab filtered to avoid cross contamination in the field. FIELD FILTERED. JP 6/29/16

Sampler Signature: K. Bavor Print Name: KENDRA BAVOR

Checked By: B Wyl Date: 8/5/16

SURFACE WATER SAMPLING RECORD

amec foster wheeler

Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ2-C	6/30/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	0837	0905
SAMPLE ID	**SAMPLE TIME**	**PAGE**
WQ2-C_063016_SW_10	0900	1 of 1
Lat. 44 37.703	**Long.** 68 50.573	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 31 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 6000 ML/MIN

TIDE DIRECTION: [ ] INCOMING [X] OUTGOING

FIELD SKETCH: [ ] YES [ ] NO

TOTAL PURGE VOLUME: 1 GAL ~~ML~~

WATER QUALITY PARAMETERS:

TEMPERATURE	20.51	°C
SPEC. COND.	116.25	mS/cm
PH	7.27	pH Units
ORP	239.9	mV
TURBIDITY	5.32	NTUs
DO	7.30	mg/L
SALINITY	9.73	ppt

EQUIPMENT USED:

- [X] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP — Peristaltic Pump (Geopump)
- [X] FILTER — DOC - .45 micron
- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] _____

[ ] FIELD DUPLICATE COLLECTED
DUP. ID _____
TIME _____

[ ] MATRIX SPIKE COLLECTED
MS ID NA
TIME _____

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID _____
TIME _____

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

WATER QUALITY MET — MODEL NO. YSI 556 MPS — UNIT ID NO. M015-09

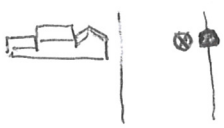
TURBIDITY METER — MODEL NO. Hach 2100Q — UNIT ID NO. M024-28

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	
X	Dissolved Mercury	1631e	4°c	250 ml PETG	
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	
X	Dissolve Methyl Mercury	1630	H_2SO_4 / 4°c	250 ml Borosilicate Glass	
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	
X	TSS	2450D	4°c	1 L Plastic	

NOTES/SKETCH

LOC BETWEEN LARGE WHITEHOUSE (3 SECTIONS) AND ROCK ON RIGHT SIDE OF RIVER WHEN TRAVELING UP STREAM



Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury will be ~~lab filtered to avoid cross contamination in the field.~~ FIELD FILTERED JP 6/30/16

Sampler Signature: Print Name:

Checked By: [signature] Date: 8/5/16

SURFACE WATER SAMPLING RECORD

amec foster wheeler
Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ3-L	6/29/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	0924	0954
SAMPLE ID	**SAMPLE TIME**	**PAGE**
WQ3-L_0629116_SW_10	0935	1 of 1
Lat. 44° 34.483	**Long.** 68° 48.529	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 24.2 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 600 ML/MIN

TIDE DIRECTION: [ ] INCOMING [X] OUTGOING

FIELD SKETCH: [✓] YES [ ] NO

TOTAL PURGE VOLUME: 1 GAL ~~ML~~

WATER QUALITY PARAMETERS:

TEMPERATURE	17.03	°C
SPEC. COND.	29.50	mS/cm
PH	7.86	pH Units
ORP	218.1	mV
TURBIDITY	4.64	NTUs
DO	8.23	mg/L
SALINITY	18.31	ppt

EQUIPMENT USED:

- [X] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP — Peristaltic Pump (Geopump)
- [X] FILTER — DOC - .45 micron

- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] _____

- [ ] FIELD DUPLICATE COLLECTED
  - DUP. ID _____
  - TIME _____
- [ ] MATRIX SPIKE COLLECTED
  - MS ID NA
  - TIME _____
- [ ] MATRIX SPIKE DUPLICATE COLLECTED
  - MSD ID _____
  - TIME _____

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

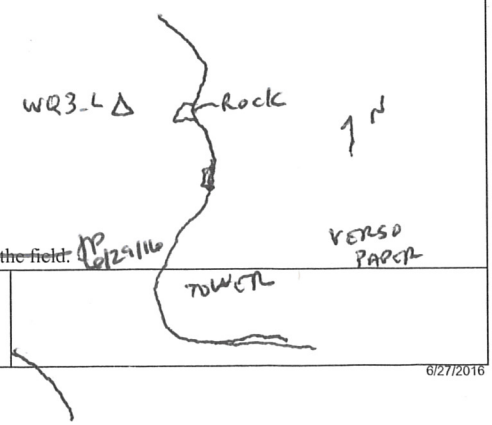
WATER QUALITY MET — MODEL NO. YSI 556 MPS — UNIT ID NO. M015-09

TURBIDITY METER — MODEL NO. Hach 2100 Q — UNIT ID NO. M024-28

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	
X	Dissolved Mercury	1631e	4°c	250 ml PETG	
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	
X	Dissolve Methyl Mercury	1630	H_2SO_4/ 4°c	250 ml Borosilicate Glass	
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	
X	TSS	2450D	4°c	1 L Plastic	

NOTES/SKETCH NOT TO SCALE



Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury ~~will be lab filtered to avoid cross contamination in the field.~~ FIELD FILTERED

Sampler Signature: _____ Print Name: KONDRA BAVOR

Checked By: _____ Date: 8/5/16

SURFACE WATER SAMPLING RECORD

amec foster wheeler
Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	ES-15	6/29/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	0849	0910
SAMPLE ID	**SAMPLE TIME**	**PAGE**
ES-15_062916_SW_10	0900	1 of 1
Lat. 44° 31.143	**Long.** 68° 47.751	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 26.5 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 600 ML/MIN

TIDE DIRECTION: [ ] INCOMING [X] OUTGOING

FIELD SKETCH: [X] YES [ ] NO

TOTAL PURGE VOLUME: 1 GAL ~~ML~~

WATER QUALITY PARAMETERS:

TEMPERATURE	15.24	°C
SPEC. COND.	37.14	mS/cm
PH	7.91	pH Units
ORP	221.3	mV
TURBIDITY	2.87	NTUs
DO	8.43	mg/L
SALINITY	23.59	ppt

EQUIPMENT USED:

- [X] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP — Peristaltic Pump (Geopump)
- [X] FILTER — DOC - .45 micron

- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] _____

[ ] FIELD DUPLICATE COLLECTED
DUP. ID _____
TIME _____

[ ] MATRIX SPIKE COLLECTED
MS ID NA
TIME _____

[ ] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID _____
TIME _____

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

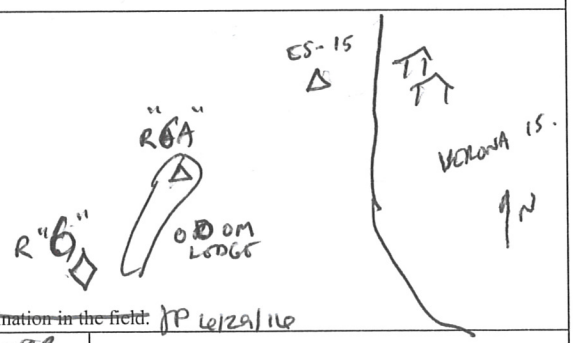
WATER QUALITY MET — MODEL NO. YSI 556 MPS — UNIT ID NO. M015-09

TURBIDITY METER — MODEL NO. Hach 2100 Q — UNIT ID NO. M024-28

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	
X	Dissolved Mercury	1631e	4°c	250 ml PETG	
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	
X	Dissolve Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	
X	TSS	2450D	4°c	1 L Plastic	

NOTES/SKETCH NOT TO SCALE



Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
dissolved mercury and dissolved methyl mercury ~~will be lab filtered to avoid cross contamination in the field.~~ FIELD FILTERED JP 6/29/16

Sampler Signature: _____ Print Name: KONDRA BAKER

Checked By: _____ Date: 8/5/16

SURFACE WATER SAMPLING RECORD

amec foster wheeler
Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ-ECH	6/29/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	0657	0748
SAMPLE ID	**SAMPLE TIME**	**PAGE**
WQ-ECH_0629116_SW_10	0745	1 of 1
Lat. 44° 31.334	**Long.** 68° 45.309	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 16.1 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 600 ML/MIN

TIDE DIRECTION: [ ] INCOMING [X] OUTGOING

FIELD SKETCH: [X] YES [ ] NO

TOTAL PURGE VOLUME: 4 gallons ~~1000 ML~~ JP 6/29/16

WATER QUALITY PARAMETERS:

TEMPERATURE	15.50	°C
SPEC. COND.	38.32	mS/cm
PH	7.41	pH Units
ORP	287.1	mV
TURBIDITY	3.77	NTUs
DO	7.98	mg/L
SALINITY	24.52	ppt

EQUIPMENT USED:

- [X] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP — Peristaltic Pump (Geopump)
- [X] FILTER — DOC - .45 micron

- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] _____

[X] FIELD DUPLICATE COLLECTED
DUP. ID WQ-ECH_0629116_SW_10_DUP
TIME 0745

[X] MATRIX SPIKE COLLECTED
MS ID WQ-ECH_0629116_SW_10_MS
TIME 0745

[X] MATRIX SPIKE DUPLICATE COLLECTED
MSD ID WQ-ECH_0629116_SW_10_MD
TIME 0745

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

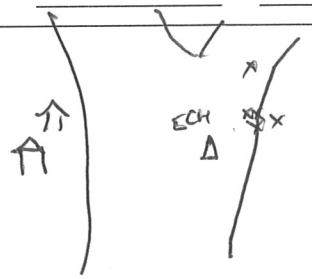
SAMPLING EQUIPMENT

WATER QUALITY MET — MODEL NO. YSI 556 MPS — UNIT ID NO. M015-09
TURBIDITY METER — MODEL NO. Hach 2100 Q — UNIT ID NO. M024-28

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	
X	Dissolved Mercury	1631e	4°c	250 ml PETG	
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	
X	Dissolve Methyl Mercury	1630	~~H_2SO_4~~ 4°c	250 ml Borosilicate Glass	
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	
X	TSS	2450D	4°c	1 L Plastic	

NOTES/SKETCH NOT TO SCALE



Note:
DOC = field filtered
PETG = Polyethelene Terephthalate Glycol
~~dissolved mercury and dissolved methyl mercury will be lab filtered to avoid cross contamination in the field.~~ FILTERED IN FIELD JP 6/29/16

Sampler Signature: [signature] Print Name: KENDRA BAVIL

Checked By: [signature] Date: 8/5/16

SURFACE WATER SAMPLING RECORD

amec foster wheeler
Amec Foster Wheeler
511 Congress Street
Suite 200
Portland, Maine 04101

PROJECT NAME	SAMPLE LOCATION	DATE
Penobscot River - 2016 Surface Water Sampling	WQ-FPT	6/29/16
PROJECT NUMBER	**START TIME**	**END TIME**
3616166052.04.04	0802	0832
SAMPLE ID	**SAMPLE TIME**	**PAGE**
WQ-FPT_062916_SW-10	0825	1 of 1
Lat. 44° 28.533 (473) KCB 6/29/16	**Long.** 68° 48.~~143~~ (153) KCB 6/29/16	

SURFACE WATER DATA

WATER DEPTH AT SAMPLE LOCATION: 6.6.7 FT.

DEPTH OF SAMPLE BELOW WATER SURFACE: 1 FT.

SAMPLING FLOW RATE: 700 ML/MIN

TIDE DIRECTION: [ ] INCOMING [X] OUTGOING

FIELD SKETCH: [✓] YES [ ] NO

TOTAL PURGE VOLUME: 1 GAL ~~ML~~

WATER QUALITY PARAMETERS:

TEMPERATURE	15.53	°C
SPEC. COND.	35.95	mS/cm
PH	7.86	pH Units
ORP	221.3	mV
TURBIDITY	3.04	NTUs
DO	~~90.4~~ 8.82	mg/L
SALINITY	22.74	ppt

JP 6/29/16

EQUIPMENT USED:

- [X] BEAKER
- [ ] BOTTLE
- [ ] PACS BOMB
- [X] PUMP — Peristaltic Pump (Geopump)
- [X] FILTER — DOC - .45 micron

- [X] 5 ft of lab precleaned 1/4 " Teflon Tubing
- [X] 3 ft of lab precleaned Masterflex Tubing

TYPE OF SURFACE WATER:

- [ ] STREAM
- [X] RIVER
- [ ] LAKE
- [ ] POND
- [ ] SEEP
- [ ] _____

- [ ] FIELD DUPLICATE COLLECTED
  - DUP. ID _____
  - TIME _____
- [ ] MATRIX SPIKE COLLECTED
  - MS ID NA
  - TIME _____
- [ ] MATRIX SPIKE DUPLICATE COLLECTED
  - MSD ID _____
  - TIME _____

DECON FLUIDS USED

- [ ] ALL USED
- [ ] LIQUINOX/DI H_2O SOLUTION
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] ETHYL ALCOHOL
- [X] N/A

SAMPLING EQUIPMENT

WATER QUALITY MET — MODEL NO. YSI 556 MPS — UNIT ID NO. M015-09

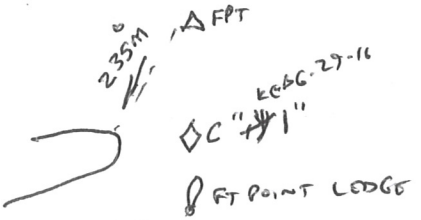
TURBIDITY METER — MODEL NO. Hach 2100 Q — UNIT ID NO. M024-28

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED
X	Total Mercury	1631e	4°c	250 ml PETG	
X	Dissolved Mercury	1631e	4°c	250 ml PETG	
X	Total Methyl Mercury	1630	H_2SO_4/4°c	250 ml Borosilicate Glass	
X	Dissolve Methyl Mercury	1630	H_2SO_4/ 4°c	250 ml Borosilicate Glass	
X	DOC	SW-846 / 9060	H_2SO_4/4°c	100 ml glass	
X	TSS	2450D	4°c	1 L Plastic	

NOTES/SKETCH NOT TO SCALE

Bearing: 235 towards FORT 1 point



Note:
DOC = field fllered
PETG = Polyethelene Terephthalate Glycol
~~dissolved mercury and dissolved methyl mercury will be lab filtered to avoid cross contamination in the field.~~ DISSOLVED Hg & Me_2Hg FIELD FILTERED JP 6/29/16

Sampler Signature: [signature] Print Name: KENDRA BAKER

Checked By: [signature] Date: 8/5/16

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Penobscot River - 2016 Surface Water Sampling
PROJECT NUMBER: 3616166052
PROJECT LOCATION: Winterport, Maine
WEATHER CONDITIONS (AM): 64°F, FOGGY
WEATHER CONDITIONS (PM): 70S, OVERCAST

TASK NO: .04.04 DATE: 10/29/16
SAMPLING CREW: Kendra Bavor, Julie Pallozzi
SAMPLER NAME: KB JP
SAMPLER SIGNATURE: Julie Pallozzi
CHECKED BY: BPW DATE: 11/5/16

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556 MPS
UNIT ID NO.: M015-09

AM CALIBRATION Start Time 0503 /End Time 0528

POST CALIBRATION CHECK Start Time 0757 /End Time 0804

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4.00	+/- 0.1 pH Units			
pH (7)	SU	7.0	6.99	+/- 0.1 pH Units	7.0	7.03	+/- 0.3 pH Units
pH (10)	SU	10.0	—	+/- 0.1 pH Units			
Redox	+/- mV	240	240.1	+/- 10 mV	240	241.2	+/- 10 mV
Conductivity	mS/cm	1.413	1.412	+/- 0.5% of standard	1.413	1.417	+/- 5% of standard
Salinity	ppt		0.71	in cond. soln		0.71	in cond. soln
DO (saturated)	%	100	100.5	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.71	8.71	+/- 0.2 mg/L	8.88	8.64	+/- 0.5 mg/L of standard
Temperature	°C		22.42			20.51	
Baro. Press.	mmHg		759.4			759.4	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100Q
UNIT ID NO.: M024-28

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	9.79	10	9.93	+/- 0.3 NTU of stan.
20 Standard	NTU	20	19.8	20	20.2	+/- 5% of standard
100 Standard	NTU	100	98.7	100	99.9	+/- 5% of standard
800 Standard	NTU	800	783	800	790	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
Methane	%	50		50		+/- 10% of standard
O_2	%	20.9	JP	20.9		+/- 10% of standard
H_2S	ppmv	25		25		+/- 10% of standard
CO	ppmv	50		50		+/- 10% of standard

OTHER METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

See Notes Below for Additional Information

☐ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L) Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	5GL345	12/17
pH (7)	5GL373	12/17
pH (10)	—	—
ORP	95167	11/20
Conductivity	~~5GL573~~ 5GL573	12/16
10 Turb. Stan.	A5180	10/16
20 Turb. Stan.	A5210	10/16
100 Turb. Stan.	A5177	10/16
800 Turb. Stan.	A5174	9/16
PID Span Gas	—	—
O_2-LEL Span Gas	—	—
Other	—	—

NOTES:

amec foster wheeler
511 Congress Street, Portland Maine 04101

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additional acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Penobscot River - 2016 Surface Water Sampling
PROJECT NUMBER: 3616166052
PROJECT LOCATION: Winterport, Maine
WEATHER CONDITIONS (AM): 60-70, SUNNY
WEATHER CONDITIONS (PM): 73°F, SUNNY

TASK NO: .04.04 DATE: 10/30/16
SAMPLING CREW: Kendra Bavor, Julie Pallozzi
SAMPLER NAME: KB JP
SAMPLER SIGNATURE: Julie Pallozzi
CHECKED BY: BGW DATE: 11/5/16

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556 MPS
UNIT ID NO.: M015-09

AM CALIBRATION Start Time 0807 /End Time 0816

POST CALIBRATION CHECK Start Time 0919 /End Time 0929

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4.00	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.00	+/- 0.1 pH Units	7.0	6.99	+/- 0.3 pH Units
pH (10)	SU	10.0	—	+/- 0.1 pH Units			
Redox	+/- mV	240	240.1	+/- 10 mV	240	238.2	+/- 10 mV
Conductivity	mS/cm	1.413	1.412	+/- 0.5% of standard	1.413	1.414	+/- 5% of standard
Salinity	ppt		0.71	in cond soln		0.71	in cond soln
DO (saturated)	%	100	98.8	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.88	8.87	+/- 0.2 mg/L	8.71	8.85	+/- 0.5 mg/L of standard
Temperature	°C		20.56			22.27	
Baro. Press.	mmHg		759.6			760.7	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100Q
UNIT ID NO.: M024-28

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	10.1	10	10.0	+/- 0.3 NTU of stan.
20 Standard	NTU	20	20.4	20	20.4	+/- 5% of standard
100 Standard	NTU	100	99.9	100	100	+/- 5% of standard
800 Standard	NTU	800	790	800	790	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE:
MODEL NO.:
UNIT ID NO.:

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
Methane	%	50		50		+/- 10% of standard
O_2	%	20.9		20.9		+/- 10% of standard
H_2S	ppmv	25		25		+/- 10% of standard
CO	ppmv	50		50		+/- 10% of standard

OTHER METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

See Notes Below for Additional Information

☐ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L): Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	SGL345	12/17
pH (7)	SGL373	12/17
pH (10)	—	—
ORP	9567	11/20
Conductivity	SGL573	12/16
10 Turb. Stan.	A5180	10/16
20 Turb. Stan.	A5210	10/16
100 Turb. Stan.	A5177	10/16
800 Turb. Stan.	A5174	9/16
PID Span Gas	—	—
O_2-LEL Span Gas	—	—
Other	—	—

NOTES:

amec foster wheeler
511 Congress Street, Portland Maine 04101

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additional acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

CHAIN OF CUSTODY

PAGE 1 OF 1

8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Date Rec'd in Lab:

ALPHA Job #:

Client Information

Client: AMEC FOSTER WHEELER
Address: 511 CONGRESS ST STE. 200
PORTLAND ME 04101
Phone: (207) 775-5401
Email: rod.pendleton@amecfw.com

Project Information

Project Name: PENOBSCOT RIVER
Project Location: PENOBSCOT RIVER
Project #: 3611611616052
Project Manager: ROD PENDLETON
ALPHA Quote #:

Report Information - Data Deliverables

☐ ADEx ☒ EMAIL

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☒ No MA MCP Analytical Methods ☐ Yes ☒ No CT RCP Analytical Methods
☐ Yes ☒ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☒ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☒ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Turn-Around Time

☒ Standard ☐ RUSH *(only confirmed if pre-approved!)*

Date Due:

Additional Project Information:

CONTACT DENISE KING W/ QUESTIONS: (978) 692-9090
AIRBILL: 8094 0561 9706

ANALYSIS

- VOC: ☐ 8260 ☐ 624 ☐ 524.2
- SVOC: ☐ ABN ☐ PAH
- METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
- METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
- EPH: ☐ Ranges & Targets ☐ Ranges Only
- VPH: ☐ Ranges & Targets ☐ Ranges Only
- ☐ PCB ☐ PEST
- TPH: ☐ Quant Only ☐ Fingerprint
- DOC 9060 (2x40mL glass)
- TSS 2450D (1L plastic)

SAMPLE INFO

Filtration
☒ Field
☐ Lab to do

Preservation
☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC	SVOC	METALS	METALS	EPH	VPH	PCB	TPH	DOC	TSS	Sample Comments	TOTAL # BOTTLES
	OV-02_062916_SW-10	6/29/16	1500	SW	KB									2	1		3
	WQ16-C_062916_SW-10	6/29/16	1040											2	1		3
	WQ2-C_063016_SW-10	6/30/16	0900											2	1		3
	WQ3-L_062916_SW-10	6/29/16	0935											2	1		3
	ES-15_062916_SW-10		0900											2	1		3
	WQ-ECH_062916_SW-10		0745											2	1		3
	WQ-FPT_062916_SW-10		0825											2	1		3
	WQ-ECH_062916_SW-10_DUP		0745											2	1		3
	WQ-ECH_062916_SW-10_MS													2	1	MATRIX SPIKE	3
	WQ-ECH_062916_SW-10_MD													2	1	MATRIX SPIKE DUP	3
																	30
					Container Type									A	P		
					Preservative									D	A		

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
Julie Pallozzi	6/30/16 1130		

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

eurofins | Frontier Global Sciences

11720 Northcreek Pkwy N, Suite 400
Bothell, WA 98011
Phone: 425-686-1996
Fax: 425-686-3096
info@frontiergs.com
http://www.frontiergs.com

Chain of Custody Record & Laboratory Analysis Request: Air, Water, Sediments, Plant and Animal Tissue, Hydrocarbon & Other Samples

Client: AMEC FOSTER WHEELER	Contact: DENISE KING
Address: 511 CONGRESS ST STE 200 PORTLAND ME 04101	Phone: 9786929090 Fax: 9786926633
	E-mail: denise.king@amecfw.com
Project Name: PENOBSCOT RIVER	Contract/PO:
Report To: DENISE KING	Invoice To: ROD PENDLETON
Address: 271 MILL RD CHELMSFORD MA 01824	Address: 511 CONGRESS ST STE 200 PORTLAND ME 04101
Phone: 978 692 9090 Fax: 978 692 6633	Phone: 2077755401 Fax: 2077724762
E-mail: denise.king@amecfw.com	E-mail: rod.pendleton@amecfw.com

EFGS PM:
Date:
TAT (business days) (20) (std) 15 10 5 4 3 2 24 hrs. (For TAT < 10 days, contact PM. Surcharges apply for expedited TAT)
Saturday delivery? ☐ Y ☐ N (If yes, please contact PM)
EDD ☒ Y ☐ N
QA ☒ Standard ☐ High

No.	Engraved Bottle ID	Sample ID	# of Bottles	Matrix	Date & Time	Sampled By	Field Filtered (Y/N) (DISSOLVED Hg/MeHg ONLY)	Field Preserved: H_2SO_4 (TOTAL MeHg + DISS) HNO3, HCl, BrCl Other (%)	T/D Hg 1631e (250mL FEP)	T/D MeHg 1630 (250mL BSG)					Comments
1		OY-02_062916_SW-10	4	SB	6/29/16 1500	KB	Y	Y	2	2					• DISSOLVED Hg/MeHg FIELD FILTERED • TOTAL + DISSOLVED MeHg PRESERVED WITH H_2SO_4
2		WQ16-C_062916_SW-10	4	↓	6/29/16 1040	↓	↓	↓	2	2					
3		WQ2-C_063016_SW-10	4		6/30/16 0900				2	2					
4		WQ3-L_062916_SW-10	4		6/29/16 0935				2	2					
5		ES-15_062916_SW-10	4		6/29/16 0900				2	2					
6		WQ-ECH_062916_SW-10	4		6/29/16 0745				2	2					
7		WQ-FPT_062916_SW-10	4		6/29/16 0825				2	2					
8		WQ-ECH_062916_SW-10_DUP	4		6/29/16 0745				2	2					
9		WQ-ECH_062916_SW-10_MS	4		6/29/16 ↓				2	2					→ MATRIX SPIKE
10		WQ-ECH_062916_SW-10_MD	4	↓	6/29/16 ↓				2	2					→ MATRIX SPIKE DUP
11		EB_062916_SW_QC	2	OT	6/29/16 1220	↓	↓	↓	1	1					→ DISSOLVED ONLY AIRBILL: 8094 0561 9717
12															

For Laboratory Use Only		Matrix Codes:	Relinquished By:	Received By:	Received By:
COC Seal:	Comments:	FW: Fresh Water	[signature]		
Cooler Temp:		WW: Waste Water	Name: JULIE PALLOZZI	Name:	Name:
Carrier:		SB: Sea and Brackish Water	Organization: AMEC FW	Organization:	Organization:
VTSR:		SS: Soil and Sediment	Date & Time: 6/30/16	Date & Time:	Date & Time:
# of Coolers:		TS: Plant and Animal Tissue	Tracking number: 8094 0561 9717		
		HC: Hydrocarbons			
		TR: Trap			
		OT: Other – BLANK WATER			

Sample Disposal:
☐ Return (shipping fees may apply)
☒ Standard Disposal – 30 Days after report
☐ Retain for ____ weeks after report (storage fees may apply)

By signing, you declare that you agree with EFGS' terms and conditions, and that you authorize EFGS to perform the specified analyses.

Customer Approval: ____________ Date: ________

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04
Location ID:	ADD-02	**Sample Crew:**	KB, JP
Date:	07/22/2016	**Latitude:**	44.6431
Sample ID:	ADD-02_072216_SW_10	**Longitude:**	-67.7201
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
16:38	.5	24.12	7.26	11.77	9.43	230.3	505	6.71

Water Depth:	1 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1gal	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Cloudy, Turbid

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Note:

Access .3 miles off 187 from RTE 1 take right onto red brick road, first fork turn right, then take a sharp right hand turn with the road, park/ turn around at red bucket, high clearance vehicle required, take path leading west from red bucket downhill onto marsh

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling
Pre-cleaned tubing provided by Eurofins for 1 time use.
Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, Serial No.):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Stainless Steel Spoon,Plastic Sampling Cup,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO24-27,
YSI 556 MPS MO15-11

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	EB	**Sample Crew:**	KB
Date:	07/19/2016	**Latitude:**	NA
Sample ID:	EB_071916_SW_QC	**Longitude:**	NA
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
12:15	NA	NA	NA	NA	NA	NA	NA	NA

Water Depth:	Purge from 1L blank water bottle	**QC Collected:**	Yes
Flow Rate (mL/min):	600	**Duplicate ID:**	N/A
Purge Volume:	1L	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C)

Analysis/Method(s): Dissolved Mercury (1631e), Dissolved Methyl Mercury (1630)

Location Sketch:

N/A

Notes:

Surface water equipment blank, used lab supplied blank water

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with lab supplied DI water prior to collecting the sample.

Instruments (Manufacturer, Model, Serial No.):

Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	ES-15	**Sample Crew:**	KB, JP
Date:	07/18/2016	**Latitude:**	44.519089
Sample ID:	ES-15_071816_SW_10	**Longitude:**	-68.795662
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
13:15	1	16.36	7.83	37.86	7.82	101.8	3.06	24.13

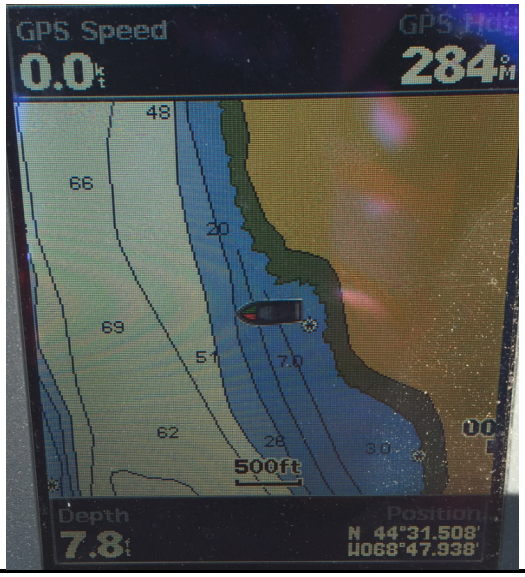
Water Depth:	13.3 ft	**QC Collected:**	No
Flow Rate (mL/min):	600	**Duplicate ID:**	N/A
Purge Volume:	1.5 gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Cloudy

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:



Notes:

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, Serial No.):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Plastic Sampling Cup,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO24-27,
YSI 556 MPS MO15-11

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	OV-02	**Sample Crew:**	KB, JP
Date:	07/18/2016	**Latitude:**	44.837206
Sample ID:	OV-02_071816_SW_10	**Longitude:**	68.701405
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
07:45	1	23.82	7.24	0.056	6.69	181.8	0.90	0.02

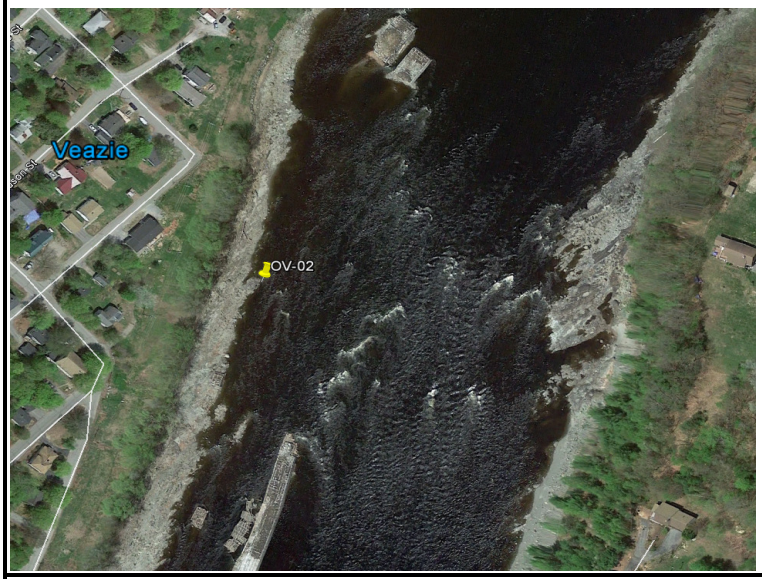
Water Depth:	3 ft	**QC Collected:**	No
Flow Rate (mL/min):	900	**Duplicate ID:**	N/A
Purge Volume:	1 gallon	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:



Notes:

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample Equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, Serial No.):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Plastic Sampling Cup,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO24-27,
YSI 556 MPS MO15-11

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ1b-c	**Sample Crew:**	KB, JP
Date:	07/18/2016	**Latitude:**	44.709637
Sample ID:	WQ1b-c_071816_SW_10	**Longitude:**	-68.839305
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
16:30	0.5	24.21	7.84	4.052	6.70	120.8	5.37	2.11

Water Depth:	11.1 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1 gallon	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A
Water Body and Water Quality Characteristics:	River, Flowing, Cloudy		
Container Types/ Preservatives:	250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)		
Analysis/Method(s):	Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)		

Location Sketch:

Notes:

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, Serial No.):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Plastic Sampling Cup,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO24-27,
YSI 556 MPS MO15-11

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ2-c	**Sample Crew:**	KB, JP
Date:	07/18/2016	**Latitude:**	44.62801
Sample ID:	WQ2-c_071816_SW_10	**Longitude:**	-68.842896
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
15:15	.5	21.56	7.72	17.81	7.48	126.4	9.77	10.42

Water Depth:	20.0 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	0.75 gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Cloudy

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, Serial No.):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Plastic Sampling Cup,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO24-27,
YSI 556 MPS MO15-11

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SURFACE WATER

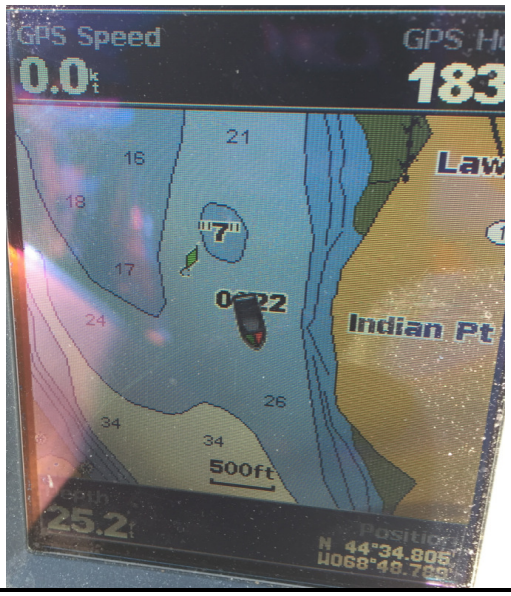
Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ3-L	**Sample Crew:**	KB, JP
Date:	07/18/2016	**Latitude:**	44.574658
Sample ID:	WQ3-L_071816_SW_10	**Longitude:**	-68.809133
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
14:00	0.5	18.66	7.80	30.88	7.48	115.5	3.52	19.11

Water Depth:	24.2 ft	**QC Collected:**	No
Flow Rate (mL/min):	600	**Duplicate ID:**	N/A
Purge Volume:	1 gallon	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A
Water Body and Water Quality Characteristics:	River, Flowing, Cloudy		
Container Types/ Preservatives:	250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)		
Analysis/Method(s):	Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)		

Location Sketch:



Notes:

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, Serial No.):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Plastic Sampling Cup,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO24-27,
YSI 556 MPS MO15-11

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ-ECH	**Sample Crew:**	KB, JP
Date:	07/18/2016	**Latitude:**	44.521467
Sample ID:	WQ-ECH_071816_SW_10	**Longitude:**	-68.755900
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
12:00	1	16.20	7.81	39.09	7.93	123.0	3.99	24.90

Water Depth:	13.5 ft	**QC Collected:**	Yes Duplicate, MS, MSD
Flow Rate (mL/min):	600	**Duplicate ID:**	WQ-ECH_071816_SW_10_DUP
Purge Volume:	3 gallons	**MS ID:**	WQ-ECH_071816_SW_10_MS
Tide Direction:	Outgoing	**MSD ID:**	WQ-ECH_071816_SW_10_MD

Water Body and Water Quality Characteristics: River, Flowing, Cloudy

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

Windy, used two filters, one boat traffic

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, Serial No.):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Plastic Sampling Cup,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO24-27,
YSI 556 MPS MO15-11

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ-FPT	**Sample Crew:**	KB, JP
Date:	07/18/2016	**Latitude:**	44.475179
Sample ID:	WQ-FPT_071816_SW_10	**Longitude:**	-68.801858
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
11:00	1	15.51	7.82	39.92	8.49	186.6	2.08	25.53

Water Depth:	57.5 ft	**QC Collected:**	No
Flow Rate (mL/min):	600	**Duplicate ID:**	N/A
Purge Volume:	1 gallon	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A
Water Body and Water Quality Characteristics:	River, Flowing, Cloudy		
Container Types/ Preservatives:	250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)		
Analysis/Method(s):	Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)		

Location Sketch:

Notes:

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, Serial No.):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Plastic Sampling Cup,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO24-27,
YSI 556 MPS MO15-11

Technician Signature:

Technician Name:

Julie Pallozzi

QA/QC'd by:	**Bradley P, Wolfe**	**QA/QC Date:**	**1/3/2017**

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	OV-02	**Sample Crew:**	KB, ICD
Date:	08/29/2016	**Latitude:**	44.837206
Sample ID:	OW-02_082916_SW_10	**Longitude:**	-68.701405
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
17:00	1	24.04	8.08	0.063	8.24	62.2	1.22	0.03

Water Depth:	6 ft	**QC Collected:**	Yes Duplicate, MS, MSD
Flow Rate (mL/min):	500	**Duplicate ID:**	OW-02_082916_SW_10_DUP
Purge Volume:	4.5 gallom	**MS ID:**	OW-02_082916_SW_10_MS
Tide Direction:	Outgoing	**MSD ID:**	OW-02_082916_SW_10_MD
Water Body and Water Quality Characteristics:	River, Flowing, Clear		
Container Types/ Preservatives:	250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)		
Analysis/Method(s):	Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)		

Location Sketch:

Notes:

All non preserved bottles are triple rinsed with sample

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100Q See cal log,
YSI 556 MPS See cal log

Technician Signature:

Technician Name:

Ian desjarlais

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ1b-c	**Sample Crew:**	KB,ICD
Date:	08/30/2016	**Latitude:**	44.716242
Sample ID:	WQ1b-c_083016_SW_10	**Longitude:**	-68.836341
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
13:25	1	23.45	8.01	1.290	8.15	-7.9	7.35	0.77

Water Depth:	17 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1.5	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

All non preserved bottles are triple rinsed with sample.

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100Q See cal log,
YSI 556 MPS See cal log

Technician Signature:

Technician Name:

Ian desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ2-C	**Sample Crew:**	KB,ICD
Date:	08/30/2016	**Latitude:**	44.632082
Sample ID:	WQ2-C_083016_SW_10	**Longitude:**	-68.841568
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
12:20	1	21.78	7.80	15.70	8.50	15.1	6.94	9.18

Water Depth:	25 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1 gallon	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

All bottles with no preserative are triple rinsed . During sample collection one outboard boat passed by.
Clean Hands/ Dirty Hands
Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.
Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100Q See cal log,
YSI 556 MPS See cal log

Technician Signature:

Technician Name:

Ian desjarlais

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ3-L	**Sample Crew:**	KB,ICD
Date:	08/30/2016	**Latitude:**	44.580046
Sample ID:	WQ3-L_083016_SW_10	**Longitude:**	-68.813185
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
11:20	1	17.82	7.85	38.42	7.70	10.3	8.73	24.48

Water Depth:	22 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1.6 gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

Used two filters. And demolition of paper mill in progress. Dust clouds in air.
All non preserved bottles are triple rinsed with sample
Clean Hands/ Dirty Hands
Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling
Pre-cleaned tubing provided by Eurofins for 1 time use.
Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100Q See cal log,
YSI 556 MPS See cal lo

Technician Signature:

Technician Name:

Ian desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ-ECH	**Sample Crew:**	KB,ICD
Date:	08/29/2016	**Latitude:**	44.527751
Sample ID:	1630 WQ-ECH_082916_SW_10	**Longitude:**	-68.754986
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
11:50	1.0	18.87	7.81	37.79	8.84	73.5	6.46	23.84

Water Depth:	14 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1.5gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

All non preserved bottles are triple rinsed with sample

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q See cal log,
YSI 556 MPS M015-14

Technician Signature:

Technician Name:

Ian desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ-ES15	**Sample Crew:**	KB,ICD
Date:	08/29/2016	**Latitude:**	44.525079
Sample ID:	ES-15_082916_SW_10	**Longitude:**	-68.798989
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
14:00	1ft	17.73	7.82	40.72	7.30	68.8	15.4	26.11

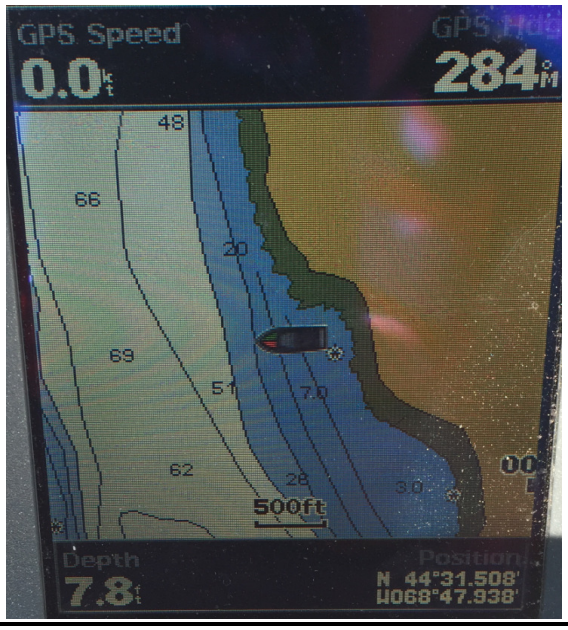
Water Depth:	8 ft	**QC Collected:**	No
Flow Rate (mL/min):	525	**Duplicate ID:**	N/A
Purge Volume:	1.5 gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:



Notes:

All non preserved containers are triple rinsed with sample water

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Masterflex Tubing (Lab Supplied)
Hach 2100Q See cal log,
YSI 556 MPS See cal log

Technician Signature:

Technician Name:

Ian desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ-FPT	**Sample Crew:**	KB,ICD
Date:	08/30/2016	**Latitude:**	44.468507
Sample ID:	WQ-FPT_083016_SW_10	**Longitude:**	-68.804078
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
1020	1	16.93	7.77	40.67	1.10	40.5	3.04	26.11

Water Depth:	55 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1.5 gallon	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

All non preserved bottles are triple rinsed

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100Q See cal log,
YSI 556 MPS See cal log

Technician Signature:

Technician Name:

Ian Desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	EB_092716_SW_QC	**Sample Crew:**	KB/ICD
Date:	09/27/2016	**Latitude:**	NA
Sample ID:	EB092716_SW_QC	**Longitude:**	NA
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
10:40	NA	NA	NA	NA	NA	NA	NA	NA

Water Depth:	NA	**QC Collected:**	No
Flow Rate (mL/min):	500.0	**Duplicate ID:**	N/A
Purge Volume:	0.5L	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: Other: Equipment blank

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

Equipment blank-use lab supplied DI water.
Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
,

Technician Signature:

Technician Name:

Ian Desjarlais

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	ES-15	**Sample Crew:**	KB/ICD
Date:	09/26/2016	**Latitude:**	44.525079
Sample ID:	ES-15_092616_SW_10	**Longitude:**	-68.798989
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
12:45	1	15.49	7.71	41.84	7.07	150	9.67	26.86

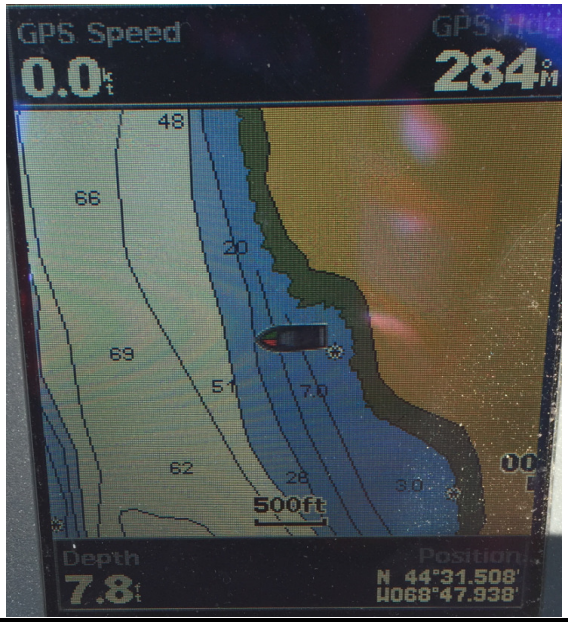
Water Depth:	7.3 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1.8gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:



Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO-24,
YSI 556 MPS MO15-16

Technician Signature:

Technician Name:

Ian Desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	OV-02	**Sample Crew:**	JB/ICD
Date:	09/27/2016	**Latitude:**	44.837206
Sample ID:	OV-02_092716_SW_10	**Longitude:**	-68.701405
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
16:10	1	17.02	7.48	0.044	10.11	65.8	0.61	0.02

Water Depth:	2.5 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1.6gallon	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO-24,
YSI 556 MPS MO15-16

Technician Signature:

Technician Name:

Ian Desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ1b-c	**Sample Crew:**	KB/ICD
Date:	09/27/2016	**Latitude:**	44.716242
Sample ID:	WQ1b-c_0927_SW_10	**Longitude:**	-68.836341
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
11:30	1.0	16.76	6.82	7.894	6.40	206.3	3.92	4.40

Water Depth:	34 ft	**QC Collected:**	Yes Duplicate, MS, MSD
Flow Rate (mL/min):	500	**Duplicate ID:**	WQ1b-c_092716_SW_10_DUP
Purge Volume:	4 gallons	**MS ID:**	WQ1b-c_092716_SW_10_MS
Tide Direction:	Outgoing	**MSD ID:**	WQ1b-c_092716_SW_10_MD
Water Body and Water Quality Characteristics:	River, Flowing, Clear		
Container Types/ Preservatives:	250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)		
Analysis/Method(s):	Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)		

Location Sketch:

Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO-24,
YSI 556 MPS MO15-16

Technician Signature:

Technician Name:

Ian Desjarlais

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ2-C	**Sample Crew:**	KB/ICD
Date:	09/26/2016	**Latitude:**	44.632082
Sample ID:	WQ2-C_092616_SW_10	**Longitude:**	-68.841568
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
14:10	1	18.17	7.55	16.51	7.05	99.2	5.94	9.70

Water Depth:	24.5 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1.2 gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO-24,
YSI 556 MPS MO15-16

Technician Signature:

Technician Name:

Ian Desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ3-L	**Sample Crew:**	KB/ICD
Date:	09/26/2016	**Latitude:**	44.580046
Sample ID:	WQ3-L_092616_SW_10	**Longitude:**	-68.813185
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
13:30	1	17.28	7.7	28.50	7.14	69.2	4.93	17.61

Water Depth:	25 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1.6gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO-24,
YSI 556 MPS MO-15-16

Technician Signature:

Technician Name:

Ian Desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ-ECH	**Sample Crew:**	KB/ICD
Date:	09/26/2016	**Latitude:**	44.527751
Sample ID:	WQ-ECH_092616_SW_10	**Longitude:**	-68.754986
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
11:00	1	15.41	7.33	37.85	37.79	254	4.57	24.1

Water Depth:	20 ft	**QC Collected:**	No
Flow Rate (mL/min):	450	**Duplicate ID:**	N/A
Purge Volume:	1.25gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Plastic Sampling Cup,Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q See calibration log,
YSI 556 MPS See calibration log

Technician Signature:

Technician Name:

Ian Desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

amec foster wheeler

SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ-FPT	**Sample Crew:**	KB/ICD
Date:	09/26/2016	**Latitude:**	44.468507
Sample ID:	WQ-FPT_092616_SW_10	**Longitude:**	-68.804078
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
11:55	1	15.46	7.73	41.90	8.24	175	2.87	26.82

Water Depth:	86.6 ft	**QC Collected:**	No
Flow Rate (mL/min):	500	**Duplicate ID:**	N/A
Purge Volume:	1.9 gallons	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C)

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D)

Location Sketch:

Notes:

Diesel lobster boat passes off port side.

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO-24,
YSI 556 MPS MO15-16

Technician Signature:

Technician Name:

Ian Desjarlais

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

Time 1725 Date 102616

EB_102616_SW_QC

Used lab provided Bottle, Tubing, Filter, and DI water.
Total and Disolved MeHg, Total and Disolved Hg, TOC, DOC

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	ES-15	**Sample Crew:**	BW, KB
Date:	10/26/2016	**Latitude:**	44.525079
Sample ID:	ES-15_102616_SW_10	**Longitude:**	-68.798989
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
11:00	1	11.27	8.04	40.33	9.47	187.5	2.81	25.78

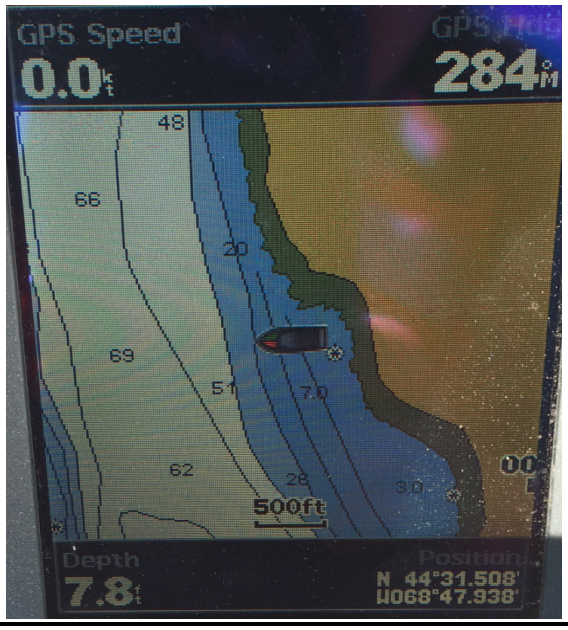
Water Depth:	57 ft	**QC Collected:**	No
Flow Rate (mL/min):	1000	**Duplicate ID:**	N/A
Purge Volume:	1 gallon	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 3X40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C); 3X40 ml AG H2SO4

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D), TOC 9060

Location Sketch:



Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100P MO24-39,
YSI 556 MPS MO 15-04

Technician Signature:

Technician Name:

Kendra Bavor

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	OV-02	**Sample Crew:**	KB, BW
Date:	10/26/2016	**Latitude:**	44.837206
Sample ID:	OV-02_102616_SW_10	**Longitude:**	-68.701405
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
17:50	1	9.60	8.70	0.243	12.25	71.3	0.00	0.09

Water Depth:	4 ft	**QC Collected:**	No
Flow Rate (mL/min):	1000	**Duplicate ID:**	N/A
Purge Volume:	1 gallon	**MS ID:**	N/A
Tide Direction:	Incoming	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 3X40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C); 3X40 ml AG H2SO4

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D), TOC 9060

Location Sketch:

Notes:

Collect EB_102616_SW_QC COLLECTED PRIOR TO THIS SAMPLE WITH SIMILAR EQUIPMENT
LABORATORY PROVIDED DI WATER
Flat wood planks and boards observed on rocks in middle of River.
Clean Hands/ Dirty Hands
Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling
Pre-cleaned tubing provided by Eurofins for 1 time use.
Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100P MO15-04,
YSI 556 MPS MO24-39-39

Technician Signature:

Technician Name:

Kendra Bavor

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ1b-c	**Sample Crew:**	KCB, BPW
Date:	10/25/2016	**Latitude:**	44.716242
Sample ID:	WQ1b-c_102516_SW_10	**Longitude:**	-68.836341
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
12:30	1	11.11	7.26	1.627	10.65	202	4.65	0.83

Water Depth:	33 ft	**QC Collected:**	Yes Duplicate, MS, MSD
Flow Rate (mL/min):	400	**Duplicate ID:**	WQ1b-c_102516_SW_10_DUP
Purge Volume:	3 gal	**MS ID:**	WQ1b-c_102516_SW_10_MS
Tide Direction:	Outgoing	**MSD ID:**	WQ1b-c_102516_SW_10_MD
Water Body and Water Quality Characteristics:	River		
Container Types/ Preservatives:	250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 2x40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C), 3x40 mL glass (H2SO4 and 4 C)		
Analysis/Method(s):	Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D), TOC (9060)		

Location Sketch:

Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied)
Hach 2100Q MO24-39,
YSI 556 MPS M015-04

Technician Signature:

Technician Name:

Brad Wolfe

QA/QC'd by:	**Kendra C. Bavor**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ2-c	**Sample Crew:**	KB, BW
Date:	10/26/2016	**Latitude:**	44.632082
Sample ID:	WQ2-c_102616_SW_10	**Longitude:**	-68.841568
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
14:05	1	11.13	8.19	13.51	9.84	154.9	3.81	7.86

Water Depth:	25.5 ft	**QC Collected:**	No
Flow Rate (mL/min):	1000	**Duplicate ID:**	N/A
Purge Volume:	1 gal	**MS ID:**	N/A
Tide Direction:	Incoming	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 3X40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C); 3X40 ml AG H2SO4

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D), TOC 9060

Location Sketch:

Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100P MO15-04,
YSI 556 MPS MO24-39-39

Technician Signature:

Technician Name:

Kendra Bavor

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ3-L	**Sample Crew:**	KB, BW
Date:	10/26/2016	**Latitude:**	44.580046
Sample ID:	WQ3-L_102616_SW_10	**Longitude:**	-68.813185
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
13:20	1	11.19	8.05	27.22	10.29	173.3	7.70	16.62

Water Depth:	29.3 ft	**QC Collected:**	No
Flow Rate (mL/min):	1000	**Duplicate ID:**	N/A
Purge Volume:	1 gal	**MS ID:**	N/A
Tide Direction:	Incoming	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 3X40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C); 3X40 ml AG H2SO4

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D), TOC 9060

Location Sketch:

Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100P MO15-04,
YSI 556 MPS MO24-39-39

Technician Signature:

Technician Name:

Kendra Bavor

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SURFACE WATER

44.5276	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ-ECH	**Sample Crew:**	KB, BW
Date:	10/26/2016	**Latitude:**	44.527751
Sample ID:	WQ-ECH_102616_SW_10	**Longitude:**	-68.754986
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
12:20	1	11.63	8.08	39.54	8.88	135.4	10.4	25.30

Water Depth:	17.9 ft	**QC Collected:**	No
Flow Rate (mL/min):	1000	**Duplicate ID:**	N/A
Purge Volume:	1 gallon	**MS ID:**	N/A
Tide Direction:	Incoming	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 3X40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C); 3X40 ml AG H2SO4

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D), TOC 9060

Location Sketch:

Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100P MO15-04,
YSI 556 MPS MO24-39-39

Technician Signature:

Technician Name:

Kendra Bavor

QA/QC'd by:	**Bradley P. Wolfe**	**QA/QC Date:**	**1/3/2017**

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SAMPLE COLLECTION LOG - SURFACE WATER

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04
Location ID:	WQ-FPT	**Sample Crew:**	KB, BW
Date:	10/26/2016	**Latitude:**	44.468507
Sample ID:	WQ-FPT_102616_SW_10	**Longitude:**	-68.804078
Sample Collected (Y/N):	Yes		

SURFACE WATER SAMPLE

Time	Intake Depth (feet)	Temp. (°C)	pH (units)	Specific Electrical Conductance (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Salinity (ppt)
11:45	1	11.42	8.11	42.89	9.70	98.1	1.6	27.49

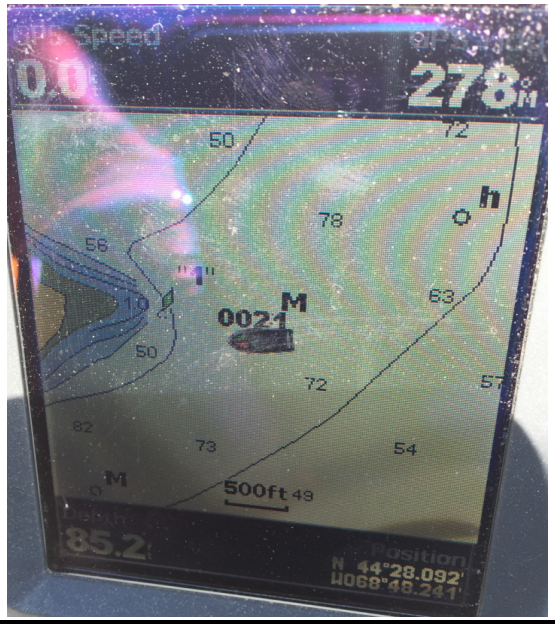
Water Depth:	52.5 ft	**QC Collected:**	No
Flow Rate (mL/min):	1000	**Duplicate ID:**	N/A
Purge Volume:	1 gal	**MS ID:**	N/A
Tide Direction:	Outgoing	**MSD ID:**	N/A

Water Body and Water Quality Characteristics: River, Flowing, Clear

Container Types/ Preservatives: 250 mL PETG (4 C); 250 mL BSG (H2SO4 and 4 C); 3X40 mL glass (H2SO4 and 4 C); 1 L plastic (4 C); 3X40 ml AG H2SO4

Analysis/Method(s): Total/Dissolved Mercury (1631e), Total/Dissolved Methyl Mercury (1630), DOC (9060), TSS (2450D), TOC 9060

Location Sketch:



Notes:

Clean Hands/ Dirty Hands

Surface Water Sampling was conducted according to the following SOPs included in the QAPP;
SOP S-3 Calibration of Field Instruments
SOP S-4 Surface Water Sampling
SOP S-5 Clean Hands/Dirty Hands Surface Water Sampling

Pre-cleaned tubing provided by Eurofins for 1 time use.

Sample equipment (IE, tubing and unpreserved containers) were triple rinsed with location specific sample water prior to collecting the sample.

Instruments (Manufacturer, Model, and SN):

Turbidity Meter, Water Quality Meter, Peristaltic Pump,Filter (0.45 micron),Teflon Tubing (Lab Supplied),Masterflex Tubing (Lab Supplied),Plastic bucket
Hach 2100Q MO15-04,
YSI 556 MPS MO24-39

Technician Signature:

Technician Name:

Kendra Bavor

QA/QC'd by: Bradley P. Wolfe **QA/QC Date:** 1/3/2017

APPENDIX A-3
2016 FIELD SAMPLING EQUIPMENT CALIBRATION LOGS

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Penobscot River - 2016 Surface Water Sampling
PROJECT NUMBER: 3616166052
PROJECT LOCATION: Winterport, Maine
WEATHER CONDITIONS (AM): 55°F, CLEAR
WEATHER CONDITIONS (PM): 70°F CLEAR

TASK NO: .04.04 DATE: 5/26/16
SAMPLING CREW: Kendra Bavor, Julie Polazzi
SAMPLER NAME: "
SAMPLER SIGNATURE: K. B
CHECKED BY: BJS DATE: 6/9/16

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556 MPS
UNIT ID NO.: 024218 PINE

AM CALIBRATION Start Time 0502 /End Time 0532

POST CALIBRATION CHECK Start Time 0627 /End Time 0641

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	3.99	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.00	+/- 0.1 pH Units	7.0	7.03	+/- 0.3 pH Units
pH (10)	SU	10.0	10.02	+/- 0.1 pH Units			
Redox	+/- mV	240	240.1	+/- 10 mV	240	235.1	+/- 10 mV
Conductivity	mS/cm	1.413	1.413	+/- 0.5% of standard	1.413	1.403	+/- 5% of standard
Salinity	ppt		0.71			0.68	
DO (saturated)	%	100	100.9	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	9.12	9.10	+/- 0.2 mg/L	8.8	8.61	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1	—	≤ 0.5 mg/L			
Temperature	°C		20.36			22.35	
Baro. Press.	mmHg		766.01			767	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100Q
UNIT ID NO.: 0259716 PINE

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
<0.1 Standard	NTU	10 ~~<0.1~~	9.80	10 ~~<0.1~~	9.87	+/- 0.3 NTU of stan.
20 Standard	NTU	20	19.5	20	19.6	+/- 5% of standard
100 Standard	NTU	100	101	100	102	+/- 5% of standard
800 Standard	NTU	800	798	800	805	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

Methane	%	50		50		+/- 10% of standard
O_2	%	20.9	KB 5-26-16	20.9		+/- 10% of standard
H_2S	ppmv	25		25		+/- 10% of standard
CO	ppmv	50		50		+/- 10% of standard

OTHER METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

See Notes Below for Additional Information

☐ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L): Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	5GL345	12/17
pH (7)	5AA012	1/17
pH (10)	5AA012	1/17
ORP	8032	9/19
Conductivity	6GC544	3/17
10 ~~0.1~~ Turb. Stan.	A5161	9/16
20 Turb. Stan.	A5170	9/16
100 Turb. Stan.	A5162	9/16
800 Turb. Stan.	A5167	9/16
PID Span Gas		
O_2-LEL Span Gas		
Other		

NOTES:
SALINITY RECORDED DURING CONDUCTIVITY CALIBRATION.

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511 Congress Street, Portland Maine 04101

* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additional acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

FRIDAY

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Penobscot River - 2016 Surface Water Sampling
PROJECT NUMBER: 3616166052
PROJECT LOCATION: Winterport, Maine
WEATHER CONDITIONS (AM): OVERCAST, 50-60°
WEATHER CONDITIONS (PM): OVERCAST, 50-60°
TASK NO: .04.04 DATE: 5/26/16 KB
SAMPLING CREW: Kendra Bavor, Julie Polazzi
SAMPLER NAME: "
SAMPLER SIGNATURE: [signature]
CHECKED BY: BJS DATE: 6/9/16

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556 MPS
UNIT ID NO.: 024218 PINE

AM CALIBRATION Start Time 0645 /End Time 0705

POST CALIBRATION CHECK Start Time 1039 /End Time 1046

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	3.99	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.00	+/- 0.1 pH Units	7.0	7.03	+/- 0.3 pH Units
pH (10)	SU	10.0	10.00	+/- 0.1 pH Units			
Redox	+/- mV	240	240.1	+/- 10 mV	240	240.1	+/- 10 mV
Conductivity	mS/cm	1.413	1.412	+/- 0.5% of standard	1.413	1.421	+/- 5% of standard
Salinity	ppt		0.71			0.71	
DO (saturated)	%	100	99.3	+/- 2% of standard			
DO (saturated)	mg/L [1] (see Chart 1)	8.8	8.62	+/- 0.2 mg/L	9.00	8.96	+/- 0.5 mg/L of standard
DO (<0.1)	mg/L	<0.1	—	≤ 0.5 mg/L			
Temperature	°C		22.28			20.53	
Baro. Press.	mmHg		767			767	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100Q
UNIT ID NO.: 0259716 PINE

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
<0.1 Standard	NTU	~~10 <0.1~~	0.87	~~10 <0.1~~	10.1	+/- 0.3 NTU of stan.
20 Standard	NTU	20	19.6	20	20.4	+/- 5% of standard
100 Standard	NTU	100	102	100	105	+/- 5% of standard
800 Standard	NTU	800	805	800	810	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE: ____
MODEL NO.: ____
UNIT ID NO.: ____

Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE: ____
MODEL NO.: ____
UNIT ID NO.: ____

Methane	%	50	KCB 5-27-16	50	+/- 10% of standard
O_2	%	20.9		20.9	+/- 10% of standard
H_2S	ppmv	25		25	+/- 10% of standard
CO	ppmv	50		50	+/- 10% of standard

OTHER METER

METER TYPE: ____
MODEL NO.: ____
UNIT ID NO.: ____

See Notes Below for Additional Information

☐ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced: ____
Trip Blank Source: ____
Sample Preservatives Source: ____
Disposable Filter Type: 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L): Portland FOS
- Other: ____
- Other: ____
- Other: ____

	Cal. Standard Lot Number	Exp. Date
pH (4)	5GL345	12/17
pH (7)	5AA012	1/17
pH (10)	5AA012	1/17
ORP	8032	9/19
Conductivity	6GC544	3/17
~~10~~ 0.1 Turb. Stan.	A5161	9/16
20 Turb. Stan.	A5170	9/16
100 Turb. Stan.	A5162	9/16
800 Turb. Stan.	A5167	9/16
PID Span Gas		
O_2-LEL Span Gas		
Other		

NOTES:

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* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additional acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Penobscot River - 2016 Surface Water Sampling
PROJECT NUMBER: 3616166052
PROJECT LOCATION: Winterport, Maine
WEATHER CONDITIONS (AM): 64°F, FOGGY
WEATHER CONDITIONS (PM): 70S, OVERCAST

TASK NO: .04.04 DATE: 10/29/16
SAMPLING CREW: Kendra Bavor, Julie Pallozzi
SAMPLER NAME: KB JP
SAMPLER SIGNATURE: Julie Pallozzi
CHECKED BY: BPW DATE: 11/3/16

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556 MPS
UNIT ID NO.: M015-09

AM CALIBRATION Start Time 0503 /End Time 0528

POST CALIBRATION CHECK Start Time 0757 /End Time 0804

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4.00	+/- 0.1 pH Units			
pH (7)	SU	7.0	6.99	+/- 0.1 pH Units	7.0	7.03	+/- 0.3 pH Units
pH (10)	SU	10.0	—	+/- 0.1 pH Units			
Redox	+/- mV	240	240.1	+/- 10 mV	240	241.2	+/- 10 mV
Conductivity	mS/cm	1.413	1.412	+/- 0.5% of standard	1.413	1.417	+/- 5% of standard
Salinity	ppt		0.71	in cond. soln		0.71	in cond. soln
DO (saturated)	%	100	100.5	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.71	8.71	+/- 0.2 mg/L	8.88	8.64	+/- 0.5 mg/L of standard
Temperature	°C		22.42			20.51	
Baro. Press.	mmHg		759.4			759.4	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100Q
UNIT ID NO.: M024-28

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	9.79	10	9.93	+/- 0.3 NTU of stan.
20 Standard	NTU	20	19.8	20	20.2	+/- 5% of standard
100 Standard	NTU	100	98.7	100	99.9	+/- 5% of standard
800 Standard	NTU	800	783	800	790	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE:
MODEL NO.:
UNIT ID NO.:

Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

Methane	%	50		50	+/- 10% of standard
O_2	%	20.9	JP	20.9	+/- 10% of standard
H_2S	ppmv	25		25	+/- 10% of standard
CO	ppmv	50		50	+/- 10% of standard

OTHER METER

METER TYPE:
MODEL NO.:
UNIT ID NO.:

See Notes Below for Additional Information

☐ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L) Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	SGL345	12/17
pH (7)	SGL373	12/17
pH (10)	—	—
ORP	95167	11/20
Conductivity	~~SGL573~~ SGL573	12/16
10 Turb. Stan.	A5180	10/16
20 Turb. Stan.	A5210	10/16
100 Turb. Stan.	A5177	10/16
800 Turb. Stan.	A5174	9/16
PID Span Gas	—	—
O_2-LEL Span Gas	—	—
Other	—	—

NOTES:

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* = Unless otherwise noted, calibration procedures and acceptance criteria are in general accordance with USEPA Region 1 SOPs for Field Instrument Calibration (EQASOP-FieldCalibrat) and Low Stress Purging and Sampling (EQASOP-GW001), each dated 1/19/2010. Additional acceptance criteria obtained from instrument specific manufacturer recommendations.
** = If meter reading is not within acceptance criteria, clean/replace probe and re-calibrate, or use calibrated back-up meter if available. If project requirements necessitate use of the instrument, clearly document any deviations from acceptance criteria on all data sheets and log book entries.
1 = DO Saturated standard value is calculated based on Oxygen Solubility at Indicated Pressure Chart from the USEPA Region 1 SOP for Field Instrument Calibration (EQASOP-FieldCalibrat), dated 1/19/2010.

FIELD INSTRUMENTATION CALIBRATION RECORD

PROJECT NAME: Penobscot River - 2016 Surface Water Sampling
PROJECT NUMBER: 3616166052
PROJECT LOCATION: Winterport, Maine
WEATHER CONDITIONS (AM): 60-70, SUNNY
WEATHER CONDITIONS (PM): 73°F, SUNNY

TASK NO: .04.04 DATE: 10/30/16
SAMPLING CREW: Kendra Bavor, Julie Pallozzi
SAMPLER NAME: KB JP
SAMPLER SIGNATURE: Julie Pallozzi
CHECKED BY: BGW DATE: 8/5/16

MULTI-PARAMETER WATER QUALITY METER

METER TYPE: YSI
MODEL NO.: 556 MPS
UNIT ID NO.: M015-09

AM CALIBRATION Start Time 0807 /End Time 0816

POST CALIBRATION CHECK Start Time 0919 /End Time 0929

	Units	Standard Value	Meter Value	*Acceptance Criteria (AM)	Standard Value	Meter Value	*Acceptance Criteria (PM)
pH (4)	SU	4.0	4.00	+/- 0.1 pH Units			
pH (7)	SU	7.0	7.00	+/- 0.1 pH Units	7.0	6.99	+/- 0.3 pH Units
pH (10)	SU	10.0	—	+/- 0.1 pH Units			
Redox	+/- mV	240	240.1	+/- 10 mV	240	238.2	+/- 10 mV
Conductivity	mS/cm	1.413	1.412	+/- 0.5% of standard	1.413	1.414	+/- 5% of standard
Salinity	ppt		0.71	in cond Soln		0.71	in cond Soln
DO (saturated)	%	100	98.8	+/- 2% of standard			
DO (saturated)	mg/L[1] (see Chart 1)	8.88	8.87	+/- 0.2 mg/L	8.71	8.85	+/- 0.5 mg/L of standard
Temperature	°C		20.56			22.27	
Baro. Press.	mmHg		759.6			760.7	

TURBIDITY METER

METER TYPE: HACH
MODEL NO.: 2100Q
UNIT ID NO.: M024-28

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
10 Standard	NTU	10	10.1	10	10.0	+/- 0.3 NTU of stan.
20 Standard	NTU	20	20.4	20	20.4	+/- 5% of standard
100 Standard	NTU	100	99.9	100	100	+/- 5% of standard
800 Standard	NTU	800	790	800	790	+/- 5% of standard

PHOTOIONIZATION DETECTOR

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
Background	ppmv	<0.1		<0.1		within 5 ppmv of BG
Span Gas	ppmv	100		100		+/- 10% of standard

O_2-LEL 4 GAS METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

	Units	Standard Value	Meter Value	Standard Value	Meter Value	*Acceptance Criteria (PM)
Methane	%	50		50		+/- 10% of standard
O_2	%	20.9	JP	20.9		+/- 10% of standard
H_2S	ppmv	25		25		+/- 10% of standard
CO	ppmv	50		50		+/- 10% of standard

OTHER METER

METER TYPE: _____
MODEL NO.: _____
UNIT ID NO.: _____

See Notes Below for Additional Information

☐ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.
☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above**.

MATERIALS RECORD

Deionized Water Source: Portland FOS
Lot#/Date Produced:
Trip Blank Source:
Sample Preservatives Source:
Disposable Filter Type: 0.45µm cellulose
Calibration Fluids / Standard Source:
- DO Calibration Fluid (<0.1 mg/L) Portland FOS
- Other
- Other
- Other

	Cal. Standard Lot Number	Exp. Date
pH (4)	SGL345	12/17
pH (7)	SGL373	12/17
pH (10)	—	—
ORP	9567	11/20
Conductivity	SGL573	12/16
10 Turb. Stan.	A5180	10/16
20 Turb. Stan.	A5210	10/16
100 Turb. Stan.	A5177	10/16
800 Turb. Stan.	A5174	9/16
PID Span Gas	—	—
O_2-LEL Span Gas	—	—
Other	—	—

NOTES:

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EQUIPMENT CALIBRATION AND TRACKING LOG

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04	**Date:**	07/22/2016
Weather (AM):	Partly cloudy, high 60s	**Calibration Start Time:**	04:40	**Calibration End Time:**	19:58
Weather (PM):	Mostly clear skies, 70-80	**Sample Technician:**		Julie Pallozzi	

Morning (AM) Calibration

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
04:40	24.89	4.00 7.00 NA	9.74 19.7 99.2 782	1.413	99.7 8.24		240.9	757.1	

Afternoon (PM) Calibration Check

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
05:05	23.64	NA 6.95 NA	9.81 20.0 98.5 794	1.439	NA 8.68		238.1	753.3	

Calibration Materials Record:

pH Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
pH (4)	6GA048	01/22/2018
pH (7)	5GK328	11/22/2017
pH (10)	NA	

Specific Electrical Conductance, Salinity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
Spec. Conductance	8GC013	04/22/2017
D.O.	NA	
Salinity	9567	11/22/2020
ORP	9567	11/22/2020

Turbidity Standards

Standard	Cal. Standard Lot #	Expiration Date
10	A5180	10/22/2016
20	A5210	10/22/2016
100	A5177	10/22/2016
800	A5174	09/22/2016

Instruments (Manufacturer, Model, and Serial No.):

	Manufacturer/Model	Serial No
Water Quality Meter:	YSI 556 MPS	MO15-11
Turbidity Meter:	Hach 2100Q	MO24-27
GPS Unit:	NA NA	NA

Calibrated Within Acceptance Criteria (Y/N): Yes

If No, Provide Explanation:

GPS Coordinate system:

Map Projection:

Lat/Long; SPC X/Y:

Notes:

Technician Signature:

Technician Name (print): Julie Pallozzi

QA/QC'd by: BPW **QA/QC Date:** 1/3/2017

EQUIPMENT CALIBRATION AND TRACKING LOG

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Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04	**Date:**	07/18/2016
Weather (AM):	Overcast, fog	**Calibration Start Time:**	07:14	**Calibration End Time:**	06:45
Weather (PM):	Clear, 10knot n wind 60'sF	**Sample Technician:**		Julie Pallozzi	

Morning (AM) Calibration

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
07:14	21.07	4.00 6.99 NA	10.1 19.9 98.9 787	1.412	98.8 8.80		240.1	761.3	Salinity: 0.70 ppt in conductivity solution

Afternoon (PM) Calibration Check

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
07:29	22.53	NA 6.90 NA	9.76 19.7 98.4 786	1.404	NA 8.80		236.3	761.3	Salinity 0.76 in conductivity solution

Calibration Materials Record:

pH Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
pH (4)	6ga048	01/19/2018
pH (7)	5gk328	11/19/2017
pH (10)	NA	

Specific Electrical Conductance, Salinity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
Spec. Conductance	9567	04/19/2017
D.O.	FOS	
Salinity	8gc013	04/19/2020
ORP	8gc013	04/19/2020

Turbidity Standards

Standard	Cal. Standard Lot #	Expiration Date
10	A5180	10/19/2016
20	A5210	10/19/2016
100	A5177	10/19/2016
800	A5174	09/19/2016

Instruments (Manufacturer, Model, and Serial No.):

	Manufacturer/Model	Serial No
Water Quality Meter:	YSI 556 MPS	M015-11
Turbidity Meter:	Hach 2100Q	M024-27
GPS Unit:	NA NA	NA

Calibrated Within Acceptance Criteria (Y/N): Yes

If No, Provide Explanation:

GPS Coordinate system:

Map Projection:

Lat/Long; SPC X/Y:

Notes:

Temperature NIST serial# 4f2160 Certificate 2448.01

Technician Signature:

Technician Name (print): Julie Pallozzi

QA/QC'd by: BPW **QA/QC Date:** 1/3/2017

EQUIPMENT CALIBRATION AND TRACKING LOG

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04	**Date:**	08/29/2016
Weather (AM):	Partly cloudy	**Calibration Start Time:**	09:54	**Calibration End Time:**	18:30
Weather (PM):	Partly cloudy	**Sample Technician:**		I. Desjarlais	

Morning (AM) Calibration

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
09:54	67	4.01 7.0 NA	10.2 20.1 100 809	1.413	100.2 8.33		239.0	760.7	

Afternoon (PM) Calibration Check

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
10:00	75	NA 7.01 NA	10.0 20.3 100 793	1.389	NA 9.56		243.9	765.2	

Calibration Materials Record:

pH Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
pH (4)	6ga048	12/01/2018
pH (7)	5gk328	11/01/2017
pH (10)		

Specific Electrical Conductance, Salinity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
Spec. Conductance	8gc013	04/01/2017
D.O.		
Salinity	9567	11/01/2020
ORP	9567	11/01/2020

Turbidity Standards

Standard	Cal. Standard Lot #	Expiration Date
10	A6207	10/01/2017
20	A6207	10/01/2017
100	A6208	10/01/2017
800	A6202b	10/01/2017

Instruments (Manufacturer, Model, and Serial No.):

	Manufacturer/Model	Serial No
Water Quality Meter:	YSI 556 MPS	M015-14
Turbidity Meter:	Hach 2100Q	M024-39
GPS Unit:	Trimble R1	5522453744

Calibrated Within Acceptance Criteria (Y/N): Yes

If No, Provide Explanation:

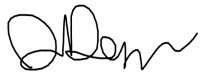
GPS Coordinate system: WGS84

Map Projection:

Lat/Long; SPC X/Y: DecdegreesDecdegrees

Notes:

Technician Signature:



Technician Name (print): I. Desjarlais

QA/QC'd by: BPW **QA/QC Date:** 1/3/2017

EQUIPMENT CALIBRATION AND TRACKING LOG

Project Name:	USDC Penobscot River	**Project Number:**	3616166052.04.04	**Date:**	08/30/2016
Weather (AM):	Partly cloudy	**Calibration Start Time:**	08:09	**Calibration End Time:**	14:25
Weather (PM):	Partly cloudy	**Sample Technician:**		Ian Desjarlais	

Morning (AM) Calibration

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
08:09	22.04	4.0 7.0 Na	10 20.4 100 792	1.413	100.7 9.53		240	765.3	

Afternoon (PM) Calibration Check

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
08:40	24.17	NA 6.94 NA	9.70 20.0 98.8 795	1.410	NA 8.43		232.6	763.5	

Calibration Materials Record:

pH Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
pH (4)	6ga048	01/01/2018
pH (7)	5gk328	11/01/2017
pH (10)		

Specific Electrical Conductance, Salinity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
Spec. Conductance	8gc013	04/01/2017
D.O.		
Salinity	9567	11/01/2020
ORP	9567	11/01/2020

Turbidity Standards

Standard	Cal. Standard Lot #	Expiration Date
10	A6207	10/01/2017
20	A6207	10/30/2017
100	A6208	10/30/2017
800	A6202b	10/30/2017

Instruments (Manufacturer, Model, and Serial No.):

	Manufacturer/Model	Serial No
Water Quality Meter:	YSI 556 MPS	M015-14
Turbidity Meter:	Hach 2100Q	M024-39
GPS Unit:	Trimble R1 GNSS	5522453744

Calibrated Within Acceptance Criteria (Y/N): Yes

If No, Provide Explanation:

GPS Coordinate system: WGS84

Map Projection:

Lat/Long; SPC X/Y: DECDEGREESDECDEGREES

Notes:

Technician Signature:

Technician Name (print): Ian Desjarlais

QA/QC'd by: BPW **QA/QC Date:** 1/3/2017

EQUIPMENT CALIBRATION AND TRACKING LOG

Project Name:	USDC Penobscot River	**Project Number:**	3616166052	**Date:**	09/26/2016
Weather (AM):	Sunny clear cold 40s	**Calibration Start Time:**	09:00	**Calibration End Time:**	17:20
Weather (PM):	Clear hot.	**Sample Technician:**		Ian Desjarlais	

Morning (AM) Calibration

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
09:00	14.5	4.0	9.67	1.412	100.9 10.26		240.1	767.1	
		7.0	20.2						
			101						
		NA	784						

Afternoon (PM) Calibration Check

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
09:30	15.5	NA	10.3	1.413	NA NM see note		229	763	
		6.8	23.2						
			103						
		NA	788						

Calibration Materials Record:

pH Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
pH (4)	6GA048	01/01/2018
pH (7)	5GK328	11/01/2017
pH (10)		

Specific Electrical Conductance, Salinity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
Spec. Conductance	8GC013	04/01/2017
D.O.		
Salinity	9567	11/01/2020
ORP	9567	11/01/2020

Turbidity Standards

Standard	Cal. Standard Lot #	Expiration Date
10	A6207	10/01/2017
20	A6207	10/01/2017
100	A6208	10/01/2017
800	A6202B	10/01/2017

Instruments (Manufacturer, Model, and Serial No.):

	Manufacturer/Model	Serial No
Water Quality Meter:	YSI 556 MPS	MO15-16
Turbidity Meter:	Hach 2100Q	MO-24
GPS Unit:	trimble R1	5548458517

Calibrated Within Acceptance Criteria (Y/N): Yes

If No, Provide Explanation:

GPS Coordinate system: WGS84

Map Projection:

Lat/Long; SPC X/Y: DecdegreeDecdegrees

Notes:

A typical behavior from DO meter. Morning calibration acceptable, readings in field began at 999% and slowly leveled out. Perform "uncal" on DO and ORP prior to next day calibration. KB performs end of day cal check.

Technician Signature:

Technician Name (print): Ian Desjarlais

QA/QC'd by: BPW **QA/QC Date:** 1/3/2017

EQUIPMENT CALIBRATION AND TRACKING LOG

Project Name:	USDC Penobscot River	**Project Number:**	3616166052	**Date:**	09/27/2016
Weather (AM):	Raining	**Calibration Start Time:**	08:40	**Calibration End Time:**	21:20
Weather (PM):	Partly cloudy	**Sample Technician:**		Ian Desjarlais	

Morning (AM) Calibration

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
08:40	18.17	4 7 Na	10.3 20.5 100 789	1.413	100 9.37		240.4	759.9	Conduct uncal on DO prior to calibration

Afternoon (PM) Calibration Check

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
08:57	19.34	NA 7.0 NA	10.3 21.2 97.4 827	1.408	NA 9.21		237.1	763.5	

Calibration Materials Record:

pH Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
pH (4)	6GA048	01/01/2018
pH (7)	5GK328	11/01/2017
pH (10)		

Specific Electrical Conductance, Salinity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
Spec. Conductance	8GC013	04/01/2017
D.O.		
Salinity	9567	11/01/2020
ORP	9567	11/01/2020

Turbidity Standards

Standard	Cal. Standard Lot #	Expiration Date
10	A6207	10/01/2017
20	A6207	10/01/2017
100	A6208	10/01/2017
800	A6202B	10/01/2017

Instruments (Manufacturer, Model, and Serial No.):

	Manufacturer/Model	Serial No
Water Quality Meter:	YSI 556 MPS	MO15-16
Turbidity Meter:	Hach 2100Q	MO-24
GPS Unit:	Trimble R1	5548458517.

Calibrated Within Acceptance Criteria (Y/N): Yes

If No, Provide Explanation:

GPS Coordinate system: WGS84

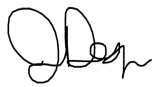
Map Projection:

Lat/Long; SPC X/Y: Dec degreeDeCdegrees

Notes:

DO sensor initiates at 999% and then lowers to 100% over course of ~15 minutes.

Technician Signature:



Technician Name (print): Ian Desjarlais

QA/QC'd by: BPW **QA/QC Date:** 1/3/2017

EQUIPMENT CALIBRATION AND TRACKING LOG

Project Name:	USDC Penobscot River	**Project Number:**		**Date:**	10/25/2016
Weather (AM):	Overcast, 42 degrees	**Calibration Start Time:**	10:28	**Calibration End Time:**	18:30
Weather (PM):	Same	**Sample Technician:**		BPW	

Morning (AM) Calibration

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
10:28	14.99	3.95	9.38	1.413	101.6 10.32		240.5	757.9	
		7.03	20.3						
			101						
		NA	787						

Afternoon (PM) Calibration Check

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
10:44	20.00	NA	9.68	1.390	NA 8.84		230.6	766.2	
		7.02	21.5						
			109						
		NA	812						

Calibration Materials Record:

pH Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
pH (4)	6GA048	01/25/2018
pH (7)	5GK328	11/25/2017
pH (10)	NA	

Specific Electrical Conductance, Salinity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
Spec. Conductance	8GC013	04/25/2017
D.O.	NA	
Salinity	9567	11/25/2020
ORP	9567	11/25/2020

Turbidity Standards

Standard	Cal. Standard Lot #	Expiration Date
10	A6207	10/25/2017
20	A6207	10/25/2017
100	A6208	10/25/2017
800	A6202B	10/25/2017

Instruments (Manufacturer, Model, and Serial No.):

	Manufacturer/Model	Serial No
Water Quality Meter:	YSI 556 MPS	M015-04
Turbidity Meter:	Hach 2100Q	M024-39
GPS Unit:	Trimble R1GNSS	#1

Calibrated Within Acceptance Criteria (Y/N): Yes

If No, Provide Explanation:

GPS Coordinate system: NAD83

Map Projection:

Lat/Long; SPC X/Y:

Notes:

N/A

Technician Signature:

Technician Name (print): BPW

QA/QC'd by: KCB **QA/QC Date:** 1/3/2017

EQUIPMENT CALIBRATION AND TRACKING LOG

Project Name:	USDC Penobscot River	**Project Number:**		**Date:**	10/26/2016
Weather (AM):	Overcast, raining, 37-40 degrees	**Calibration Start Time:**	08:00	**Calibration End Time:**	18:50
Weather (PM):	Same	**Sample Technician:**		Brad Wolfe	

Morning (AM) Calibration

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
08:00	20.05	4.00	9.87	1.413	100.8 9.17		240	766.2	
		7.00	19.3						
			98.6						
		N/A	785						

Afternoon (PM) Calibration Check

Time (24hr)	Temperature (°C)	pH (SU)	Turbidity (NTUs)	Specific Electrical Conductance (mS/cm)	D.O. (%, mg/L)	Salinity (ppt)	ORP/Eh (mV)	Barometric Pressure (mm Hg)	Comments
08:20	7.34	NA	9.8	1.428	NA 13.11		248.2	770	
		6.97	19.7						
			99.2						
		NA	811						

Calibration Materials Record:

pH Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
pH (4)	AGA048	01/31/2018
pH (7)	JGK328	11/30/2017
pH (10)	N/A	

Specific Electrical Conductance, Salinity, Dissolved Oxygen (DO) and Oxidation Reduction Potential (ORP) Calibration Standards

Standard	Cal. Standard Lot #	Expiration Date
Spec. Conductance	8GC013	04/30/2017
D.O.	N/A	
Salinity	9567	11/30/2020
ORP	9567	11/30/2020

Turbidity Standards

Standard	Cal. Standard Lot #	Expiration Date
10	A6207	10/31/2017
20	A6207	10/31/2017
100	A6208	10/31/2017
800	A6202B	10/31/2017

Instruments (Manufacturer, Model, and Serial No.):

	Manufacturer/Model	Serial No
Water Quality Meter:	YSI 556 MPS	M015-04
Turbidity Meter:	Hach 2100Q	M024-39
GPS Unit:	Trimble R1GNSS	#1

Calibrated Within Acceptance Criteria (Y/N): Yes

If No, Provide Explanation:

GPS Coordinate system: NAD83

Map Projection:

Lat/Long; SPC X/Y:

Notes:

Technician Signature:

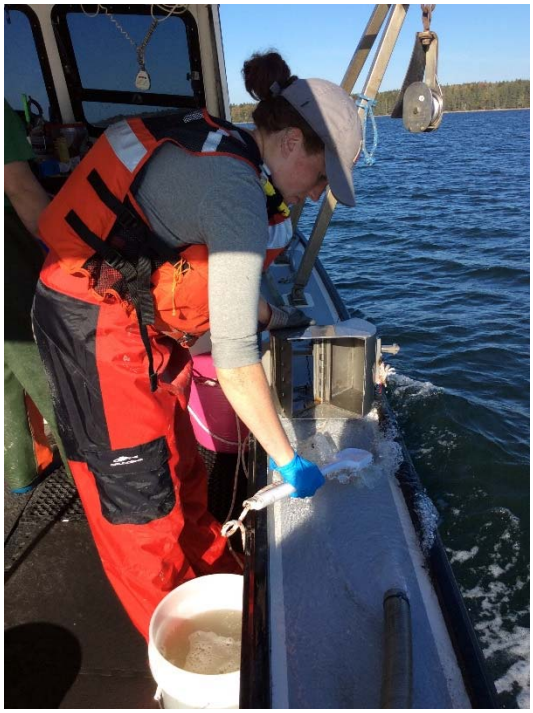
Technician Name (print): Brad Wolfe

QA/QC'd by: KCB **QA/QC Date:** 1/3/2017

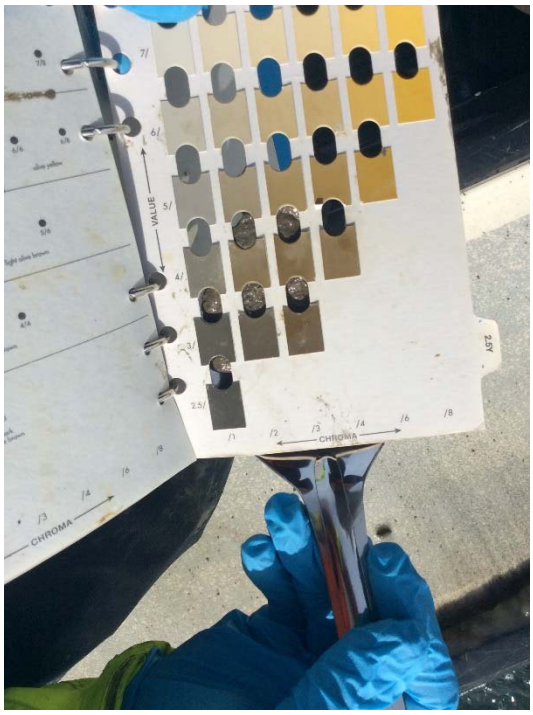
APPENDIX A-4
2016 FIELD ACTIVITY PHOTOGRAPHS

ES-04 Sediment sample.

Two different sized Ponars used to collect subtidal sediment samples.


Decontaminating Ponar during subtidal sediment sampling.


Ponar used to collect subtidal sediment samples.



Munsell soil color chart used to describe sediment sample.

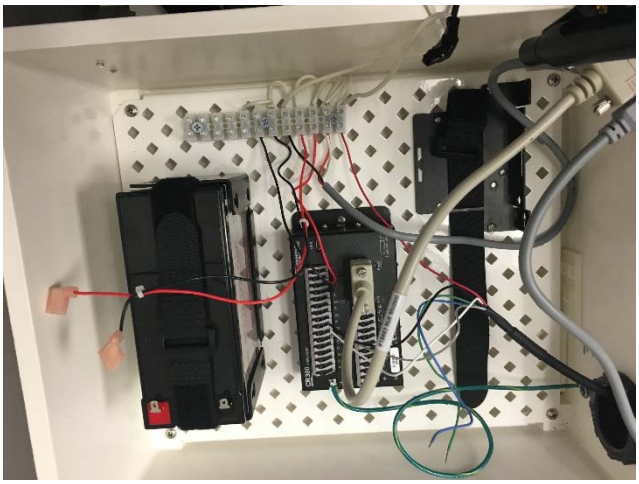

Stainless steel spoon used to collect sediment samples at High Mid and Low marsh locations


Push core method used to collect subtidal and intertidal sediment samples.

Surface water sampling with a peristaltic pump.

Water quality meter and turbidity meter used for taking surface water parameters.

Surface water sampling location at OV-02.



Battery, CS300 Datalogger, Raven XT Cellular Digital Modem

½ in galvanized conduit from equipment box to turbidity meter

Turbidity meter head protective mesh housing

Turbidity meter solar power cell tripod foot install

Turbidity meter equipment garden box

Turbidity meter equipment and solar power tripod installation

Turbidity meter install.