



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

PUBLIC NOTICE

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER RESOURCES/ SURFACE WATER DISCHARGE PERMIT PROGRAM
1 WINTER STREET
BOSTON, MA 02108
TEL#: (617) 292 -5500

Notice is hereby given that the following Tentative Determination to Issue Antidegradation Authorization to Discharge to an Outstanding Resource Water is being processed and the following actions being proposed thereon pursuant to the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53) and 314 CMR 2.06, 3.00 and 4.00:

NAME OF SITE : Ipswich Power Plant, 276 High Street, Ipswich, MA
SITE OWNER : Town of Ipswich Power Company
SITE OPERATOR : Ipswich Municipal Light Department (IMLD)
(if different than owner)
NPDES PERMIT NUMBER : MAG910002
ASSIGNED BY EPA
MASSDEP TRANSMITTAL : X275647
NUMBER
NAME OF RECEIVING WATER(S) : Egypt River, Ipswich, MA
AND TOWN
PERMIT AUTHORITY FOR DISCHARGE : NPDES Remediation General Permit (RGP), effective
April 8, 2017

PROPOSED ACTION: Tentative determination to issue an Antidegradation Authorization to discharge to an Outstanding Resource Water (ORW) for a proposed discharge under the NPDES Remediation General Permit (RGP). Discharge is from ongoing and long term treatment of basement sump discharge with discharge to Egypt River, an Outstanding Resource Water (ORW.)

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: www.mass.gov/dep

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A copy of the Notice of Intent (NOI), applicant's justification for Antidegradation Authorization and additional information, and Tentative Determination to Issue Antidegradation Authorization to Discharge to an Outstanding Resource Water (draft decision by MassDEP) are available here:

<https://www.mass.gov/service-details/massdep-public-hearings-comment-opportunities> under "MassDEP Permits & Approvals".

Comments on the proposed action or requests for a public hearing thereon pursuant to 314 CMR 2.07 must be filed with MassDEP either by U.S. mail to: MassDEP, Regulatory Comment Box, 1 Winter Street, 5th floor, Boston, MA 02108, or by email to dep.talks@mass.gov (include "Ipswich Municipal Light RGP" in the subject line). All comments should include the sender's full name and address. Comments must be submitted by November 8, 2019. The public comment period is thirty (30) days after publication of this notice.

Lealdon Langley, Director
Division of Watershed Planning & Permitting
Department of Environmental Protection

Tentative Determination to Issue Antidegradation Authorization
To Discharge To an
Outstanding Resource Water
Fact Sheet

I. APPLICANT, FACILITY INFORMATION, and DISCHARGE INFORMATION

Name and Address of site:

Ipswich Power Plant
276 High Street
Ipswich, MA 01938

Name and Address of Site Owner:

Town of Ipswich Power Company
272 High Street
Ipswich, MA 01938

Discharge Information:

Discharge from the Site has discharged according to NPDES Remediation General Permits (RGPs) since 2006. Following Environmental Protection Agency (EPA) Authorization according to the 2017 RGP, discharge from the sump pump treatment system will continue to discharge to a cooling pond that overflows into the Egypt River, which according to Massachusetts Surface Water Quality Standards (MASWQS) 314 CMR 4.05 and 4.06 (MASWQS), is classified an ORW.

II. LIMITATIONS AND CONDITIONS

Discharge permit limitations are as listed in the 2017 Remediation General Permit (RGP) and are in conformance with 314 CMR 4.00, Massachusetts Surface Water Quality Standards (MASWQS.)

The applicant has demonstrated that an Authorization for continued discharge to an Outstanding Resource Water (314 CMR 4.04(3)) may be issued by the Massachusetts Department of Environmental Protection (MassDEP) based on 314 CMR 4.04(5)(b).

III. MassDEP AUTHORIZATION BASIS AND PERMITTING REQUIREMENT

MASWQS and the RGP state that discharges to ORWs in Massachusetts are ineligible for coverage unless an authorization is granted by MassDEP. Therefore, as described in the Request for Authorization letter dated July 26, 2018 and additional information (e-mail dated July 19, 2019), Ransom Consulting, Inc. on behalf of IMLD submitted a description of how the project would demonstrate compliance with the MASWQS requirements for authorization listed in 314 CMR 4.04(5)(a)(2) through 4.04(5)(a)(4).

Coverage under the 2017 Remediation General Permit (RGP) is required for this discharge in accordance with the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53; 314 CMR 3.03; and 314 CMR 4.00.

EPA's Authorization to discharge will include specific effluent limitations based on the location of discharge, sampling data, aquatic life and human health protection criteria, and the MASWQS.

IV. COMMENT PERIOD, HEARING REQUESTS, AND PROCEDURES FOR FINAL DECISIONS

The public comment period for this authorization was posted in the MEPA Environmental Monitor on October 9, 2019 and will extend until November 8, 2019. The public comment period is thirty (30) days following the date of publication.

A final decision on the issuance/denial of this permit will be made after the public notice period, and review of any comments received during this period.

V. STATE CONTACT INFORMATION

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m. Monday through Friday excluding holidays, from:

Jennifer Wood
MassDEP
Bureau of Water Resources
1 Winter Street
Boston, MA 02108
617-654-6536
Jennifer.Wood@state.ma.us

Lealdon Langley, Director
Division of Watershed Management
Department of Environmental Protection

October 9, 2019

DATE



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

[Draft for Public Comment Only]

TENTATIVE DETERMINATION TO ISSUE ANTIDegradation AUTHORIZATION TO DISCHARGE
TO AN
OUTSTANDING RESOURCE WATER

NAME OF SITE : Ipswich Power Plant, 276 High Street, Ipswich, MA
SITE OWNER : Town of Ipswich Power Company
SITE OPERATOR
(if different than owner) : Ipswich Municipal Light Department (IMLD)
NPDES PERMIT NUMBER
ASSIGNED BY EPA : MAG910200
MASSDEP TRANSMITTAL
NUMBER : X275647
NAME OF RECEIVING WATER(S)
AND TOWN : Egypt River, Ipswich, MA
PERMIT AUTHORITY FOR DISCHARGE : NPDES Remediation General Permit (RGP), effective April 8, 2017

The 2017 RGP was issued by both the Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) on March 9, 2017, with an effective date of April 8, 2017. The RGP is available for sites located in Massachusetts and New Hampshire that discharge 1.0 million gallons per day or less as a result of remediation activities from eight general categories including collection structure dewatering/remediation.

As required by the RGP, a Notice of Intent (NOI) was submitted on July 7, 2017 by Ransom Consulting, Inc. on behalf of IMLD requesting discharge to the Egypt River, which MassDEP classifies as an Outstanding Resource Water (ORW). Section 1.3 of the 2017 RGP states that discharges to ORWs are ineligible for coverage unless an authorization is granted by MassDEP, and therefore MassDEP was required to perform an additional review in accordance with the Antidegradation Provisions of the Massachusetts Surface Water Quality Standards (314 CMR 4.04) and MassDEP policy, "Implementation Procedures For The Antidegradation Provisions of the Massachusetts Surface Water Quality Standards,

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

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314 CMR 4.00” (“the Policy”) prior to State Authorization of the discharge. Also, according to 314 CMR 4.04(5)(c), “Where an authorization is at issue, the Department shall circulate a public notice in accordance with 314 CMR 2.06. Said notice shall state an authorization is under consideration by the Department, and indicate the Department’s tentative determination. The applicant shall have the burden of justifying the authorization. Any authorization granted pursuant to 314 CMR 4.04 shall not extend beyond the expiration date of the permit.”

Based on the NOI, additional information provided in a letter dated July 26, 2018, and additional information provided in an e-mail dated July 19, 2019 (from Nancy E. Marshall, Ransom Consulting, Inc. on behalf of IMLD), and pursuant to the authority granted by Chapter 21, Sections 26-53 of the Massachusetts General Laws, as amended, 314 CMR 2.00, and 314 CMR 4.00, MassDEP has tentatively determined to issue the following Authorization for Discharge to an ORW.

MassDEP’s State Authorization does not provide authorization to discharge. With the completion of State Authorization, the EPA can proceed with EPA Authorization to discharge under the 2017 RGP.

Project Description

As described in the NOI, discharge originates from groundwater in the basement of the Ipswich Power Plant at 276 High Street (“the Site”), which passively collects in six basement sumps and is treated in two oil/water separators and two Granular Activated Carbon (GAC) vessels. The site operator is Ipswich Municipal Light Department (IMLD). Treatment was designed to reduce petroleum hydrocarbons and VOCs in the discharge. Following treatment, discharge is pumped to a manmade cooling pond used to cool the Power Plant engines when they operate (typically less than 10 days per year). The pond naturally overflows to the Egypt River through an emergency overflow pipe when the pond level exceeds the design capacity as a result of the treated sump pump discharge, precipitation, and high groundwater. The discharge from the treatment system is ongoing and long term and operated between December 2016 to June 2017 at approximately 1,860 gallons per day (gpd) with a range of approximately 550 to 8,900 gpd. The discharge volume from the cooling pond has not been measured. Coverage under the RGP was initially issued by EPA on April 13, 2006 for discharges associated with the treatment system.

The 2017 NOI is currently proposing the continued operation of the existing treatment system and associated discharge.

The NOI states the following:

“In May 2002, the Power Plant was identified as a Disposal Site under the Massachusetts Contingency Plan. During the initial site investigations, groundwater was discovered to have been impacted by oil and hazardous material (OHM). Therefore, beginning in May 2003, granular activated carbon (GAC) vessels were added.”

“Remedial response actions addressed soil and groundwater contamination at the Site, and the release at the Disposal Site was “closed” in accordance with the MCP in June 2012. Since that time, the groundwater discharge has included low concentrations of some metals, but petroleum hydrocarbons and VOCs have not been present above laboratory detection limits.”

“The treatment system currently in place (i.e., liquifuge oil/water separation and granular activated carbon tanks) are not designed to remove the metals that are present in the influent water. The Town of Ipswich is in discussions with vendors for design of a treatment system to reduce metals concentrations. Based on historical flow measurements, the daily flow through the treatment system has ranged between approximately 550 and 8,900 gallons per day, with the lower volume recorded in times of drought, and the higher volume recorded when there was a break in a nearby underground water line.”

Project Site

From the cooling pond located at the Site, discharge flows into the Egypt River, which according to Massachusetts Surface Water Quality Standards 314 CMR 4.05 and 4.06 (MASWQS), is classified as an ORW.

Jurisdiction

The 2017 RGP authorization will include pollutant effluent limits based on submitted groundwater data and water quality criteria for freshwater in the MA SWQS, which reference USEPA’s *National Water Quality Criteria: 2002*), and available dilution at the point of discharge. The 2017 NOI included a Dilution Factor of 1 for the point of discharge based on the intermittent nature in the Egypt River.

In the previous EPA authorization for this Site dated March 16, 2011 (“2011 EPA Authorization”), EPA allowed the Site to discharge according to the RGP issued on September 9, 2010 (“2010 RGP”). Since an NOI was submitted for the 2017 RGP, the Site continues to operate according to the requirements put forth in the 2011 EPA Authorization. The 2011 EPA Authorization included monthly effluent limitations or monitoring for organics, inorganics, metal, and other parameters. The 2011 EPA Authorization is located at the following web link:

<https://www3.epa.gov/region1/npdes/remediation/noi/2011/TheIpswichMunicipalLightDept2011AuthorizationLetter.pdf>.

MASWQS and the RGP state that discharges to ORWs in Massachusetts are ineligible for coverage unless an authorization is granted by MassDEP. As described in the Request for Authorization letter dated July 26, 2018, Ransom Consulting, Inc. (“Ransom”) on behalf of IMLD submitted a description of how the project would demonstrate compliance with the MASWQS requirements for authorization listed in 314 CMR 4.04(5)(a)(2) through 4.04(5)(a)(4). These responses are paraphrased below.

- Item 1, based on 314 CMR 4.04(5)(a)(2):
Are there less environmentally damaging alternative sites for the discharge, sources of disposal, or methods to eliminate the discharge that are reasonably available or feasible?

- Response: Municipal sewer lines are not available near the Site, so a direct sewer line connection is not available. IMLD considered hauling the discharge water to the municipal sewer plant; however, additional evaluation would be needed to assess the feasibility of this option because of existing treatment limits in place at the municipal treatment facility. This option was not given further consideration because it would only address a fraction of the discharge to the Egypt River from the Site (estimated at approximately 5 percent), since the majority of the discharge consists of the overflow of the cooling pond.

In an assessment of site conditions, redirecting discharge from the cooling pond to the on-site subsurface sanitary disposal system or a subsurface infiltration basin were considered. The sanitary disposal system was designed with a limited capacity to service one rest room and a kitchenette used by IMLD workers. Discharging to the existing leach field was not given further consideration because of concerns about overwhelming its limited design capacity. Regarding other subsurface infiltration areas, the cooling pond is located immediately adjacent to the parking lot to the west, High Street/Route 1A is 50 feet to the east of the building, and the Egypt River is approximately 30 feet south of the access road. Based on the limited land area, there are no practicable locations for the installation of a new infiltration structure. Therefore, on-site infiltration of the discharge was eliminated as a feasible alternative.

- Item 2, based on 314 CMR 4.04(5)(a)(3):

To the maximum extent feasible, are the discharge and activity designed and conducted to minimize adverse impacts on water quality, including implementation of source reduction practices?

- Response: The volume of water being discharged to the Egypt River could be reduced by reducing or eliminating seepage into the basement and/or maintaining the cooling pond level below the elevation of the overflow riser pipe. Eliminating seepage could potentially be accomplished by basement waterproofing.

The following methodologies are associated with basement waterproofing:

- Lowering the outside groundwater table: Several methods of lowering the outside groundwater table are available, such as subsurface footing drains, curtain drains, deep wells, etc. However, Ransom concluded that permanent dewatering systems are infeasible due to the quantity of discharge water anticipated.
- Sealing and waterproofing the basement walls and floors, such as spray-on waterproofing and encapsulating interior membranes. Ransom eliminated spray-on waterproofing as infeasible because of a poor likelihood of success based on the friable and fractured condition of the basement walls. Costs for encapsulating the basement walls were estimated at approximately \$120,000.
- Installing Cut-Off/Barrier Walls, such as steel or vinyl sheet piles, soil-bentonite slurry walls, and jet-grouted walls. Vibrated sheet piles were eliminated from further consideration because of their higher material costs, difficulty with installation due to subsurface utilities in the area of the building, the likelihood of the cut-off wall needing to extend into bedrock to prevent seepage under the wall, and the higher potential for leakage through joints in the

wall. Costs of the soil-bentonite slurry wall were estimated to be upwards of \$120,000, but that wall alone would not likely prevent seepage during a flooding event. Ransom concluded that costs associated with a jet-grouted curtain wall would be upwards of \$300,000, and that inconsistent subsurface conditions would lead to variable results.

IMLD has estimated daily discharge volumes from the pond by extrapolating from a measured discharge rate. The source of water into the cooling pond is about 40,000 gallons per day from the dam, precipitation, and an average of 1,200 – 2,300 gallons per day from the treatment system.

- Item 3, based on 314 CMR 4.04(5)(a)(4):
Will the discharge impair existing uses of the receiving water or result in a level of water quality less than the specified for the Class?
 - Response: The existing discharge is subject to discharge limits set by EPA as to not impair the existing uses of the receiving water. As stipulated by the EPA, the discharge water is sampled and analyzed monthly to ensure compliance. In a review of analytical results after the treatment system from September 2015 through June 2018, the concentrations of copper and iron have exceeded their RGP effluent limits. Item 4 below includes a description of how IMLD intends to remediate this situation.
- Item 4
Since expiration of the previous RGP on September 9, 2015, did discharge from the facility meet the requirements of the 2010 RGP? If the facility has been in noncompliance, explain how the facility plans to return to compliance.
 - Response: In a review of analytical results after the treatment system from September 2015 through June 2018, the concentrations of copper and iron have exceeded their RGP effluent limits 25 and 33 times, respectively, out of the last 34 sampling events. Lead and zinc have exceeded their RGP effluent limits 5 and 15 times, respectively, out of the last 34 sampling events.

IMLD intends to look into a sealing process for the plant's fieldstone foundation, which might improve the groundwater seepage into the basement. They are working on redirecting the stormwater runoff from the roof and roadway away from the building. New catch basins, gutter improvements, landscaped swales, and French drains are all being actively explored. If the groundwater penetration into the building can be reduced, then the contribution to the cooling pond can be limited to the seepage from the reservoir through the dam.

Conclusion

The NOI and Request for Authorization have sufficiently defined the nature and general elements of the project for the purposes of MassDEP review and demonstrated that impact on the ORW will be minimized to the extent practicable. Based on review of the documents provided and comments received, MassDEP determined that the discharge meets the requirements for authorization listed in

314 CMR 4.04(5)(b) and 314 CMR 4.04(5)(a)2-4 and is proposing to authorize the discharge, subject to the terms and conditions of EPA's authorization to discharge under the RGP.

Lealdon Langley, Director
Division of Watershed Planning & Permitting

[Date]

Comments Received:



Consulting
Engineers
and Scientists

Via email: NPDES.Generalpermits@epa.gov

July 7, 2017

Project 061.01184.002

U.S. Environmental Protection Agency, Region I
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square - Suite 100 (OEP06-01)
Boston, Massachusetts 02109-3912

RE: Transmittal of Notice of Intent
2017 Remediation General Permit
MAG 910000
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

To Whom It May Concern:

On behalf of the Ipswich Municipal Light Department (IMLD), Ransom Consulting, Inc. (Ransom) is submitting this Notice of Intent (NOI) to continue a sump discharge from the basement of the Ipswich Power Plant (Power Plant) located at 276 High Street in Ipswich, Massachusetts (the Site). A Site Location Map is provided as Figure 1 in Attachment A. An aerial photograph is provided as Figure 2, Site Area Plan, in Attachment A. The purpose of this letter is to supplement the completed NOI Form, taken from Remediation General Permit (RGP) Appendix IV and included as Attachment B to this letter.

NOI Section B.1

As noted in Section B.1. of the NOI Form, the Site discharges to the Egypt River (an Outstanding Resource Water [ORW]) upstream from a National Heritage Endangered Species Program (NHESP) habitat and an Area of Critical Environmental Concern (ACEC). Refer to Figure 3 in Attachment A. According to Catherine Vakalopoulos, the Massachusetts Department of Environmental Protection (MA DEP) is preparing an authorization to discharge to this ORW.

NOI Sections B.4 - B.6

Ransom determined the seven day-ten-year low flow (7Q10) of the receiving water to be 0.12 cubic feet per second (ft³/s) using modeling provided via the online USGS StreamStats program referenced in RGP Appendix V (streamstatsags.cr.usgs.gov/streamstats). However, in a telephone conversation with Catherine Vakalopoulos (MA DEP) on June 14, 2017, Ransom was informed that MA DEP could not approve the use of a dilution factor because of the intermittent nature of the flow in the Egypt River at the discharge point.

12 Kent Way, Suite 100, Byfield, Massachusetts 01922-1221, Tel (978) 465-1822, Fax (978) 465-2986
400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891
Pease International Tradeport, 112 Corporate Drive, Portsmouth, New Hampshire 03801, Tel (603) 436-1490
60 Valley Street, Building F, Suite 106, Providence, Rhode Island 02909, Tel (401) 433-2160
2127 Hamilton Avenue, Hamilton, New Jersey 08619, Tel (609) 584-0090

www.ransomenv.com

NOI Section B.7

Concentrations of metals, ammonia, and hardness for a surface water sample collected from the Egypt River (“Receiving Water”) on May 15, 2017 are provided in Analytical Report No. L1715733 from Alpha Analytical, Inc. of Westborough, Massachusetts (Alpha), provided as Attachment C. Temperature and pH of the surface water measured in the field using hand-held meters were 14.2° C and 6.79 S.U., respectively.

NOI Section C.1-C.2

The system treats groundwater that passively infiltrates into the basement of the Power Plant. A summary of influent concentrations measured during the previous 12 months for the RGP in effect for the Power Plant is provided in Attachment C. Concentrations of metals and hardness for a source water sample collected from the basement (“Influent Water”) on May 15, 2017 are provided in Analytical Report No. L1715733 from Alpha, also provided in Attachment C. Concentrations of halogenated and non-halogenated volatile and semi-volatile organic compounds, fuels parameters, ammonia, cyanide, and chlorine for a source water sample collected from the basement (“Influent”) on June 6, 2017 are provided in Analytical Report No. L1718671 from Alpha, provided as Attachment D.

NOI Section D.1.

The discharge consists of groundwater and stormwater collected by the sump system in the basement of the Power Plant. When the water level rises in the collection system, it is pumped through the treatment vessels and discharged to the adjacent stormwater pond (a.k.a., the cooling pond). A discharge from the pond occurs only when the water level in the pond rises above its emergency overflow level, at which point it discharges to the Egypt River at the location shown on Figure 4 in Attachment A.

NOI Section D.4

Analytical data from the previous 12 months of monitoring under the RGP for chloride, arsenic, copper, iron, lead, zinc, and 1,1-dichloroethylene were considered in the influent data provided in Section D.4, along with chemical analysis data for the remaining RGP monitoring parameters collected in May and June 2017. Based on the analytical results, ten metals, ammonia, chloride, and three Group II polycyclic aromatic hydrocarbons (PAH) were present in the influent sample. However, of these parameters, only arsenic, copper, iron, lead, and/or zinc may be present in influent water above the proposed effluent limitations.

NOI Section E

The treatment system currently in place (i.e., liquifuge oil/water separation and granular activated carbon tanks) are not designed to remove the metals that are present in the influent water. The Town of Ipswich is in discussions with vendors for design of a treatment system to reduce metals concentrations. Based on historical flow measurements, the daily flow through the treatment system has ranged between approximately 550 and 8,900 gallons per day, with the lower volume recorded in times of drought, and the higher volume recorded when there was a break in a nearby underground water line. The average

U.S. Environmental Protection Agency, Region I
Office of Ecosystem Protection

daily flow has been approximately 2,250 gallons. Schematics of the treatment system will be provided when available.

NOI Section F

No chemicals or additives are applied to the effluent prior to discharge.

NOI Section G

On June 7, 2017, Ransom contact the U.S. Fish and Wildlife Service (USFWS) requesting a determination on potential impacts to listed species in the area. On June 16, 2017, Mr. David Simmons responded that the project as described is unlikely to have any effect on the listed species. Correspondence related to the USFWS consultation is provided in Attachment E.

NOI Section H

Certification was provided regarding the absence of historic properties with submittal of previous NOIs. Continuation of the existing discharge will not require construction activities that will disturb the ground or existing structures.

NOI Section J

Best management practices (BMPs) for spill control and equipment operation and maintenance are in use at the power plant. A certification statement relative to the use of BMPs is included in Attachment F.

Required MA DEP Forms

A copy of the Permit Transmittal Form (Number X275647) is provided in Attachment G. The applicant is a municipality; therefore, no project fee applies.

U.S. Environmental Protection Agency, Region I
Office of Ecosystem Protection

If you have any questions regarding this NOI submittal, please feel free to contact me at (978) 465-1822.

Sincerely,

RANSOM CONSULTING, INC.

Nancy E. Marshall, P.E.
Project Manager

Timothy J. Snay, LSP
Vice President

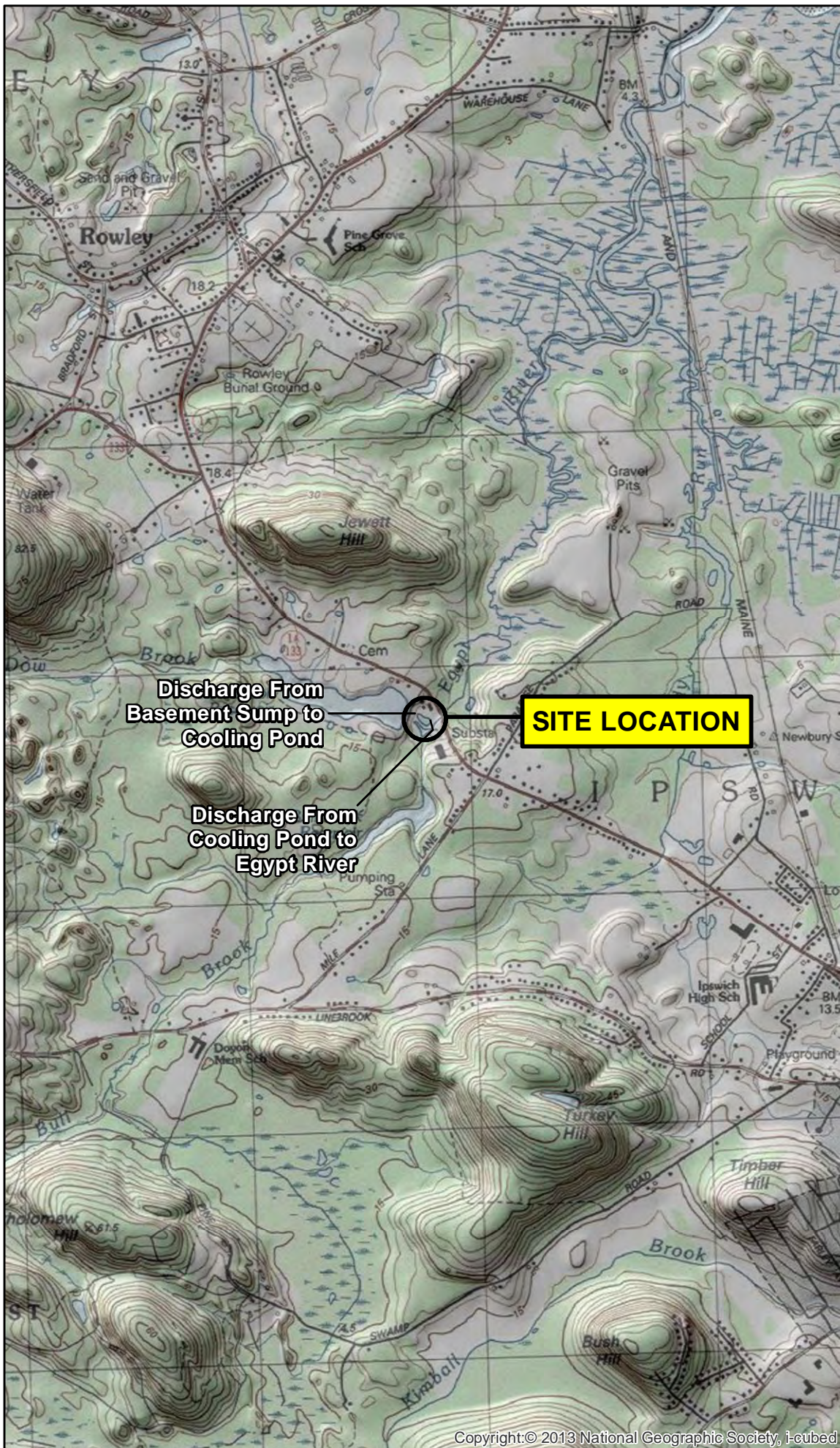
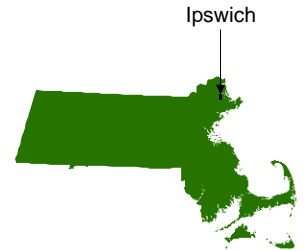
NEM/TJS:cnt
Attachments

cc: Mr. Jon Blair, Ipswich Utilities
MA DEP RGP Coordinator

ATTACHMENT A

Figures

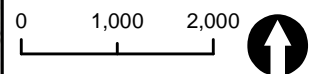
Transmittal of Notice of Intent
2017 Remediation General Permit
MAG 910000
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts



Notes

1. Data Source: USGS National Map Seamless Server, 24K DRG, 1/3" NED
2. USGS Quad Name: Ipswich
3. Latitude: 42° 41' 55" N
Longitude: 70° 52' 12" W
UTM Northing: 4728819 mN
UTM Easting: 346831 mE

Scale and Orientation



Prepared For

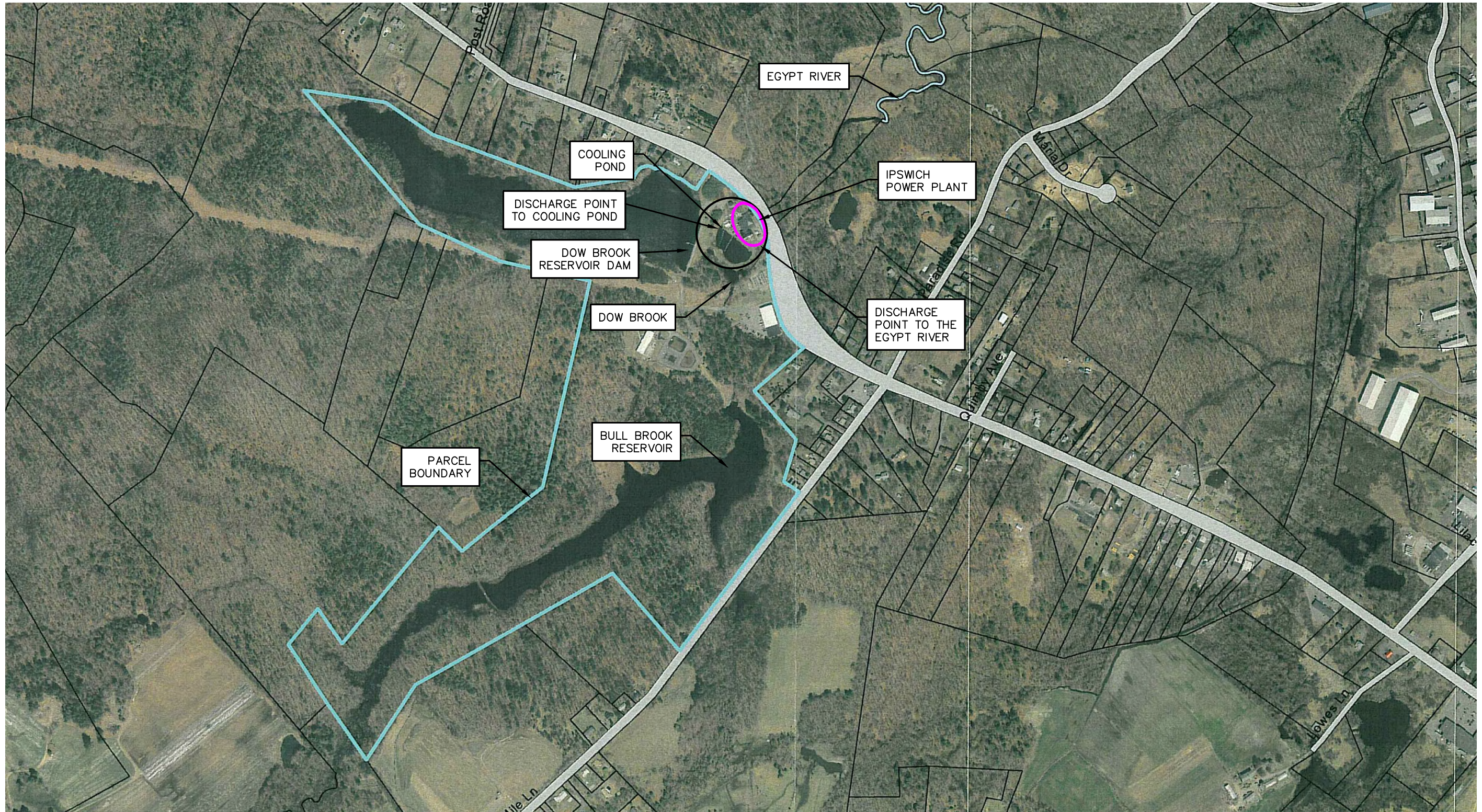
Ipswich Municipal Light
Department
272 High Street
Ipswich, Massachusetts

Site Address

Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

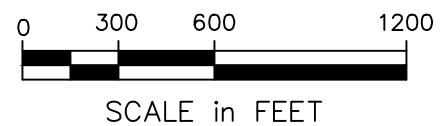
061.01184 | July 2017

Figure 1
Site Location Map



NOTE:

1. SITE PLAN BASED ON MAPPING PROVIDED BY IPSWICH MUNICIPAL LIGHT DEPARTMENT.



RANSOM

Consulting, Inc.

PREPARED FOR:
IPSWICH MUNICIPAL LIGHT
DEPARTMENT
272 HIGH STREET
IPSWICH, MASSACHUSETTS

SITE:
IPSWICH POWER PLANT
276 HIGH STREET
IPSWICH, MASSACHUSETTS

SITE AREA PLAN

DATE: JULY 2017
PROJECT: 061.01184
FIGURE: 2

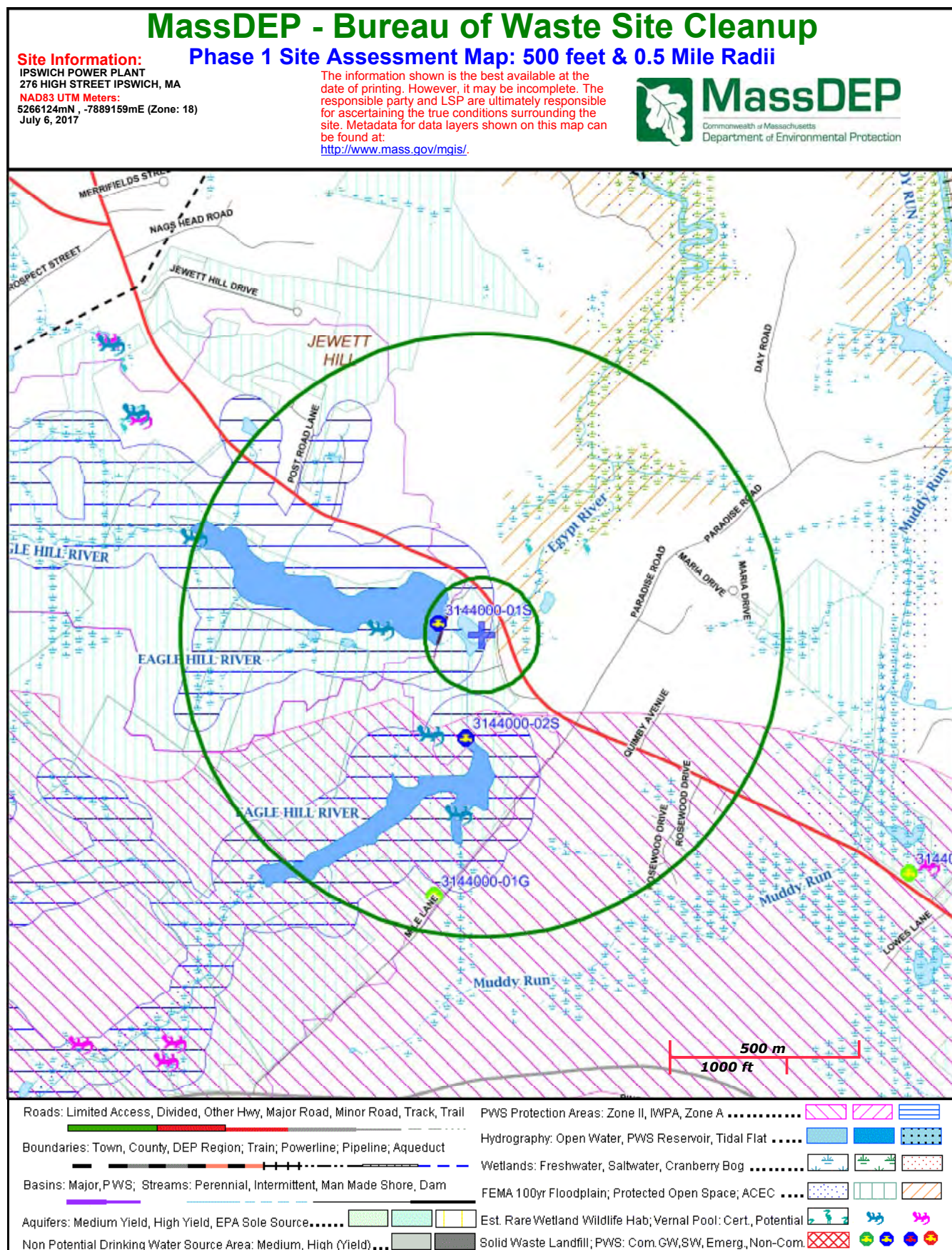
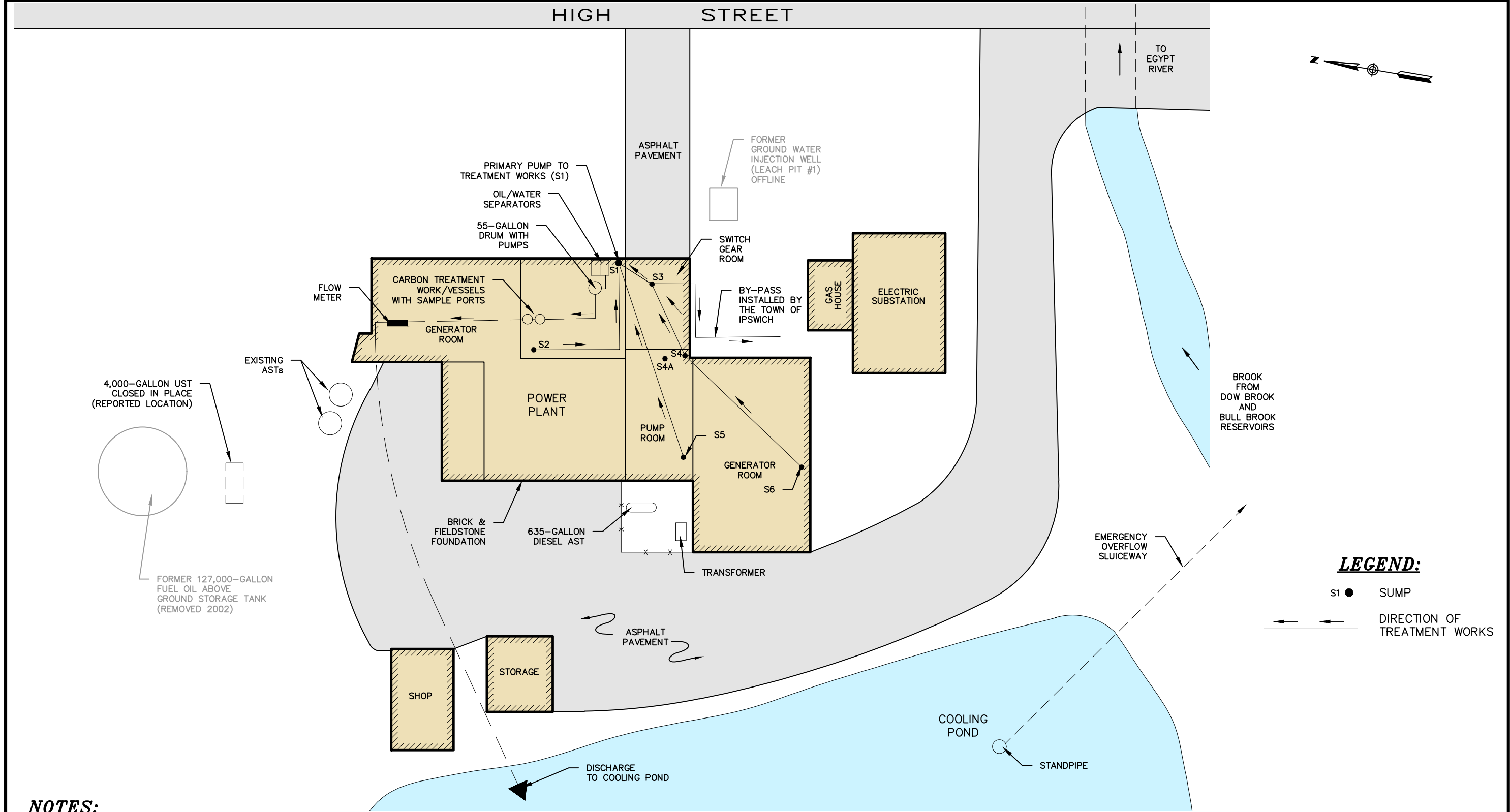


Figure 3: Sensitive Resources

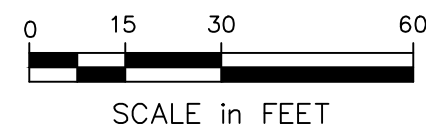


LEGEND:

- S1 ● SUMP
- ← ← DIRECTION OF TREATMENT WORKS

NOTES:

1. SITE PLAN BASED ON MEASUREMENTS AND OBSERVATIONS MADE BY RANSOM ENVIRONMENTAL CONSULTANTS, INC.
2. COLLECTION TRENCHES IN THE FLOOR LEAD TO IDENTIFIED SUMPS, WHICH PUMP TO THE TREATMENT SYSTEM.
3. SOME FEATURES ARE APPROXIMATE IN LOCATION AND SCALE.



RANSOM Environmental Consultants, Inc.		GROUNDWATER COLLECTION AND TREATMENT SYSTEM	
PREPARED FOR: IPSWICH MUNICIPAL LIGHT DEPARTMENT 272 HIGH STREET IPSWICH, MASSACHUSETTS		SITE: IPSWICH POWER PLANT 276 HIGH STREET IPSWICH, MASSACHUSETTS	
		DATE:	JULY 2017
		PROJECT:	061.01184.002
		FIGURE:	4

ATTACHMENT B

Completed Appendix IV - NOI
Remediation General Permit

Transmittal of Notice of Intent
2017 Remediation General Permit
MAG 910000
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

1. Name of site:	Site address: Street:		
2. Site owner Owner is (check one): <input type="checkbox"/> Federal <input type="checkbox"/> State/Tribal <input type="checkbox"/> Private <input type="checkbox"/> Other; if so, specify:	City:	State:	Zip:
	Contact Person:		
	Telephone:	Email:	
	Mailing address: Street:		
3. Site operator, if different than owner	City:	State:	Zip:
	Contact Person:		
	Telephone:	Email:	
	Mailing address: Street:		
4. NPDES permit number assigned by EPA: NPDES permit is (check all that apply): <input type="checkbox"/> RGP <input type="checkbox"/> DGP <input type="checkbox"/> CGP <input type="checkbox"/> MSGP <input type="checkbox"/> Individual NPDES permit <input type="checkbox"/> Other; if so, specify:	5. Other regulatory program(s) that apply to the site (check all that apply):		
	<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> MA Chapter 21e; list RTN(s): <input type="checkbox"/> NH Groundwater Management Permit or Groundwater Release Detection Permit: </div> <div> <input type="checkbox"/> CERCLA <input type="checkbox"/> UIC Program <input type="checkbox"/> POTW Pretreatment <input type="checkbox"/> CWA Section 404 </div> </div>		

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Receiving water is (check any that apply): <input type="checkbox"/> Outstanding Resource Water <input type="checkbox"/> Ocean Sanctuary <input type="checkbox"/> territorial sea <input type="checkbox"/> Wild and Scenic River		
2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No Are sensitive receptors present near the site? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, specify:		
3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP.		
4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.		
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.		
6. Has the operator received confirmation from the appropriate State for the 7Q10 and dilution factor indicated? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate date confirmation received:		
7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No		

C. Source water information:

1. Source water(s) is (check any that apply):			
<input type="checkbox"/> Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> The receiving water	<input type="checkbox"/> Potable water; if so, indicate municipality or origin: <input type="checkbox"/> Other; if so, specify:
		<input type="checkbox"/> A surface water other than the receiving water; if so, indicate waterbody:	

2. Source water contaminants:	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): <input type="checkbox"/> Existing discharge <input type="checkbox"/> New discharge <input type="checkbox"/> New source	
Outfall(s):	Outfall location(s): (Latitude, Longitude)
Discharges enter the receiving water(s) via (check any that apply): <input type="checkbox"/> Direct discharge to the receiving water <input type="checkbox"/> Indirect discharge, if so, specify: <input type="checkbox"/> A private storm sewer system <input type="checkbox"/> A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No Has the operator has received permission from the owner to use such system for discharges? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No, if so, explain, with an estimated timeframe for obtaining permission: Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	
Provide the expected start and end dates of discharge(s) (month/year):	
Indicate if the discharge is expected to occur over a duration of: <input type="checkbox"/> less than 12 months <input type="checkbox"/> 12 months or more <input type="checkbox"/> is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	

2. Activity Category: (check all that apply)	3. Contamination Type Category: (check all that apply)	
<input type="checkbox"/> I – Petroleum-Related Site Remediation <input type="checkbox"/> II – Non-Petroleum-Related Site Remediation <input type="checkbox"/> III – Contaminated Site Dewatering <input type="checkbox"/> IV – Dewatering of Pipelines and Tanks <input type="checkbox"/> V – Aquifer Pump Testing <input type="checkbox"/> VI – Well Development/Rehabilitation <input type="checkbox"/> VII – Collection Structure Dewatering/Remediation <input type="checkbox"/> VIII – Dredge-Related Dewatering	<p>a. If Activity Category I or II: (check all that apply)</p> <p><input type="checkbox"/> A. Inorganics</p> <p><input type="checkbox"/> B. Non-Halogenated Volatile Organic Compounds</p> <p><input type="checkbox"/> C. Halogenated Volatile Organic Compounds</p> <p><input type="checkbox"/> D. Non-Halogenated Semi-Volatile Organic Compounds</p> <p><input type="checkbox"/> E. Halogenated Semi-Volatile Organic Compounds</p> <p><input type="checkbox"/> F. Fuels Parameters</p>	
	<p>b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</p>	
	<table border="1"> <tr> <td data-bbox="970 800 1419 873"><input type="checkbox"/> G. Sites with Known Contamination</td><td data-bbox="1419 800 2003 873"><input type="checkbox"/> H. Sites with Unknown Contamination</td></tr> </table>	<input type="checkbox"/> G. Sites with Known Contamination
<input type="checkbox"/> G. Sites with Known Contamination	<input type="checkbox"/> H. Sites with Unknown Contamination	
<table border="1"> <tr> <td data-bbox="970 873 1419 1409"> <p>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)</p> <p><input type="checkbox"/> A. Inorganics</p> <p><input type="checkbox"/> B. Non-Halogenated Volatile Organic Compounds</p> <p><input type="checkbox"/> C. Halogenated Volatile Organic Compounds</p> <p><input type="checkbox"/> D. Non-Halogenated Semi-Volatile Organic Compounds</p> <p><input type="checkbox"/> E. Halogenated Semi-Volatile Organic Compounds</p> <p><input type="checkbox"/> F. Fuels Parameters</p> </td><td data-bbox="1419 873 2003 1409"> <p>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</p> </td></tr> </table>	<p>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)</p> <p><input type="checkbox"/> A. Inorganics</p> <p><input type="checkbox"/> B. Non-Halogenated Volatile Organic Compounds</p> <p><input type="checkbox"/> C. Halogenated Volatile Organic Compounds</p> <p><input type="checkbox"/> D. Non-Halogenated Semi-Volatile Organic Compounds</p> <p><input type="checkbox"/> E. Halogenated Semi-Volatile Organic Compounds</p> <p><input type="checkbox"/> F. Fuels Parameters</p>	<p>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</p>
<p>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)</p> <p><input type="checkbox"/> A. Inorganics</p> <p><input type="checkbox"/> B. Non-Halogenated Volatile Organic Compounds</p> <p><input type="checkbox"/> C. Halogenated Volatile Organic Compounds</p> <p><input type="checkbox"/> D. Non-Halogenated Semi-Volatile Organic Compounds</p> <p><input type="checkbox"/> E. Halogenated Semi-Volatile Organic Compounds</p> <p><input type="checkbox"/> F. Fuels Parameters</p>	<p>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</p>	

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit ($\mu\text{g/l}$)	Influent		Effluent Limitations	
						Daily maximum ($\mu\text{g/l}$)	Daily average ($\mu\text{g/l}$)	TBEL	WQBEL
A. Inorganics									
Ammonia								Report mg/L	---
Chloride								Report $\mu\text{g/l}$	---
Total Residual Chlorine								0.2 mg/L	
Total Suspended Solids								30 mg/L	---
Antimony								206 $\mu\text{g/L}$	
Arsenic								104 $\mu\text{g/L}$	
Cadmium								10.2 $\mu\text{g/L}$	
Chromium III								323 $\mu\text{g/L}$	
Chromium VI								323 $\mu\text{g/L}$	
Copper								242 $\mu\text{g/L}$	
Iron								5,000 $\mu\text{g/L}$	
Lead								160 $\mu\text{g/L}$	
Mercury								0.739 $\mu\text{g/L}$	
Nickel								1,450 $\mu\text{g/L}$	
Selenium								235.8 $\mu\text{g/L}$	
Silver								35.1 $\mu\text{g/L}$	
Zinc								420 $\mu\text{g/L}$	
Cyanide								178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX								100 $\mu\text{g/L}$	---
Benzene								5.0 $\mu\text{g/L}$	---
1,4 Dioxane								200 $\mu\text{g/L}$	---
Acetone								7.97 mg/L	---
Phenol								1,080 $\mu\text{g/L}$	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride								4.4 µg/L	
1,2 Dichlorobenzene								600 µg/L	---
1,3 Dichlorobenzene								320 µg/L	---
1,4 Dichlorobenzene								5.0 µg/L	---
Total dichlorobenzene								763 µg/L in NH	---
1,1 Dichloroethane								70 µg/L	---
1,2 Dichloroethane								5.0 µg/L	---
1,1 Dichloroethylene								3.2 µg/L	---
Ethylene Dibromide								0.05 µg/L	---
Methylene Chloride								4.6 µg/L	---
1,1,1 Trichloroethane								200 µg/L	---
1,1,2 Trichloroethane								5.0 µg/L	---
Trichloroethylene								5.0 µg/L	---
Tetrachloroethylene								5.0 µg/L	
cis-1,2 Dichloroethylene								70 µg/L	---
Vinyl Chloride								2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates								190 µg/L	
Diethylhexyl phthalate								101 µg/L	
Total Group I PAHs								1.0 µg/L	---
Benzo(a)anthracene								As Total PAHs	
Benzo(a)pyrene									
Benzo(b)fluoranthene									
Benzo(k)fluoranthene									
Chrysene									
Dibenzo(a,h)anthracene									
Indeno(1,2,3-cd)pyrene									

[illegible]

E. Treatment system information

<p>1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)</p> <p><input type="checkbox"/> Adsorption/Absorption <input type="checkbox"/> Advanced Oxidation Processes <input type="checkbox"/> Air Stripping <input type="checkbox"/> Granulated Activated Carbon (“GAC”)/Liquid Phase Carbon Adsorption</p> <p><input type="checkbox"/> Ion Exchange <input type="checkbox"/> Precipitation/Coagulation/Flocculation <input type="checkbox"/> Separation/Filtration <input type="checkbox"/> Other; if so, specify:</p>	
<p>2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.</p> <p>Identify each major treatment component (check any that apply):</p> <p><input type="checkbox"/> Fractionation tanks <input type="checkbox"/> Equalization tank <input type="checkbox"/> Oil/water separator <input type="checkbox"/> Mechanical filter <input type="checkbox"/> Media filter</p> <p><input type="checkbox"/> Chemical feed tank <input type="checkbox"/> Air stripping unit <input type="checkbox"/> Bag filter <input type="checkbox"/> Other; if so, specify:</p> <p>Indicate if either of the following will occur (check any that apply):</p> <p><input type="checkbox"/> Chlorination <input type="checkbox"/> De-chlorination</p>	
<p>3. Provide the design flow capacity in gallons per minute (gpm) of the most limiting component.</p> <p>Indicate the most limiting component:</p> <p>Is use of a flow meter feasible? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No, if so, provide justification:</p>	
<p>Provide the proposed maximum effluent flow in gpm.</p>	
<p>Provide the average effluent flow in gpm.</p>	
<p>If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:</p>	
<p>4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:

2. Provide the following information for each chemical/additive, using attachments, if necessary:

- a. Product name, chemical formula, and manufacturer of the chemical/additive;
- b. Purpose or use of the chemical/additive or remedial agent;
- c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
- d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
- e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
- f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ☐ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive? (check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

- ☐ **FWS Criterion A:** No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the “action area”.
- ☐ **FWS Criterion B:** Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are “not likely to adversely affect” listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ☐ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No
- ☐ **FWS Criterion C:** Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have “no effect” on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

- ☐ **NMFS Criterion:** A determination made by EPA is affirmed by the operator that the discharges and related activities will have “no effect” or are “not likely to adversely affect” any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ☐ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ☐ Yes ☐ No

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ☐ Yes ☐ No; if yes, attach.

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

- ☐ **Criterion A:** No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.
- ☐ **Criterion B:** Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.
- ☐ **Criterion C:** Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ☐ Yes ☐ No

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ☐ No

I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ☐ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ☐ Yes ☐ No

J. Certification requirement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BMPP certification statement:

Notification provided to the appropriate State, including a copy of this NOI, if required.

Check one: Yes ☒ No ☐

Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.

Check one: Yes ☒ No ☐

Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.

Check one: Yes ☐ No ☐ NA ☒

Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.

Check one: Yes ☐ No ☐ NA ☒

Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:

Check one: Yes ☐ No ☐ NA ☒

Signature:



Date: 7/7/2017

Print Name and Title:

Jonathan Blair, Electric Light Manager

ATTACHMENT C

Influent Chemical Analysis Results
Metals, Hardness, and Ammonia Concentrations
(Analytical Report No. L1715733)

Transmittal of Notice of Intent
2017 Remediation General Permit
MAG 910000
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

Table 1: Monthly Remediation General Permit (RGP) Sampling Results: July 2016 - June 2017
Ipswich Power Plant - Influent Samples
276 High Street
Ipswich, Massachusetts
Authorization MAG910200

RGP Required Sampling Parameters:	Organics	Total Metals					Non-Organics and Misc.		
	1,1-DCE	Arsenic	Copper	Iron	Lead	Zinc	Chloride	pH	Flow
Units	(µg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(S.U.)	(gpd)
RGP App IV Test Method:	8260C	6010C	6010C	6010C	6010C	6010C	300.0, 4500CL-D	4500H	NA
Dates	Influent Sample Results (units shown above)								
July 2016	BRL (0.50)	0.0134	0.163	7.5	0.0156	0.0827	70.5	7.4	1,430
Aug 2016	BRL (0.50)	0.019	0.212	12	0.025	0.114	113	6.7	1,535
Sept 2016	BRL (0.50)	0.0185	0.0811	7.9	BRL (0.0100)	BRL (0.0500)	96.8	7.2	1,506
Oct 2016	BRL (0.50)	0.029	0.754	28	0.065	0.282	120	6.9	1,665
Nov 2016	BRL (0.50)	0.0665	0.535	41	0.0467	0.568	131	7.2	2,009
Dec 2016	BRL (0.50)	0.012	0.199	10	0.0211	0.148	220	7.9	1,262
Jan 2017	BRL (0.50)	0.0076	0.171	3.0	BRL (0.0100)	0.0865	122	7.1	1,875
Feb 2017	BRL (0.50)	0.052	0.180	48	0.030	0.243	154	7.8	1,489
Mar 2017	BRL (0.50)	0.014	0.057	8.2	BRL (0.010)	0.058	220	7.6	2,379
Apr 2017	BRL (0.50)	0.034	0.164	22	0.023	0.151	124	7.4	3,153
May-17	BRL (0.50)	0.0093	0.256	7.92	0.03808	0.07046	100	7.1	2,238
Jun-17	BRL (0.50)	0.00412	0.057	2.67	0.0069	0.02317	53	7.4	2,401

Notes:

1. Samples were collected by Ransom Consulting, Inc. and analyzed by Alpha Analytical, Inc. of Westborough, MA.
2. RGP = U.S. EPA Remediation General Permit (RGP) effective in 2010.
3. 1,1-DCE = 1,1-dichloroethene (a.k.a., 1,1-dichloroethylene)
4. µg/L = micrograms per liter; mg/L = milligrams per liter; S.U. = Specific Units; gpd = gallons per day
5. BRL () = below reporting limit indicated in parentheses.



ANALYTICAL REPORT

Lab Number:	L1715733
Client:	Ransom Consulting, Inc. 12 Kent Way Suite 100 Byfield, MA 01922-1221
ATTN:	Nancy Marshall
Phone:	(978) 465-1822
Project Name:	IMLD
Project Number:	061.01184
Report Date:	05/22/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1715733-01	INFLUENT WATER	WATER	IPSWICH, MA	05/15/17 09:20	05/15/17
L1715733-02	TREATMENT SYSTEM DISCHARGE	WATER	IPSWICH, MA	05/15/17 09:25	05/15/17
L1715733-03	COOLING POND DISCHARGE	WATER	IPSWICH, MA	05/15/17 09:40	05/15/17
L1715733-04	RECEIVING WATER	WATER	IPSWICH, MA	05/15/17 09:55	05/15/17
L1715733-05	TRIP BLANK	WATER	IPSWICH, MA	05/15/17 00:00	05/15/17

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.


Sample Receipt

The analyses performed were specified by the client.

A Trip Blank was received in the laboratory, but not listed on the Chain of Custody, and was not analyzed.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 05/22/17

ORGANICS

VOLATILES

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-01
Client ID: INFLUENT WATER
Sample Location: IPSWICH, MA

Date Collected: 05/15/17 09:20
Date Received: 05/15/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/18/17 23:58
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab

1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-02
Client ID: TREATMENT SYSTEM DISCHARGE
Sample Location: IPSWICH, MA

Date Collected: 05/15/17 09:25
Date Received: 05/15/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 05/19/17 00:27
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab

1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	104		70-130

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/18/17 22:05
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1005044-5					
1,1-Dichloroethene	ND		ug/l	0.50	0.17

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	102		70-130

Lab Control Sample Analysis**Batch Quality Control**

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1005044-3 WG1005044-4								
1,1-Dichloroethene	92		90		61-145	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	115		113		70-130
Toluene-d8	105		108		70-130
4-Bromofluorobenzene	94		97		70-130
Dibromofluoromethane	102		103		70-130

METALS

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-01
Client ID: INFLUENT WATER
Sample Location: IPSWICH, MA
Matrix: Water

Date Collected: 05/15/17 09:20
Date Received: 05/15/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.00043	J	mg/l	0.00400	0.00042	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00963		mg/l	0.00100	0.00016	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Cadmium, Total	0.00016	J	mg/l	0.00100	0.00005	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Chromium, Total	0.00342		mg/l	0.00100	0.00017	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Copper, Total	0.2556		mg/l	0.00100	0.00038	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Iron, Total	7.92		mg/l	0.050	0.009	1	05/16/17 15:25	05/19/17 00:33	EPA 3005A	19,200.7	AB
Lead, Total	0.03808		mg/l	0.00050	0.00034	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Mercury, Total	0.00008	J	mg/l	0.00020	0.00006	1	05/17/17 11:50	05/17/17 21:38	EPA 245.1	3,245.1	EA
Nickel, Total	0.00482		mg/l	0.00200	0.00055	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Zinc, Total	0.07046		mg/l	0.01000	0.00341	1	05/16/17 15:25	05/17/17 12:02	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	82.6		mg/l	0.660	NA	1	05/16/17 15:25	05/19/17 00:33	EPA 3005A	19,200.7	AB
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	0.010	1		05/17/17 12:02	NA	107,-	



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-02
Client ID: TREATMENT SYSTEM DISCHARGE
Sample Location: IPSWICH, MA
Matrix: Water

Date Collected: 05/15/17 09:25
Date Received: 05/15/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00645		mg/l	0.00100	0.00016	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
Cadmium, Total	0.00008	J	mg/l	0.00100	0.00005	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
Chromium, Total	0.00188		mg/l	0.00100	0.00017	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
Copper, Total	0.05320		mg/l	0.00100	0.00038	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
Iron, Total	5.25		mg/l	0.050	0.009	1	05/16/17 15:25	05/19/17 00:38	EPA 3005A	19,200.7	AB
Lead, Total	0.01462		mg/l	0.00050	0.00034	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	05/17/17 11:50	05/17/17 21:43	EPA 245.1	3,245.1	EA
Nickel, Total	0.00563		mg/l	0.00200	0.00055	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
Zinc, Total	0.07638		mg/l	0.01000	0.00341	1	05/16/17 15:25	05/17/17 12:06	EPA 3005A	3,200.8	AM
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	0.010	1		05/17/17 12:06	NA	107,-	



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-03
Client ID: COOLING POND DISCHARGE
Sample Location: IPSWICH, MA
Matrix: Water

Date Collected: 05/15/17 09:40
Date Received: 05/15/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	0.00059	J	mg/l	0.00400	0.00042	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00084	J	mg/l	0.00100	0.00016	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00100	0.00005	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Chromium, Total	0.00075	J	mg/l	0.00100	0.00017	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Copper, Total	0.00821		mg/l	0.00100	0.00038	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Iron, Total	0.320		mg/l	0.050	0.009	1	05/16/17 15:25	05/19/17 00:43	EPA 3005A	19,200.7	AB
Lead, Total	ND		mg/l	0.00050	0.00034	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	05/17/17 11:50	05/17/17 21:45	EPA 245.1	3,245.1	EA
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Zinc, Total	0.00477	J	mg/l	0.01000	0.00341	1	05/16/17 15:25	05/17/17 12:31	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	48.0		mg/l	0.660	NA	1	05/16/17 15:25	05/19/17 00:43	EPA 3005A	19,200.7	AB
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	0.010	1		05/17/17 12:31	NA	107,-	



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-04
Client ID: RECEIVING WATER
Sample Location: IPSWICH, MA
Matrix: Water

Date Collected: 05/15/17 09:55
Date Received: 05/15/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00173		mg/l	0.00100	0.00016	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Cadmium, Total	0.00006	J	mg/l	0.00100	0.00005	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Chromium, Total	0.00190		mg/l	0.00100	0.00017	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Copper, Total	0.00881		mg/l	0.00100	0.00038	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Iron, Total	0.470		mg/l	0.050	0.009	1	05/16/17 15:25	05/19/17 01:11	EPA 3005A	19,200.7	AB
Lead, Total	0.00067		mg/l	0.00050	0.00034	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	0.00006	1	05/17/17 11:50	05/17/17 21:47	EPA 245.1	3,245.1	EA
Nickel, Total	0.00194	J	mg/l	0.00200	0.00055	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Zinc, Total	0.01661		mg/l	0.01000	0.00341	1	05/16/17 15:25	05/17/17 12:34	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	63.5		mg/l	0.660	NA	1	05/16/17 15:25	05/19/17 01:11	EPA 3005A	19,200.7	AB
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	0.010	1		05/17/17 12:34	NA	107,-	



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG1003960-1										
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	0.00016	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00100	0.00005	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	0.00038	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Lead, Total	ND		mg/l	0.00050	0.00034	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Silver, Total	ND		mg/l	0.00100	0.00026	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/17 15:25	05/17/17 11:40	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG1003962-1										
Iron, Total	ND		mg/l	0.050	0.009	1	05/16/17 15:25	05/18/17 23:18	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01-04 Batch: WG1003962-1										
Hardness	ND		mg/l	0.660	NA	1	05/16/17 15:25	05/18/17 23:18	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-04 Batch: WG1004335-1										
Mercury, Total	ND		mg/l	0.00020	0.00006	1	05/17/17 11:50	05/17/17 21:25	3,245.1	EA

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1003960-2								
Antimony, Total	97		-		85-115	-		
Arsenic, Total	104		-		85-115	-		
Cadmium, Total	108		-		85-115	-		
Chromium, Total	98		-		85-115	-		
Copper, Total	99		-		85-115	-		
Lead, Total	105		-		85-115	-		
Nickel, Total	97		-		85-115	-		
Selenium, Total	114		-		85-115	-		
Silver, Total	94		-		85-115	-		
Zinc, Total	100		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1003962-2								
Iron, Total	108		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-04 Batch: WG1003962-2								
Hardness	103		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-04 Batch: WG1004335-2								
Mercury, Total	111		-		85-115	-		

Matrix Spike Analysis **Batch Quality Control**

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04			QC Batch ID: WG1003960-3			QC Sample: L1715771-01			Client ID: MS Sample			
Antimony, Total	0.00092J	0.5	0.5135	103		-	-		70-130	-		20
Arsenic, Total	0.00249	0.12	0.1277	104		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05496	108		-	-		70-130	-		20
Chromium, Total	0.00056J	0.2	0.1995	100		-	-		70-130	-		20
Copper, Total	0.00273	0.25	0.2635	104		-	-		70-130	-		20
Lead, Total	0.00341	0.51	0.5377	105		-	-		70-130	-		20
Nickel, Total	0.00086J	0.5	0.5070	101		-	-		70-130	-		20
Selenium, Total	0.00378J	0.12	0.1307	109		-	-		70-130	-		20
Silver, Total	ND	0.05	0.04903	98		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.5213	104		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-04			QC Batch ID: WG1003962-3			QC Sample: L1715771-01			Client ID: MS Sample			
Iron, Total	0.281	1	1.29	101		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-04			QC Batch ID: WG1003962-3			QC Sample: L1715771-01			Client ID: MS Sample			
Hardness	113.	66.2	173	91		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-04			QC Batch ID: WG1004335-3			QC Sample: L1715658-01			Client ID: MS Sample			
Mercury, Total	ND	0.005	0.00539	108		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-04			QC Batch ID: WG1004335-5			QC Sample: L1715733-01			Client ID: INFLUENT WATER			
Mercury, Total	0.00008J	0.005	0.00532	106		-	-		70-130	-		20

Lab Duplicate Analysis Batch Quality Control

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1003960-4 QC Sample: L1715771-01 Client ID: DUP Sample						
Antimony, Total	0.00092J	0.00124J	mg/l	NC		20
Arsenic, Total	0.00249	0.00258	mg/l	4		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.00056J	0.00052J	mg/l	NC		20
Copper, Total	0.00273	0.00283	mg/l	4		20
Lead, Total	0.00341	0.00356	mg/l	5		20
Nickel, Total	0.00086J	0.00075J	mg/l	NC		20
Selenium, Total	0.00378J	0.00295J	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1003962-4 QC Sample: L1715771-01 Client ID: DUP Sample						
Iron, Total	0.281	0.279	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1004335-4 QC Sample: L1715658-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-04 QC Batch ID: WG1004335-6 QC Sample: L1715733-01 Client ID: INFLUENT WATER						
Mercury, Total	0.00008J	0.00008J	mg/l	NC		20

INORGANICS & MISCELLANEOUS

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-01
Client ID: INFLUENT WATER
Sample Location: IPSWICH, MA
Matrix: Water

Date Collected: 05/15/17 09:20
Date Received: 05/15/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	05/15/17 19:05	05/15/17 19:43	1,7196A	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	100.		mg/l	12.5	2.10	25	-	05/17/17 21:30	44,300.0	AU



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-02
Client ID: TREATMENT SYSTEM DISCHARGE
Sample Location: IPSWICH, MA
Matrix: Water

Date Collected: 05/15/17 09:25
Date Received: 05/15/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	05/15/17 19:05	05/15/17 19:43	1,7196A	AS
Anions by Ion Chromatography - Westborough Lab										
Chloride	100.		mg/l	12.5	2.10	25	-	05/17/17 21:42	44,300.0	AU



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-03
Client ID: COOLING POND DISCHARGE
Sample Location: IPSWICH, MA
Matrix: Water

Date Collected: 05/15/17 09:40
Date Received: 05/15/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chromium, Hexavalent	0.004	J	mg/l	0.010	0.003	1	05/15/17 19:05	05/15/17 20:09	1,7196A	AS



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

SAMPLE RESULTS

Lab ID: L1715733-04
Client ID: RECEIVING WATER
Sample Location: IPSWICH, MA
Matrix: Water

Date Collected: 05/15/17 09:55
Date Received: 05/15/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	0.063	J	mg/l	0.075	0.022	1	05/16/17 14:20	05/16/17 20:59	121,4500NH3-BH	AT
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	05/15/17 19:05	05/15/17 20:10	1,7196A	AS



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-04 Batch: WG1003645-1										
Chromium, Hexavalent	ND		mg/l	0.010	0.003	1	05/15/17 19:05	05/15/17 19:42	1,7196A	AS
General Chemistry - Westborough Lab for sample(s): 04 Batch: WG1003790-1										
Nitrogen, Ammonia	ND		mg/l	0.075	0.022	1	05/16/17 14:20	05/16/17 20:50	121,4500NH3-BH	AT
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-02 Batch: WG1004579-1										
Chloride	ND		mg/l	0.500	0.083	1	-	05/17/17 18:30	44,300.0	AU



Lab Control Sample Analysis

Batch Quality Control

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-04 Batch: WG1003645-2								
Chromium, Hexavalent	103		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 04 Batch: WG1003790-2								
Nitrogen, Ammonia	96		-		80-120	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 Batch: WG1004579-2								
Chloride	103		-		90-110	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG1003645-4 QC Sample: L1715733-02 Client ID: TREATMENT SYSTEM DISCHARGE												
Chromium, Hexavalent	ND	0.1	0.105	105		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1003790-4 QC Sample: L1715733-04 Client ID: RECEIVING WATER												
Nitrogen, Ammonia	0.063J	4	3.86	96		-	-		80-120	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1004579-3 QC Sample: L1716044-01 Client ID: MS Sample												
Chloride	24.3	4	27.7	85	Q	-	-		90-110	-		18

Project Name: IMLD
Project Number: 061.01184

Lab Duplicate Analysis

Batch Quality Control

Lab Number: L1715733
Report Date: 05/22/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG1003645-3 QC Sample: L1715733-01 Client ID: INFLUENT WATER						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1003790-3 QC Sample: L1715733-04 Client ID: RECEIVING WATER						
Nitrogen, Ammonia	0.063J	0.062J	mg/l	NC		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1004579-4 QC Sample: L1716044-01 Client ID: DUP Sample						
Chloride	24.3	24.3	mg/l	0		18

Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler

B Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1715733-01A	Vial HCl preserved	B	N/A	3.8	Y	Absent	8260(14)
L1715733-01B	Vial HCl preserved	B	N/A	3.8	Y	Absent	8260(14)
L1715733-01C	Vial HCl preserved	B	N/A	3.8	Y	Absent	8260(14)
L1715733-01D	Plastic 250ml HNO3 preserved	B	<2	3.8	Y	Absent	CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1715733-01E	Plastic 250ml unpreserved	B	7	3.8	Y	Absent	CL-300(28),HEXCR-7196(1)
L1715733-02A	Vial HCl preserved	B	N/A	3.8	Y	Absent	8260(14)
L1715733-02B	Vial HCl preserved	B	N/A	3.8	Y	Absent	8260(14)
L1715733-02C	Vial HCl preserved	B	N/A	3.8	Y	Absent	8260(14)
L1715733-02D	Plastic 250ml HNO3 preserved	B	<2	3.8	Y	Absent	CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1715733-02E	Plastic 250ml unpreserved	B	7	3.8	Y	Absent	CL-300(28),HEXCR-7196(1),TRICR-CALC(1)
L1715733-03A	Plastic 250ml HNO3 preserved	B	<2	3.8	Y	Absent	-
L1715733-03B	Plastic 250ml unpreserved	B	7	3.8	Y	Absent	HEXCR-7196(1)
L1715733-03D	Plastic 500ml HNO3 preserved	B	<2	3.8	Y	Absent	CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1715733-04A	Plastic 250ml HNO3 preserved	B	<2	3.8	Y	Absent	-
L1715733-04B	Plastic 250ml unpreserved	B	7	3.8	Y	Absent	HEXCR-7196(1)
L1715733-04C	Plastic 500ml H2SO4 preserved	B	<2	3.8	Y	Absent	NH3-4500(28)

*Values in parentheses indicate holding time in days



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1715733-04D	Plastic 500ml HNO3 preserved	B	<2	3.8	Y	Absent	CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),FE-UI(180),HARDU(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1715733-05A	Vial HCl preserved	B	N/A	3.8	Y	Absent	HOLD-8260(14)
L1715733-05B	Vial HCl preserved	B	N/A	3.8	Y	Absent	HOLD-8260(14)

*Values in parentheses indicate holding time in days



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: DU Report with 'J' Qualifiers



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

Data Qualifiers

- reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: IMLD
Project Number: 061.01184

Lab Number: L1715733
Report Date: 05/22/17

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
- 19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 107 Alpha Analytical - In-house calculation method.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 10

Department: **Quality Assurance**

Published Date: 1/16/2017 11:00:05 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 300:** DW: Bromide**EPA 6860:** NPW and SCM: Perchlorate**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation**EPA 9012B:** NPW: Total Cyanide**EPA 9050A:** NPW: Specific Conductance**SM3500:** NPW: Ferrous Iron**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.**SM5310C:** DW: Dissolved Organic Carbon**Mansfield Facility****SM 2540D:** TSS**EPA 3005A** NPW**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.****EPA 624:** Volatile Halocarbons & Aromatics,**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.****Mansfield Facility:****Drinking Water****EPA 200.7:** Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ATTACHMENT D

Influent Chemical Analysis Results
Fuels and Volatile and Semi-Volatile Organic Compounds
(Analytical Report No. L1718671)

Transmittal of Notice of Intent
2017 Remediation General Permit
MAG 910000
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts



ANALYTICAL REPORT

Lab Number:	L1718671
Client:	Ransom Consulting, Inc. 12 Kent Way Suite 100 Byfield, MA 01922-1221
ATTN:	Nancy Marshall
Phone:	(978) 465-1822
Project Name:	IPSWICH POWER PLANT
Project Number:	061.01184
Report Date:	06/16/17

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1718671-01	INFLUENT-W1-060617	WATER	IPSWICH, MA	06/06/17 09:50	06/06/17
L1718671-02	EFFLUENT-W1-060617	WATER	IPSWICH, MA	06/06/17 10:05	06/06/17
L1718671-03	TRIP BLANK	WATER	IPSWICH, MA	06/06/17 00:00	06/06/17

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

Case Narrative (continued)

Report Submission

This final report replaces the partial report issued June 13, 2017, and includes the results of all requested analyses.

The analysis of Ethanol was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

A Trip Blank was received in the laboratory, but not listed on the Chain of Custody, and was not analyzed. The analyses performed were specified by the client.

Chloride


The EFFLUENT-W1-060617 (L1718671-02) result is greater than the INFLUENT-W1-060617 (L1718671-01) result. The sample containers were verified as being labeled correctly by the laboratory

Chlorine, Total Residual

WG1010506: A matrix spike could not be performed due to insufficient sample volume available for analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 06/16/17

ORGANICS

VOLATILES

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-01
Client ID: INFLUENT-W1-060617
Sample Location: IPSWICH, MA

Date Collected: 06/06/17 09:50
Date Received: 06/06/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/09/17 12:57
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	3.0	--	1
1,1-Dichloroethane	ND		ug/l	0.75	--	1
Carbon tetrachloride	ND		ug/l	0.50	--	1
1,1,2-Trichloroethane	ND		ug/l	0.75	--	1
Tetrachloroethene	ND		ug/l	0.50	--	1
1,2-Dichloroethane	ND		ug/l	0.50	--	1
1,1,1-Trichloroethane	ND		ug/l	0.50	--	1
Benzene	ND		ug/l	0.50	--	1
Toluene	ND		ug/l	0.75	--	1
Ethylbenzene	ND		ug/l	0.50	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	0.50	--	1
Trichloroethene	ND		ug/l	0.50	--	1
1,2-Dichlorobenzene	ND		ug/l	2.5	--	1
1,3-Dichlorobenzene	ND		ug/l	2.5	--	1
1,4-Dichlorobenzene	ND		ug/l	2.5	--	1
Methyl tert butyl ether	ND		ug/l	1.0	--	1
p/m-Xylene	ND		ug/l	1.0	--	1
o-Xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	--	1
Acetone	ND		ug/l	5.0	--	1
Tert-Butyl Alcohol	ND		ug/l	10	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--	1

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-01
Client ID: INFLUENT-W1-060617
Sample Location: IPSWICH, MA

Date Collected: 06/06/17 09:50
Date Received: 06/06/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	95		70-130

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-01
Client ID: INFLUENT-W1-060617
Sample Location: IPSWICH, MA

Date Collected: 06/06/17 09:50
Date Received: 06/06/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 1,8260C-SIM(M)
Analytical Date: 06/09/17 12:57
Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS-SIM - Westborough Lab

1,4-Dioxane	ND		ug/l	3.0	--	1
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Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-01
Client ID: INFLUENT-W1-060617
Sample Location: IPSWICH, MA

Date Collected: 06/06/17 09:50
Date Received: 06/06/17
Field Prep: Not Specified
Extraction Method: EPA 504.1
Extraction Date: 06/12/17 15:03

Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 06/12/17 17:37
Analyst: NS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	--	1	A

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-02
Client ID: EFFLUENT-W1-060617
Sample Location: IPSWICH, MA

Date Collected: 06/06/17 10:05
Date Received: 06/06/17
Field Prep: Not Specified

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/13/17 00:08
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS - Westborough Lab

1,1-Dichloroethene	ND		ug/l	0.50	--	1
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: IPSWICH POWER PLANT**Lab Number:** L1718671**Project Number:** 061.01184**Report Date:** 06/16/17**Method Blank Analysis**
Batch Quality Control

Analytical Method: 1,8260C-SIM(M)

Analytical Date: 06/09/17 07:54

Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1012062-5					
1,4-Dioxane	ND		ug/l	3.0	--

Project Name: IPSWICH POWER PLANT

Lab Number: L1718671

Project Number: 061.01184

Report Date: 06/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 06/09/17 07:54
 Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1012069-5					
Methylene chloride	ND		ug/l	3.0	--
1,1-Dichloroethane	ND		ug/l	0.75	--
Carbon tetrachloride	ND		ug/l	0.50	--
1,1,2-Trichloroethane	ND		ug/l	0.75	--
Tetrachloroethene	ND		ug/l	0.50	--
1,2-Dichloroethane	ND		ug/l	0.50	--
1,1,1-Trichloroethane	ND		ug/l	0.50	--
Benzene	ND		ug/l	0.50	--
Toluene	ND		ug/l	0.75	--
Ethylbenzene	ND		ug/l	0.50	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	0.50	--
Trichloroethene	ND		ug/l	0.50	--
1,2-Dichlorobenzene	ND		ug/l	2.5	--
1,3-Dichlorobenzene	ND		ug/l	2.5	--
1,4-Dichlorobenzene	ND		ug/l	2.5	--
Methyl tert butyl ether	ND		ug/l	1.0	--
p/m-Xylene	ND		ug/l	1.0	--
o-Xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	0.50	--
Acetone	ND		ug/l	5.0	--
Tert-Butyl Alcohol	ND		ug/l	10	--
Tertiary-Amyl Methyl Ether	ND		ug/l	2.0	--

Project Name: IPSWICH POWER PLANT**Lab Number:** L1718671**Project Number:** 061.01184**Report Date:** 06/16/17**Method Blank Analysis**
Batch Quality Control

Analytical Method: 1,8260C

Analytical Date: 06/09/17 07:54

Analyst: MM

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1012069-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	91		70-130

Project Name: IPSWICH POWER PLANT**Lab Number:** L1718671**Project Number:** 061.01184**Report Date:** 06/16/17**Method Blank Analysis**
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 06/12/17 16:49
Analyst: NS

Extraction Method: EPA 504.1
Extraction Date: 06/12/17 15:03

Parameter	Result	Qualifier	Units	RL	MDL
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1012290-1					
1,2-Dibromoethane	ND		ug/l	0.010	-- A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	-- A

Project Name: IPSWICH POWER PLANT

Lab Number: L1718671

Project Number: 061.01184

Report Date: 06/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 06/12/17 22:14
 Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1012585-5					
1,1-Dichloroethene	ND		ug/l	0.50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis**Batch Quality Control****Project Name:** IPSWICH POWER PLANT**Lab Number:** L1718671**Project Number:** 061.01184**Report Date:** 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1012062-3 WG1012062-4								
1,4-Dioxane	94		94		70-130	0		25

Lab Control Sample Analysis Batch Quality Control

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1012069-3 WG1012069-4								
Methylene chloride	110		110		70-130	0		20
1,1-Dichloroethane	100		110		70-130	10		20
Carbon tetrachloride	99		98		63-132	1		20
1,1,2-Trichloroethane	110		100		70-130	10		20
Tetrachloroethene	99		95		70-130	4		20
1,2-Dichloroethane	100		110		70-130	10		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Benzene	100		100		70-130	0		25
Toluene	100		100		70-130	0		25
Ethylbenzene	110		100		70-130	10		20
Vinyl chloride	100		100		55-140	0		20
1,1-Dichloroethene	100		110		61-145	10		25
Trichloroethene	99		100		70-130	1		25
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	98		94		70-130	4		20
1,4-Dichlorobenzene	100		99		70-130	1		20
Methyl tert butyl ether	120		120		63-130	0		20
p/m-Xylene	120		115		70-130	4		20
o-Xylene	110		105		70-130	5		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Acetone	130		130		58-148	0		20
Tert-Butyl Alcohol	130		140	Q	70-130	7		20
Tertiary-Amyl Methyl Ether	120		120		66-130	0		20

Lab Control Sample Analysis**Batch Quality Control****Project Name:** IPSWICH POWER PLANT**Lab Number:** L1718671**Project Number:** 061.01184**Report Date:** 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1012069-3 WG1012069-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		92		70-130
Toluene-d8	106		98		70-130
4-Bromofluorobenzene	105		102		70-130
Dibromofluoromethane	98		96		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 Batch: WG1012290-2									
1,2-Dibromoethane	75		-		70-130	-			A
1,2-Dibromo-3-chloropropane	74		-		70-130	-			A

Lab Control Sample Analysis**Batch Quality Control****Project Name:** IPSWICH POWER PLANT**Lab Number:** L1718671**Project Number:** 061.01184**Report Date:** 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1012585-3 WG1012585-4								
1,1-Dichloroethene	95		91		61-145	4		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		100		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	98		99		70-130
Dibromofluoromethane	101		101		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1012290-3 QC Sample: L1718671-01 Client ID: INFLUENT-W1-060617													
1,2-Dibromoethane	ND	0.262	0.244	93		-	-		65-135	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.262	0.234	89		-	-		65-135	-		20	A

SEMIVOLATILES

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-01
Client ID: INFLUENT-W1-060617
Sample Location: IPSWICH, MA

Date Collected: 06/06/17 09:50
Date Received: 06/06/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 06/08/17 16:45

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 06/11/17 10:33
Analyst: PS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1
Phenol	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		21-120
Phenol-d6	28		10-120
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	67		15-120
2,4,6-Tribromophenol	63		10-120
4-Terphenyl-d14	70		41-149

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-01
Client ID: INFLUENT-W1-060617
Sample Location: IPSWICH, MA

Date Collected: 06/06/17 09:50
Date Received: 06/06/17
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 06/08/17 17:52

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/09/17 19:25
Analyst: KL

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.12		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	0.16		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	0.15		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	0.80	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	26		21-120
Phenol-d6	20		10-120
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	54		15-120
2,4,6-Tribromophenol	61		10-120
4-Terphenyl-d14	51		41-149

Project Name: IPSWICH POWER PLANT

Lab Number: L1718671

Project Number: 061.01184

Report Date: 06/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
 Analytical Date: 06/10/17 02:03
 Analyst: SZ

Extraction Method: EPA 3510C
 Extraction Date: 06/08/17 16:45

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1011236-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	3.0	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--
Phenol	ND		ug/l	5.0	--

Tentatively Identified Compounds

No Tentatively Identified Compounds ND ug/l

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	51		21-120
Phenol-d6	34		10-120
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	70		15-120
2,4,6-Tribromophenol	61		10-120
4-Terphenyl-d14	70		41-149

Project Name: IPSWICH POWER PLANT

Lab Number: L1718671

Project Number: 061.01184

Report Date: 06/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D-SIM
 Analytical Date: 06/10/17 13:28
 Analyst: DV

Extraction Method: EPA 3510C
 Extraction Date: 06/08/17 17:52

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1011278-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	0.80	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	35		21-120
Phenol-d6	24		10-120
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	59		15-120
2,4,6-Tribromophenol	56		10-120
4-Terphenyl-d14	53		41-149



Lab Control Sample Analysis

Batch Quality Control

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1011236-2 WG1011236-3								
Bis(2-ethylhexyl)phthalate	118		135		40-140	13		30
Butyl benzyl phthalate	103		115		40-140	11		30
Di-n-butylphthalate	106		121		40-140	13		30
Di-n-octylphthalate	113		130		40-140	14		30
Diethyl phthalate	88		98		40-140	11		30
Dimethyl phthalate	81		91		40-140	12		30
Phenol	42		43		12-110	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	51		49		21-120
Phenol-d6	34		34		10-120
Nitrobenzene-d5	73		74		23-120
2-Fluorobiphenyl	65		68		15-120
2,4,6-Tribromophenol	61		67		10-120
4-Terphenyl-d14	64		71		41-149

Lab Control Sample Analysis

Batch Quality Control

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1011278-2 WG1011278-3								
Acenaphthene	50		50		37-111	0		40
Fluoranthene	52		52		40-140	0		40
Naphthalene	51		52		40-140	2		40
Benzo(a)anthracene	51		50		40-140	2		40
Benzo(a)pyrene	52		51		40-140	2		40
Benzo(b)fluoranthene	51		50		40-140	2		40
Benzo(k)fluoranthene	49		49		40-140	0		40
Chrysene	47		46		40-140	2		40
Acenaphthylene	61		62		40-140	2		40
Anthracene	51		50		40-140	2		40
Benzo(ghi)perylene	48		48		40-140	0		40
Fluorene	54		53		40-140	2		40
Phenanthrene	46		46		40-140	0		40
Dibenzo(a,h)anthracene	50		49		40-140	2		40
Indeno(1,2,3-cd)pyrene	52		51		40-140	2		40
Pyrene	52		51		26-127	2		40
Pentachlorophenol	52		50		9-103	4		40

Lab Control Sample Analysis**Batch Quality Control****Project Name:** IPSWICH POWER PLANT**Lab Number:** L1718671**Project Number:** 061.01184**Report Date:** 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1011278-2 WG1011278-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	33		35		21-120
Phenol-d6	23		25		10-120
Nitrobenzene-d5	56		59		23-120
2-Fluorobiphenyl	56		59		15-120
2,4,6-Tribromophenol	52		52		10-120
4-Terphenyl-d14	51		52		41-149

PCBS

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-01
Client ID: INFLUENT-W1-060617
Sample Location: IPSWICH, MA

Matrix: Water
Analytical Method: 5,608
Analytical Date: 06/08/17 19:07
Analyst: JW

Date Collected: 06/06/17 09:50
Date Received: 06/06/17
Field Prep: Not Specified
Extraction Method: EPA 608
Extraction Date: 06/08/17 00:45
Cleanup Method: EPA 3665A
Cleanup Date: 06/08/17
Cleanup Method: EPA 3660B
Cleanup Date: 06/08/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
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Polychlorinated Biphenyls by GC - Westborough Lab

Aroclor 1016	ND		ug/l	0.250	--	1	B
Aroclor 1221	ND		ug/l	0.250	--	1	B
Aroclor 1232	ND		ug/l	0.250	--	1	B
Aroclor 1242	ND		ug/l	0.250	--	1	B
Aroclor 1248	ND		ug/l	0.250	--	1	B
Aroclor 1254	ND		ug/l	0.250	--	1	B
Aroclor 1260	ND		ug/l	0.200	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	B
Decachlorobiphenyl	58		30-150	B

Project Name: IPSWICH POWER PLANT

Lab Number: L1718671

Project Number: 061.01184

Report Date: 06/16/17

Method Blank Analysis Batch Quality Control

Analytical Method: 5,608
 Analytical Date: 06/08/17 19:19
 Analyst: HT

Extraction Method: EPA 608
 Extraction Date: 06/08/17 00:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 06/08/17
 Cleanup Method: EPA 3660B
 Cleanup Date: 06/08/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1010921-1						
Aroclor 1016	ND		ug/l	0.250	--	B
Aroclor 1221	ND		ug/l	0.250	--	B
Aroclor 1232	ND		ug/l	0.250	--	B
Aroclor 1242	ND		ug/l	0.250	--	B
Aroclor 1248	ND		ug/l	0.250	--	B
Aroclor 1254	ND		ug/l	0.250	--	B
Aroclor 1260	ND		ug/l	0.200	--	B

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	53		30-150	B
Decachlorobiphenyl	72		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1010921-2									
Aroclor 1016	84		-		30-150	-		30	B
Aroclor 1260	78		-		30-150	-		30	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	55				30-150	B
Decachlorobiphenyl	68				30-150	B

Matrix Spike Analysis**Batch Quality Control****Project Name:** IPSWICH POWER PLANT**Lab Number:** L1718671**Project Number:** 061.01184**Report Date:** 06/16/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1010921-3 QC Sample: L1718179-01 Client ID: MS Sample													
Aroclor 1016	ND	3.12	2.55	82		-	-		40-126	-		30	B
Aroclor 1260	ND	3.12	2.25	72		-	-		40-127	-		30	B

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63				30-150	B
Decachlorobiphenyl	58				30-150	B

Lab Duplicate Analysis **Batch Quality Control**

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1010921-4 QC Sample: L1718183-01 Client ID: DUP Sample						
Aroclor 1016	ND	ND	ug/l	NC		30 B
Aroclor 1221	ND	ND	ug/l	NC		30 B
Aroclor 1232	ND	ND	ug/l	NC		30 B
Aroclor 1242	ND	ND	ug/l	NC		30 B
Aroclor 1248	ND	ND	ug/l	NC		30 B
Aroclor 1254	ND	ND	ug/l	NC		30 B
Aroclor 1260	ND	ND	ug/l	NC		30 B

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		56		30-150	B
Decachlorobiphenyl	54		49		30-150	B

METALS

Project Name: IPSWICH POWER PLANT

Lab Number: L1718671

Project Number: 061.01184

Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-01

Date Collected: 06/06/17 09:50

Client ID: INFLUENT-W1-060617

Date Received: 06/06/17

Sample Location: IPSWICH, MA

Field Prep: Not Specified

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	0.00412		mg/l	0.00100	--	1	06/07/17 11:30	06/08/17 16:18	EPA 3005A	3,200.8	BV
Copper, Total	0.05696		mg/l	0.00100	--	1	06/07/17 11:30	06/08/17 16:18	EPA 3005A	3,200.8	BV
Iron, Total	2.67		mg/l	0.050	--	1	06/07/17 11:30	06/12/17 23:58	EPA 3005A	19,200.7	AB
Lead, Total	0.00690		mg/l	0.00100	--	1	06/07/17 11:30	06/08/17 16:18	EPA 3005A	3,200.8	BV
Zinc, Total	0.02317		mg/l	0.01000	--	1	06/07/17 11:30	06/08/17 16:18	EPA 3005A	3,200.8	BV



Project Name: IPSWICH POWER PLANT

Lab Number: L1718671

Project Number: 061.01184

Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-02

Date Collected: 06/06/17 10:05

Client ID: EFFLUENT-W1-060617

Date Received: 06/06/17

Sample Location: IPSWICH, MA

Field Prep: Not Specified

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Copper, Total	0.02140		mg/l	0.00100	--	1	06/07/17 11:30	06/08/17 16:15	EPA 3005A	3,200.8	BV
Iron, Total	1.54		mg/l	0.050	--	1	06/07/17 11:30	06/13/17 00:02	EPA 3005A	19,200.7	AB
Lead, Total	0.00225		mg/l	0.00100	--	1	06/07/17 11:30	06/08/17 16:15	EPA 3005A	3,200.8	BV
Zinc, Total	0.05078		mg/l	0.01000	--	1	06/07/17 11:30	06/08/17 16:15	EPA 3005A	3,200.8	BV



Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1010673-1										
Arsenic, Total	ND		mg/l	0.00100	--	1	06/07/17 11:30	06/08/17 14:00	3,200.8	BV
Copper, Total	ND		mg/l	0.00100	--	1	06/07/17 11:30	06/08/17 14:00	3,200.8	BV
Lead, Total	ND		mg/l	0.00100	--	1	06/07/17 11:30	06/08/17 14:00	3,200.8	BV
Zinc, Total	ND		mg/l	0.01000	--	1	06/07/17 11:30	06/08/17 14:00	3,200.8	BV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1010677-1										
Iron, Total	ND		mg/l	0.050	--	1	06/07/17 11:30	06/12/17 22:57	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1010673-2								
Arsenic, Total	98		-		85-115	-		
Copper, Total	98		-		85-115	-		
Lead, Total	100		-		85-115	-		
Zinc, Total	94		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1010677-2								
Iron, Total	106		-		85-115	-		

Matrix Spike Analysis Batch Quality Control

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02			QC Batch ID: WG1010673-3			QC Sample: L1718534-01			Client ID: MS Sample			
Arsenic, Total	ND	0.12	0.1119	93		-	-		70-130	-		20
Copper, Total	0.3490	0.25	0.5548	82		-	-		70-130	-		20
Lead, Total	0.0017	0.51	0.5100	100		-	-		70-130	-		20
Zinc, Total	0.0124	0.5	0.4452	86		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02			QC Batch ID: WG1010677-3			QC Sample: L1718534-01			Client ID: MS Sample			
Iron, Total	ND	1	1.05	105		-	-		75-125	-		20

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Duplicate Analysis

Batch Quality Control

Lab Number: L1718671
Report Date: 06/16/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1010673-4 QC Sample: L1718534-01 Client ID: DUP Sample						
Copper, Total	0.3490	0.3359	mg/l	4		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1010677-4 QC Sample: L1718534-01 Client ID: DUP Sample						
Iron, Total	ND	ND	mg/l	NC		20

INORGANICS & MISCELLANEOUS

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

SAMPLE RESULTS

Lab ID: L1718671-01
Client ID: INFLUENT-W1-060617
Sample Location: IPSWICH, MA
Matrix: Water

Date Collected: 06/06/17 09:50
Date Received: 06/06/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	93.		mg/l	5.0	NA	1	-	06/07/17 04:40	121,2540D	VB
Cyanide, Total	0.005		mg/l	0.005	--	1	06/08/17 10:50	06/09/17 12:51	121,4500CN-CE	LK
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	06/07/17 00:09	121,4500CL-D	AS
Nitrogen, Ammonia	0.437		mg/l	0.375	--	5	06/07/17 12:54	06/08/17 22:44	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	06/09/17 09:55	06/09/17 20:00	74,1664A	ML
Anions by Ion Chromatography - Westborough Lab										
Chloride	53.0		mg/l	12.5	--	25	-	06/06/17 22:20	44,300.0	AU



Project Name: IPSWICH POWER PLANT**Project Number:** 061.01184**Lab Number:** L1718671**Report Date:** 06/16/17**SAMPLE RESULTS****Lab ID:** L1718671-02**Client ID:** EFFLUENT-W1-060617**Sample Location:** IPSWICH, MA**Matrix:** Water**Date Collected:** 06/06/17 10:05**Date Received:** 06/06/17**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab										
Chloride	63.2		mg/l	12.5	--	25	-	06/06/17 22:32	44,300.0	AU



Project Name: IPSWICH POWER PLANT

Lab Number: L1718671

Project Number: 061.01184

Report Date: 06/16/17

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-02 Batch: WG1010505-1										
Chloride	ND		mg/l	0.500	--	1	-	06/06/17 17:33	44,300.0	AU
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1010506-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	06/07/17 00:09	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1010526-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	06/07/17 04:40	121,2540D	VB
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1010683-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	06/07/17 12:54	06/08/17 22:40	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1011049-1										
Cyanide, Total	ND		mg/l	0.005	--	1	06/08/17 10:50	06/09/17 12:32	121,4500CN-CE	LK
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1011524-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	06/09/17 09:55	06/09/17 20:00	74,1664A	ML

Lab Control Sample Analysis

Batch Quality Control

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 Batch: WG1010505-2								
Chloride	100		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1010506-2								
Chlorine, Total Residual	109		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1010683-2								
Nitrogen, Ammonia	98		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1011049-2								
Cyanide, Total	100		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1011524-2								
TPH	78		-		64-132	-		34

Matrix Spike Analysis

Batch Quality Control

Project Name: IPSWICH POWER PLANT

Project Number: 061.01184

Lab Number: L1718671

Report Date: 06/16/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1010505-3 QC Sample: L1718534-01 Client ID: MS Sample												
Chloride	13.5	4	17.1	90		-	-		90-110	-		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1010683-4 QC Sample: L1718648-02 Client ID: MS Sample												
Nitrogen, Ammonia	0.928	4	4.66	93		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1011049-4 QC Sample: L1718588-01 Client ID: MS Sample												
Cyanide, Total	0.008	0.2	0.198	95		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1011524-4 QC Sample: L1718631-02 Client ID: MS Sample												
TPH	ND	20	17.6	88		-	-		64-132	-		34

Lab Duplicate Analysis

Batch Quality Control

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1010505-4 QC Sample: L1718534-01 Client ID: DUP Sample						
Chloride	13.5	13.5	mg/l	0		18
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1010506-3 QC Sample: L1718671-01 Client ID: INFLUENT-W1-060617						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1010526-2 QC Sample: L1718574-04 Client ID: DUP Sample						
Solids, Total Suspended	70	76	mg/l	8		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1010683-3 QC Sample: L1718648-02 Client ID: DUP Sample						
Nitrogen, Ammonia	0.928	0.942	mg/l	1		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1011049-3 QC Sample: L1718588-01 Client ID: DUP Sample						
Cyanide, Total	0.008	0.008	mg/l	5		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1011524-3 QC Sample: L1718631-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34

Project Name: IPSWICH POWER PLANT**Lab Number:** L1718671**Project Number:** 061.01184**Report Date:** 06/16/17**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1718671-01A	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		8260-SIM(14),8260(14)
L1718671-01B	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		8260-SIM(14),8260(14)
L1718671-01C	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		8260-SIM(14),8260(14)
L1718671-01D	Vial Na2S2O3 preserved	A	N/A	N/A	4.6	Y	Absent		504(14)
L1718671-01E	Vial Na2S2O3 preserved	A	N/A	N/A	4.6	Y	Absent		504(14)
L1718671-01F	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		SUB-ETHANOL(14)
L1718671-01G	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		SUB-ETHANOL(14)
L1718671-01H	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		SUB-ETHANOL(14)
L1718671-01I	Plastic 60ml unpreserved	A	7	7	4.6	Y	Absent		CL-300(28)
L1718671-01J	Plastic 500ml unpreserved	A	7	7	4.6	Y	Absent		TRC-4500(1)
L1718671-01K	Plastic 950ml unpreserved	A	7	7	4.6	Y	Absent		TSS-2540(7)
L1718671-01L	Plastic 250ml HNO3 preserved	A	<2	<2	4.6	Y	Absent		FE-UI(180)
L1718671-01M	Plastic 500ml NaOH preserved	A	7	>12	4.6	N	Absent		TCN-4500(14)
L1718671-01N	Plastic 500ml H2SO4 preserved	A	7	<2	4.6	N	Absent		NH3-4500(28)
L1718671-01O	Amber 1000ml unpreserved	A	7	7	4.6	Y	Absent		8270TCL(7)
L1718671-01P	Amber 1000ml unpreserved	A	7	7	4.6	Y	Absent		8270TCL(7)
L1718671-01Q	Amber 1000ml Na2S2O3	A	7	7	4.6	Y	Absent		PCB-608(7)
L1718671-01R	Amber 1000ml Na2S2O3	A	7	7	4.6	Y	Absent		PCB-608(7)
L1718671-01S	Amber 1000ml HCl preserved	A	<2	<2	4.6	Y	Absent		TPH-1664(28)
L1718671-01T	Amber 1000ml HCl preserved	A	<2	<2	4.6	Y	Absent		TPH-1664(28)
L1718671-02A	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		8260(14)
L1718671-02B	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		8260(14)
L1718671-02C	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		8260(14)

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Serial_No:06161712:29
Lab Number: L1718671
Report Date: 06/16/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1718671-02D	Plastic 60ml unpreserved	A	7	7	4.6	Y	Absent		CL-300(28)
L1718671-02E	Plastic 250ml HNO3 preserved	A	<2	<2	4.6	Y	Absent		ZN-2008T(180),CU-2008T(180),FE-UI(180),PB-2008T(180)
L1718671-03A	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		HOLD-8260(14)
L1718671-03B	Vial HCl preserved	A	N/A	N/A	4.6	Y	Absent		HOLD-8260(14)
L1718671-03C	Vial Na2S2O3 preserved	A	N/A	N/A	4.6	Y	Absent		HOLD-504/8011(14)
L1718671-03D	Vial Na2S2O3 preserved	A	N/A	N/A	4.6	Y	Absent		HOLD-504/8011(14)

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

Report Format: Data Usability Report



Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

Data Qualifiers

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: IPSWICH POWER PLANT
Project Number: 061.01184

Lab Number: L1718671
Report Date: 06/16/17

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
- 5 Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).
- 14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.
- 19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 74 Method 1664, Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 10

Department: **Quality Assurance**

Published Date: 1/16/2017 11:00:05 AM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 300:** DW: Bromide**EPA 6860:** NPW and SCM: Perchlorate**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation**EPA 9012B:** NPW: Total Cyanide**EPA 9050A:** NPW: Specific Conductance**SM3500:** NPW: Ferrous Iron**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.**SM5310C:** DW: Dissolved Organic Carbon**Mansfield Facility****SM 2540D:** TSS**EPA 3005A** NPW**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.****EPA 624:** Volatile Halocarbons & Aromatics,**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.****Mansfield Facility:****Drinking Water****EPA 200.7:** Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

REVISED

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Alpha Analytical, Inc.
145 Flanders Road
Westborough MA 01581

Report Date: June 15, 2017

Project: L1718671

Submittal Date: 06/08/2017

Group Number: 1810835

PO Number: L1718671

State of Sample Origin: MA

Client Sample Description

Influent-W1-060617 Water

Lancaster Labs

(LL) #

9036601

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Alpha Analytical, Inc.
Electronic Copy To Alpha Analytical, Inc.

Attn: Melissa Gulli
Attn: Sublab Contact

Respectfully Submitted,

Bonnie Stadelmann
Senior Project Manager

(312) 590-3133



Lancaster Laboratories
Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

REVISED

Sample Description: Influent-W1-060617 Water
L1718671

LL Sample # WW 9036601
LL Group # 1810835
Account # 09847

Project Name: L1718671

Collected: 06/06/2017 09:50

Alpha Analytical, Inc.

Submitted: 06/08/2017 09:35

145 Flanders Road

Reported: 06/15/2017 16:49

Westborough MA 01581

08671

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Miscellaneous	EPA 1671 Rev A		ug/l	ug/l	
02366 ethanol		64-17-5	N.D.	2,000	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02366	EPA 1671 VOCs	EPA 1671 Rev A	1	171640025A	06/13/2017 23:37	Tyler O Griffin	1



Lancaster Laboratories
Environmental

Analysis Report

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REVISED

Quality Control Summary

Client Name: Alpha Analytical, Inc.
Reported: 06/15/2017 16:49

Group Number: 1810835

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ
	ug/l	ug/l
Batch number: 171640025A	Sample number(s): 9036601	
ethanol	N.D.	2,000

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 171640025A	Sample number(s): 9036601								
ethanol	4000	4182.7	4000	4091.59	105	102	70-132	2	30

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc	MS Spike Added	MS Conc	MSD Spike Added	MSD Conc	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 171640025A	Sample number(s): 9036601 UNSPK: P042119									
ethanol	N.D.	4000	3753.56	4000	3851.49	94	96	70-132	3	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: EPA 1671 VOCs
Batch number: 171640025A

	Amyl Alcohol
9036601	103
Blank	102
LCS	106

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.



Lancaster Laboratories
Environmental

Analysis Report

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REVISED

Quality Control Summary

Client Name: Alpha Analytical, Inc.
Reported: 06/15/2017 16:49

Group Number: 1810835

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: EPA 1671 VOCs

Batch number: 171640025A

	Amyl Alcohol
LCSD	105
MS	104
MSD	105

Limits: 52-144

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

A: 9847 G: 1870835 S: 9036461

CHAIN OF CUSTODY

PAGE OF



Westborough, MA Mansfield, MA
TEL: 508-898-9220 TEL: 508-822-9300
FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Alpha Analytical Lab

Address: 8 Walkup Drive

Westborough, Ma 01581

Phone: 508-898-9220

Fax:

Email: mgulli@alphalab.com,
subreports@alphalab.com☐ These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Please reference Alpha Job #L1718671 on this report.-

Project Information

Project Name:

Project Location: MA

Project #:

Project Manager: Melissa Gulli

ALPHA Quote #:

Turn-Around Time

X Standard

☐ Rush (ONLY IF PRE-APPROVED)

Due Date: 06/21/17 Time:

Date Rec'd in Lab:

ALPHA Job #: L1708671

Report Information Data Deliverables

☐ FAX

X EMAIL

☐ ADEx☐ Add'l Deliverables

Billing Information

☐ Same as Client info

PO #:

Regulatory Requirements/Report Limits

State/Fed Program

MA

Criteria

NPDES

MCP PRESUMPTIVE CERTAINTY-CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes☐ No

Are MCP Analytical Methods Required?

☐ Yes☐ No

Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS

Ethanol- 1671

SAMPLE HANDLING

Filtration

☐ Done☐ Not Needed☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

3

ALPHA Lab ID
(Lab Use Only)

Sample ID

Collection

Date

Time

Sample
MatrixSampler's
Initials

Influent-W1-060617

6/6/17

09:50

WW

X

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT
MA MCP or CT RCP?FORM NO: 01-01(I)
(rev. 30-JUL-07)

Container Type

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Relinquished By:

Date/Time

Received By:

Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Sample Administration Receipt Documentation Log

Serial_No:06161712:29

Doc Log ID: 185755



Group Number(s): 1810835

Client: Alpha Analytical

Delivery and Receipt Information

Delivery Method:	<u>UPS</u>	Arrival Timestamp:	<u>06/08/2017 8:20</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>MA</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	Yes	VOA Vial Headspace \geq 6mm:	No
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Conrad Burkholder (12671) at 13:12 on 06/08/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	32170023	2.6	IR	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	none detected
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...
- W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ATTACHMENT E

USFWS Consultation

Transmittal of Notice of Intent
2017 Remediation General Permit
MAG 910000
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts



United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
<http://www.fws.gov/newengland>



January 20, 2017

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm> (accessed January 2017)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Maria Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

Christine Touchette

From: David Simmons <David_Simmons@fws.gov>
Sent: Friday, June 16, 2017 1:16 PM
To: Nancy Marshall; Heather E. Dudley-Tatman
Subject: Ipswich Power Plant, Bradford & Bigelow; projects 061.01184.006, 991.01001

Hello Ms. Marshall and Ms. Dudley-Tatman,

We are in receipt of your letters regarding activities at the Ipswich Power Plant in Ipswich, Massachusetts, and the Bradford and Bigelow property in Newburyport, Massachusetts. Thank you for contacting us about the potential for the northern long-eared bat or migratory birds to be affected by the proposed activities. If the extent of the projects is as described—pumping groundwater and dewatering an existing building basement, and discharging to existing waterways—and no tree cutting will occur, the projects are unlikely to have any effect on the northern long-eared bat or migratory birds. If this is the case, please print the “No Species Present” letter available at this link https://www.fws.gov/newengland/pdfs/2017_no_species_present_ltr.PDF, and include it with your application to EPA. To date, this letter has been sufficient to satisfy EPA’s requirements for coordination with our office, provided there are no effects to the species listed in the IPaC report. Please let me know if you have any questions. Regards,

David

David Simmons
Endangered Species Program Supervisor
New England Fish and Wildlife Office
U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, New Hampshire 03301
603.227.6425

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From: david_simmons@fws.gov

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June 7, 2017

Consulting
Engineers
and Scientists

Project 061.01184.006

Supervisor
U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, New Hampshire 03301

Re: Endangered Species Consultation
Ipswich Utilities Electric Power Plant
276 High Street
Ipswich, Massachusetts

Dear Supervisor:

The Ipswich Municipal Light Department (IMLD) has contracted us to prepare a Notice of Intent (NOI) under the National Pollution Discharge Elimination System (NPDES) 2017 Remediation General Permit (RGP) for a discharge of water from a basement sump in the Ipswich Power Plant located at 276 High Street in Ipswich, Massachusetts (the Site). According to Part 1, Section 1.4 of the RGP, coverage under the permit is available only if the permittee can certify that the discharge will not adversely affect endangered or threatened species or critical habitat.

Therefore, on behalf of the IMLD, Ransom Consulting, Inc. (Ransom) is requesting a determination from your office regarding the potential impacts to listed species from continuation of an existing discharge from the Ipswich Power Plant. This discharge was permitted under two previous RGPs.

PROJECT DESCRIPTION

The Ipswich Power Plant is located between High Street (Route 1A) to the northeast, the Dow Brook Reservoir dam to the west, Dow Brook to the south, and the Egypt River to the southeast. The majority of the land located upland from the Power Plant is protected watershed for the Dow Brook and Bull Brook Reservoirs, and the majority of the area to the northeast along the Egypt River is wetlands designated as the Great Marsh Area of Critical Environmental Concern (ACEC) and a Natural Heritage and Endangered Species Program (NHESP) habitat. Ipswich municipal offices and residential properties are located along High Street and Paradise Road. A Site Location Map and a Site Area Plan are provided as Figures 1 and 2.

The Power Plant was originally constructed in 1903 with mortared stone and brick masonry basement walls. A manmade pond located on the southwest side of the Power Plant is used to cool the Power Plant engines when they operate (which is typically less than 10 days per year). The elevation of the basement floor of the Power Plant is several feet lower than the groundwater table elevation and groundwater seepage into the basement is a prevalent condition. Therefore, for several years the basement of the Power Plant has relied on a system of trenches and sump pumps to passively collect groundwater that

12 Kent Way, Suite 100, Byfield, Massachusetts 01922-1221, Tel (978) 465-1822, Fax (978) 465-2986
400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891
Pease International Tradeport, 112 Corporate Drive, Portsmouth, New Hampshire 03801, Tel (603) 436-1490
60 Valley Street, Building F, Suite 106, Providence, Rhode Island 02909, Tel (401) 433-2160
2127 Hamilton Avenue, Hamilton, New Jersey 08619, Tel (609) 584-0090

www.ransomenv.com

Supervisor
U.S. Fish and Wildlife Service

enters the basement, pass it through an oil/water separator, and discharge it outside of the Power Plant. This is the discharge proposed for permitting under the 2017 RGP. The discharged water will be pumped to the cooling pond, which intermittently discharges directly to the Egypt River. The proposed effluent sampling location is at the discharge from the cooling pond.

In May 2002, the Power Plant was identified as a Disposal Site under the Massachusetts Contingency Plan. During the initial site investigations, groundwater was discovered to have been impacted by oil and hazardous material (OHM). Therefore, beginning in May 2003, granular activated carbon (GAC) vessels were added to the basement groundwater collection system to provide treatment for volatile organic compounds (VOCs) prior to the discharge of groundwater. The entire collection/remedial treatment system currently consists of open trenches located throughout the basement floor of the Power Plant, six basement sumps, a sediment filter bag, two 200-gallon oil-water separators, a 55-gallon collection drum, and two 300-pound aqueous-phase carbon units connected in series.

Remedial response actions addressed soil and groundwater contamination at the Site, and the release at the Disposal Site was “closed” in accordance with the MCP in June 2012. Since that time, the groundwater discharge has included low concentrations of some metals, but petroleum hydrocarbons and VOCs have not been present above laboratory detection limits.

The flow volume through the treatment system for the past 6 months (i.e., from 12/20/16 through 6/6/17) was 291,975 gallons (i.e., average ~1,860 gallons per day), but the discharge volume from the cooling pond has not been measured. The pond naturally overflows to the Egypt River through an emergency overflow pipe when the pond level exceeds the design capacity as a result of precipitation and/or high groundwater levels. The portion of the Egypt River into which the discharge flows is created by the confluence of Dow Brook and Bull Brook. Note that the streambed is dry and no discharge occurs from the pond at certain times of the year under low water conditions.

SPECIES LISTS

Ransom accessed the U.S. Fish & Wildlife Service (FWS) Information for Planning and Consultation (IPaC) website. The project area is within the range of the threatened Northern Long-eared Bat, but there is no critical habitat within the project area. A copy of the *Official Species List* from IPaC is provided in Attachment A.

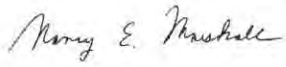
Nineteen Species of migratory birds and known wetland areas are present downstream from the project area. A copy of the list of *Federally Listed Endangered and Threatened Species in Massachusetts* from the local FWS office is also provided in Attachment A.

The Massachusetts Department of Environmental Protection (MA DEP) has designated the Egypt River to be an Outstanding Resource Water (ORW). According to Part 1, Section 1.3.1 of the RGP, discharges to ORW in Massachusetts are ineligible for coverage under the RGP unless an authorization is granted by the MA DEP. Catherine Vakalopoulos of the MA DEP Central Office is currently preparing a tentative determination to approve this discharge.

Supervisor
U.S. Fish and Wildlife Service

If you need additional information to respond to this request, please contact me as soon as possible at 978-465-1822 or via email at nmarshall@ransomenv.com.

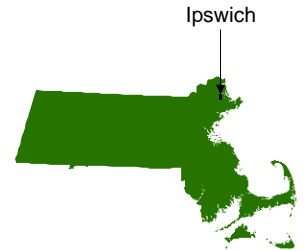
Sincerely,

 Nancy Marshall
2017.06.07 16:53:18 -04'00'

Nancy E. Marshall, P.E.
Project Manager

NEM:cnt
Attachments

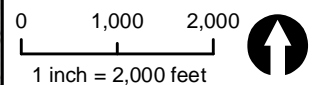
cc: Jon Blair, Electric Operations Manager, Ipswich Utilities Department (jblair@ipswichutilities.org)
Catherine Vakalopoulos, MA DEP (Catherine.Vakalopoulos@MassMail.State.MA.US)



Notes

1. Data Source: USGS National Map Seamless Server, 24K DRG, 1/3" NED
2. USGS Quad Name: Ipswich
3. Latitude: 42° 41' 55" N
Longitude: 70° 52' 12" W
UTM Northing: 4728819 mN
UTM Easting: 346831 mE

Scale and Orientation



Prepared For

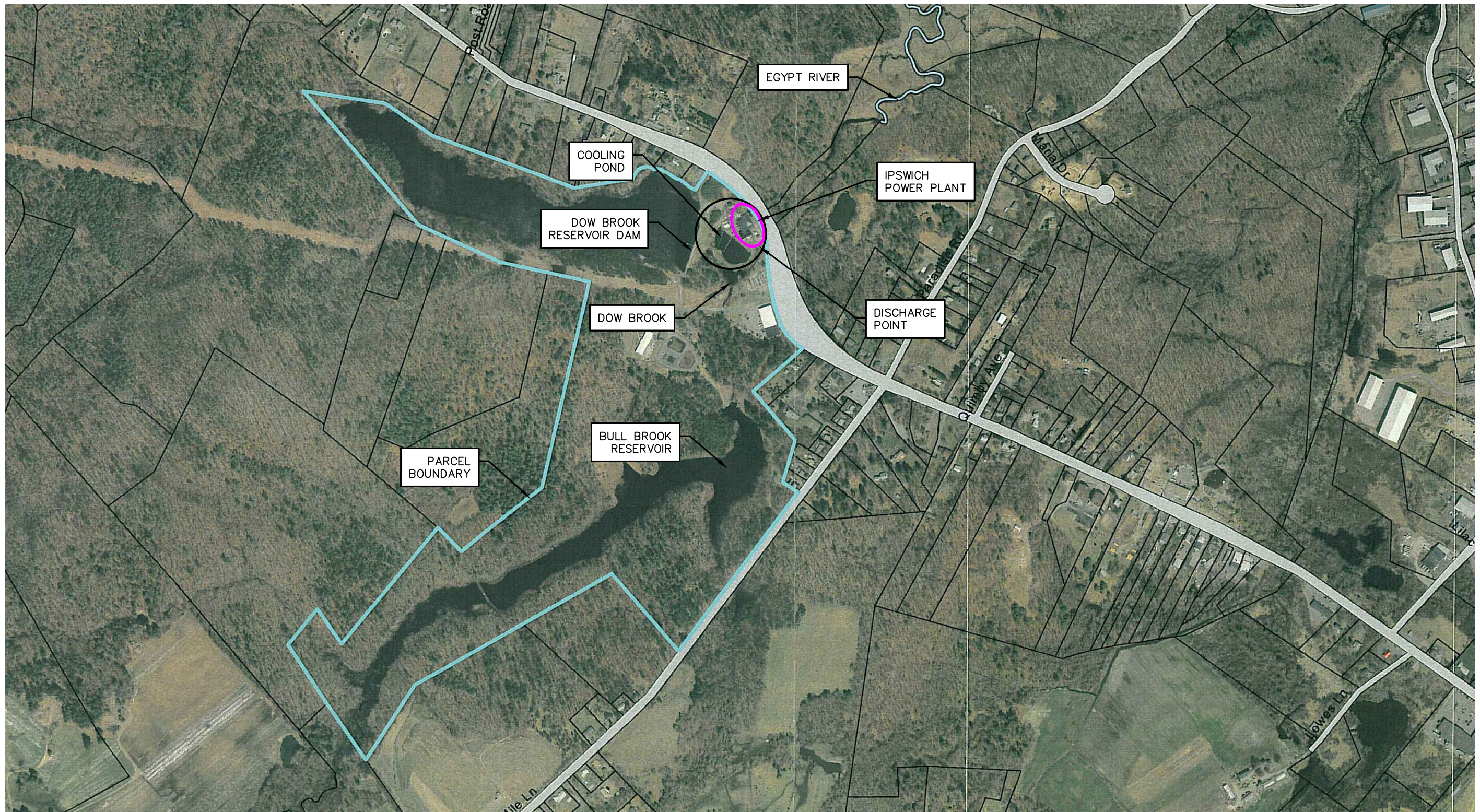
Ipswich Municipal Light
Department
272 High Street
Ipswich, Massachusetts

Site Address

Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

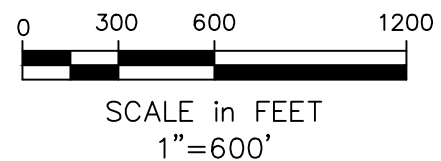
061.01184 June 2017

Figure 1
Facility Location Map



NOTE:

1. SITE PLAN BASED ON MAPPING PROVIDED BY IPSWICH MUNICIPAL LIGHT DEPARTMENT.



RANSOM

Consulting, Inc.

PREPARED FOR:
IPSWICH MUNICIPAL LIGHT
DEPARTMENT
272 HIGH STREET
IPSWICH, MASSACHUSETTS

SITE:
IPSWICH POWER PLANT
276 HIGH STREET
IPSWICH, MASSACHUSETTS

SITE AREA PLAN

DATE: JUNE 2017
PROJECT: 061.01184
FIGURE: 2

ATTACHMENT A

On-line Data Sources

Endangered Species Consultation
Ipswich Utilities Electric Power Plant
276 High Street
Ipswich, Massachusetts



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>



In Reply Refer To:

June 07, 2017

Consultation Code: 05E1NE00-2017-SLI-1788

Event Code: 05E1NE00-2017-E-03916

Project Name: Ipswich Power Plant, 276 High St, Ipswich, MA, with discharge to the Egypt River

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-1788

Event Code: 05E1NE00-2017-E-03916

Project Name: Ipswich Power Plant, 276 High St, Ipswich, MA, with discharge to the Egypt River

Project Type: LAND - DRAINAGE

Project Description: A sump operating in the circa 1900 Power Plant basement collects groundwater that infiltrates through the foundation walls and flows across the basement floor. Beginning prior to 2006 and continuing to the present, a sump pump discharged the collected water through an oil/water separator and outside of the Plant. A granular activated carbon (GAC) treatment system was added prior to the discharge circa 2007. The flow volume through the system for the past 6 months (i.e., from 12/20/16 through 6/6/17) was 291,975 gallons (i.e., average ~1,860 gallons per day). Under the new RGP, the treatment system will discharge to the Power Plant's existing manmade industrial cooling pond. (Note that the pond is used to cool the Power Plant engines when they operate, which is typically less than 10 days per year). The pond naturally overflows to the Egypt River through an emergency overflow pipe when the pond level exceeds the design capacity as a result of precipitation and/or high groundwater levels. The portion of the Egypt River into which the discharge flows is created by the flow over the spillways of the Dow Brook and Bull Brook Reservoirs. Note that the streambed is dry and no discharge occurs from the pond at certain times of the year and/or under drought conditions.

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/42.69927186135294N70.86782467102981W>



Counties: Essex, MA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened
No critical habitat has been designated for this species.	
Species profile: https://ecos.fws.gov/ecp/species/9045	

Critical habitats

There are no critical habitats within your project area.

IPaC**U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

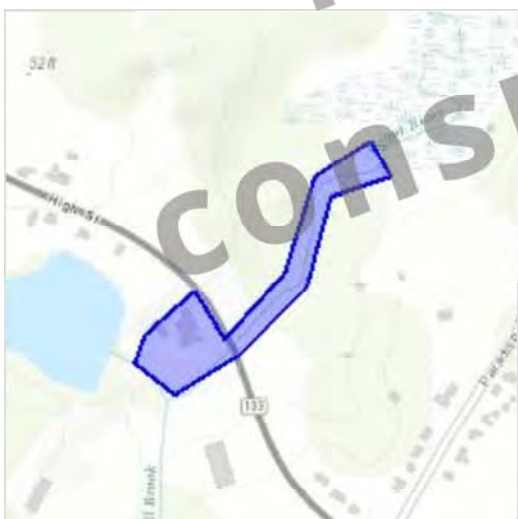
Project information

NAME

Ipswich Power Plant, 276 High St, Ipswich, MA, with discharge to the Egypt River

LOCATION

Essex County, Massachusetts



DESCRIPTION

A

sump operating in the circa 1900 Power Plant basement collects groundwater that infiltrates through the foundation walls and flows across the basement floor. Beginning prior to 2006 and continuing to the present, a sump pump discharged the collected water through an oil/water separator and outside of the Plant. A granular activated carbon (GAC) treatment system was added prior to the discharge circa 2007. The flow volume through the system for the past 6 months (i.e., from 12/20/16 through 6/6/17) was 291,975 gallons (i.e., average ~1,860 gallons per day). Under the new RGP, the treatment system will discharge to the Power Plant's existing manmade industrial cooling pond. (Note that the pond is used to cool the Power Plant engines when they operate, which is typically less than 10 days per year). The pond naturally overflows to the Egypt River through an emergency overflow pipe when the pond level exceeds the design capacity as a result of precipitation and/or high groundwater levels. The portion of the Egypt River into which the discharge flows is created by the flow over the spillways of the Dow Brook and Bull Brook Reservoirs. Note that the streambed is dry and no discharge occurs from the pond at certain times of the year and/or under drought conditions.

Local office

New England Ecological Services Field Office

☎ (603) 223-2541

📠 (603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

<http://www.fws.gov/newengland>

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your *My Projects* list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species

¹ are managed by the [Endangered Species Program](#) of the U.S. Fish and Wildlife Service.

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

¹ and the Bald and Golden Eagle Protection Act².

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service

³. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data <http://www.birdscanada.org/birdmon/default/datasummaries.jsp>

The migratory birds species listed below are species of particular conservation concern (e.g. [Birds of Conservation Concern](#)) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the [AKN Histogram Tools](#) and [Other Bird Data Resources](#). To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
American Bittern <i>Botaurus lentiginosus</i> https://ecos.fws.gov/ecp/species/6582	On Land: Breeding
American Oystercatcher <i>Haematopus palliatus</i> https://ecos.fws.gov/ecp/species/8935	On Land: Breeding
Bald Eagle <i>Haliaeetus leucocephalus</i> https://ecos.fws.gov/ecp/species/1626	On Land: Year-round
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> https://ecos.fws.gov/ecp/species/9399	On Land: Breeding
Blue-winged Warbler <i>Vermivora pinus</i>	On Land: Breeding
Canada Warbler <i>Wilsonia canadensis</i>	On Land: Breeding
Hudsonian Godwit <i>Limosa haemastica</i>	At Sea: Migrating

Least Bittern <i>Ixobrychus exilis</i> https://ecos.fws.gov/ecp/species/6175	On Land: Breeding
Least Tern <i>Sterna antillarum</i>	On Land: Breeding
Olive-sided Flycatcher <i>Contopus cooperi</i> https://ecos.fws.gov/ecp/species/3914	On Land: Breeding
Peregrine Falcon <i>Falco peregrinus</i> https://ecos.fws.gov/ecp/species/8831	On Land: Breeding
Pied-billed Grebe <i>Podilymbus podiceps</i>	On Land: Breeding
Prairie Warbler <i>Dendroica discolor</i>	On Land: Breeding
Purple Sandpiper <i>Calidris maritima</i>	On Land: Wintering
Saltmarsh Sparrow <i>Ammodramus caudacutus</i>	On Land: Breeding
Seaside Sparrow <i>Ammodramus maritimus</i>	On Land: Breeding
Short-eared Owl <i>Asio flammeus</i> https://ecos.fws.gov/ecp/species/9295	On Land: Wintering
Snowy Egret <i>Egretta thula</i>	On Land: Breeding
Willow Flycatcher <i>Empidonax traillii</i> https://ecos.fws.gov/ecp/species/3482	On Land: Breeding
Wood Thrush <i>Hylocichla mustelina</i>	On Land: Breeding

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAA/NCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance and richness of bird species within your project area off the Atlantic Coast, see the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAA/NCCOS models: the models were developed as part of the NOAA/NCCOS project: [Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#). The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the [Northeast Ocean Data Portal](#), which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The [Avian Knowledge Network \(AKN\)](#) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest, survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the [Migratory Bird Programs AKN Histogram Tools](#) webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS [Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project](#) webpage.

Facilities

Wildlife refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

This location overlaps the following wetlands:

ESTUARINE AND MARINE WETLAND

[E2EM1P](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PFO1E](#)

FRESHWATER POND

[PUBHh](#)

A full description for each wetland code can be found at the National Wetlands Inventory website: <https://ecos.fws.gov/ipac/wetlands/decoder>

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Not for
consultation

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Berkshire	Bog Turtle	Threatened	Wetlands Eg	remont and Sheffield
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Taunton
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

Updated 02/05/2016

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN MASSACHUSETTS**

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Franklin	Northeastern bulrush	Endangered	Wetlands Mo	ntague, Warwick
	Dwarf wedgemussel	Endangered	Mill River	Whately
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hatfield, Amherst and Northampton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Nantucket	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
	American burying beetle	Endangered	Upland grassy meadows	Nantucket
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

**FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN MASSACHUSETTS**

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Plymouth	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Suffolk	Piping Plover	Threatened	Coastal Beaches	Revere, Winthrop
	Red Knot ¹	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

¹Migratory only, scattered along the coast in small numbers

-Eastern cougar and gray wolf are considered extirpated in Massachusetts.

-Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.

-Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

ATTACHMENT F

Best Management Practices Certification

Transmittal of Notice of Intent
2017 Remediation General Permit
MAG 910000
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

Best Management Practices Certification

Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

The Ipswich Municipal Light Department (IMLD) operates the power plant owned by the Town of Ipswich Power Company located at 276 High Street in Ipswich, Massachusetts. IMLD implements Best Management Practices (BMPs) that are described in a Spill Pollution Control and Countermeasure Plan and operations and maintenance procedures.

By my signature below, I attest that previously existing BMPs have been revised to meet the terms of the 2017 Remediation General Permit (RGP), and that the revised BMPs will be implemented at the power plant. The BMPs include conducting operation and maintenance activities, recording monitoring results, and maintaining records relative to the discharges permitted under the Remediation General Permit (RGP).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Signature

Jonathan Blair, Electric Light Manager

Printed Name and Title

ATTACHMENT G

Massachusetts Department of Environmental Protection
Transmittal Form for Permit Application and Payment

Transmittal of Notice of Intent
2017 Remediation General Permit
MAG 910000
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts



Enter your transmittal number

X275647

Transmittal Number

Your unique Transmittal Number can be accessed online: <http://mass.gov/dep/service/online/trasmfrm.shtml>

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

BRPWM15

1. Permit Code: 4 to 7 character code from permit instructions

Surface Water Discharge (NPDES) Permitting

2. Name of Permit Category

Remediation General Permit- Category VII. Collection Structure Dewatering/Remediation

3. Type of Project or Activity

B. Applicant Information – Firm or Individual

Town of Ipswich Power Company

1. Name of Firm - Or, if party needing this approval is an individual enter name below:

2. Last Name of Individual

272 High Street

5. Street Address

Ipswich

MA

01938

978-356-6635

2113

6. City/Town

7. State

8. Zip Code

9. Telephone #

10. Ext. #

Jon Blair

jblair@ipswichutilities.org

11. Contact Person

12. e-mail address

C. Facility, Site or Individual Requiring Approval

Ipswich Power Plant

1. Name of Facility, Site Or Individual

276 High Street

2. Street Address

Ipswich

MA

01938

978-356-6635

2113

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

Jon Blair

jblair@ipswichutilities.org

8. DEP Facility Number (if Known)

9. Federal I.D. Number (if Known)

RTN 3-21793

10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

Ransom Consulting, Inc.

1. Name of Firm Or Individual

12 Kent Way, Suite 100

2. Address

Byfield

MA

01922

978-465-1822

112

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

Nancy E. Marshall, P.E.

8. Contact Person

9. LSP Number (BWSC Permits only)

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no
If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

F. Amount Due

Special Provisions:

1. ☒ **Fee Exempt** (city, town or municipal housing authority)(state agency if fee is \$100 or less).
There are no fee exemptions for BWSC permits, regardless of applicant status.
2. ☐ **Hardship Request** - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ **Alternative Schedule Project** (according to 310 CMR 4.05 and 4.10).
4. ☐ **Homeowner** (according to 310 CMR 4.02).

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Check Number

Dollar Amount

Date

Via email: jennifer.wood@state.ma.us

July 26, 2018

Project 061.01184.006

Ms. Jennifer Wood
Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
One Winter Street
Boston, Massachusetts 02108

RE: Response to Request for Information
Notice of Intent for 2017 RGP Coverage
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

Dear Ms. Wood:

On behalf of the Town of Ipswich Utilities Department (Ipswich Utilities), Ransom Consulting, Inc. (Ransom) has prepared this response to a Request for Information (RFI) issued by the Massachusetts Department of Environmental Protection (MassDEP) on June 26, 2018. In July 2017, Ipswich Utilities submitted a Notice of Intent (NOI) under the 2017 Remediation General Permit (RGP) to the United States Environmental Protection Agency (U.S. EPA) to request authorization to discharge from a basement sump located in the Power Plant to an on-site cooling pond which discharges to the Egypt River. Because the Egypt River is classified as an Outstanding Resource Water (ORW), the MassDEP must first authorize the discharge before it can be eligible for permitting under the RGP. MassDEP has requested additional information to facilitate its review of conditions pertaining to compliance with the *Antidegradation Provisions of the Massachusetts Surface Water Quality Standards (314 CMR 4.00)* and the MassDEP policy *Implementation Procedures for the Antidegradation Provisions of the Massachusetts Surface Water Quality Standards, 314 CMR 4.00* (the Policy). A copy of the RFI is provided as Attachment A.

MassDEP's questions are provided in italics below, followed by our responses.

1. *Are there less environmentally damaging alternative sites for the discharge, sources for disposal, or methods to eliminate the discharge that are reasonably available or feasible? This demonstration must include an analysis of the reuse and conservation of discharge water, relocation of the activity, land application of discharge water or use of closed systems, alternative methods of production or operation, improved process controls, improved discharge water treatment facility operation, alternative methods of treatment and treatment beyond applicable technology requirements of the Federal Clean Water Act. Technologically feasible alternative must be compared with the potential environmental degradation.*

12 Kent Way, Suite 100, Byfield, Massachusetts 01922-1221, Tel (978) 465-1822, Fax (978) 465-2986
400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891
Pease International Tradeport, 112 Corporate Drive, Portsmouth, New Hampshire 03801, Tel (603) 436-1490
60 Valley Street, Building F, Suite 106, Providence, Rhode Island 02909, Tel (401) 433-2160
2127 Hamilton Avenue, Hamilton, New Jersey 08619, Tel (609) 584-0090

www.ransomenv.com

2. *To the maximum extent feasible, are the discharge and activity designed and conducted to minimize adverse impacts on water quality, including implementation of source reduction practices? All reasonable efforts to minimize the environmental impacts of the proposed discharge must be made. Emphasis is placed on source reduction. This includes investigation of changes in plant production processes or raw materials that reduce, avoid, or eliminate the use of pollutants, including, but not limited to, nutrients, toxics and hazardous substances, or generation of pollution by-product per unit product, so as to reduce overall risks to the environment. Compliance with M. G. L Ch 21 (the Toxics Use Reduction Act) is required.*

BACKGROUND

An understanding of current and historical conditions is critical to addressing these two sets of questions. Historically, the Egypt River was formed by the confluence of Bull Brook and Dow Brook. Both brooks were dammed in the 1890s to create reservoirs for the municipal water supply. Currently, the flow in the Egypt River in the vicinity of the Power Plant depends on the flow over both dam spillways. Refer to the Site Location Map and aerial photograph provided as Figures 1 and 2, respectively, as Attachment B for the locations of the significant features. Sensitive resources in the vicinity of the Power Plant are shown on Figure 3 in Attachment B.

The Power Plant was constructed in 1903 approximately 200 feet east of the dam for the Dow Brook Reservoir. Circa 1950, a pond was constructed southwest of the Power Plant in the area between the building and the dam to provide non-contact cooling water for the diesel-fueled generators. The upslope edge of the cooling pond is located approximately 100 feet from the wet face of the Dow Brook Reservoir dam. The ground elevation at the Power Plant and cooling pond is approximately 20 feet lower than the water level in the Dow Brook Reservoir, and the Power Plant has a basement constructed of mortared stone and brick masonry walls which are not watertight. Because groundwater seepage into the basement was anticipated, a system of trenches and sump pumps was included in the basement floor to collect the water and discharge it outside of the Power Plant building. The collected seepage water historically passed through oil/water separators before being discharged to leaching pits on the Power Plant property.

In May 2002, the Power Plant was identified as a Disposal Site under the Massachusetts Contingency Plan. During the initial site investigations, groundwater was discovered to have been impacted by oil and hazardous material (OHM). Therefore, beginning in May 2003, granular activated carbon (GAC) vessels were added to the existing groundwater collection system to provide an additional level of treatment prior to the discharge of groundwater. Discharge to the leaching pits was discontinued and the treated seepage water was instead discharged to the cooling pond. The collection/remedial treatment system currently consists of open trenches located throughout the basement floor of the Power Plant, six basement sumps, a sediment filter bag, two 200-gallon oil/water separators, a 55-gallon collection drum, and two 300-pound aqueous-phase carbon units connected in series. Refer to Figure 4 in Attachment B for a schematic of the collection system.

On March 31, 2010, a Release Abatement Measure (RAM) Completion Report was submitted to the MassDEP because the groundwater remediation goal had been achieved. A Response Action Outcome (RAO) Statement was submitted to the MassDEP in June 2012, closing the Site with respect to the Massachusetts Contingency Plan (MCP). Although the treatment portion of the system was no longer needed to remediate groundwater contaminated with petroleum and volatile organic compounds (VOCs),

the collection and discharge system continued to operate to prevent flooding in the Power Plant building. The GAC vessels were left in place as a preventative measure since the presence of oil inside the Power Plant building creates the potential for an adverse impact on the water to be discharged.

SOURCE REDUCTION EFFORTS

The source of the discharge is water that has passively seeped into the basement of the Power Plant. The seepage water is, in turn, pumped to the cooling pond. Discharge to the Egypt River occurs when the volume of water in the cooling pond exceeds its design volume. The discharge from the cooling pond to the Egypt River is not currently permitted but we have been working with U.S. EPA to identify the appropriate permitting vehicle for that discharge. The volume of water being discharged to the Egypt River under the RGP and/or a second National Pollutant Discharge Elimination System (NPDES) permit for the cooling pond could be reduced by reducing or eliminating the seepage into the basement, and/or maintaining the cooling pond level below the elevation of the overflow riser pipe.

Basement Waterproofing

The plant operator reports that the basement of the Power Plant has historically flooded. As an example, during a May 2006 flood event, the water was approximately 3 to 4 feet deep inside the basement (covering the electric panels) and required emergency pumping and dewatering by the fire department.

In 2007, Ipswich Utilities contracted with Ransom to assess the probable cause of seepage into the basement and develop preliminary alternatives for preventing the seepage. At the time of the assessment, groundwater was encountered at depths of 1 to 5 feet below the ground surface (bgs), and Ransom observed groundwater seepage through the lower 1 to 2 feet of the existing basement walls. Staining and efflorescence were also observed in various locations, predominantly at joints or cracks in the basement walls, and at higher levels indicating that groundwater seepage most likely occurs in these areas with elevated groundwater levels. The basement floor slab was observed to be in generally good condition with only minor cracking visible.

Based on the information available during that investigation, Ransom concluded that the basement floor and a portion of the walls are below static groundwater levels throughout most of the year, and the groundwater seepage is due to unbalanced hydrostatic pressures and deteriorating conditions of the existing walls and floors. The ongoing management strategy has been to collect the seepage entering the basement in trenches and sumps located throughout the floor and to pump it outside of the basement. This is the discharge that is the subject of the RGP NOI.

Ransom completed preliminary evaluations of the following remediation methodologies:

1. Lowering the outside groundwater table: Several methods of lowering the outside groundwater table are available, such as subsurface footing drains, curtain drains, deep wells, etc. However, Ransom concluded that permanent dewatering systems are infeasible due to the quantity of discharge water anticipated;
2. Sealing and waterproofing the basement walls and floors, such as spray-on waterproofing and encapsulating interior membranes. Ransom eliminated spray-on waterproofing as infeasible because of a poor likelihood of success based on the friable and fractured

condition of the basement walls. Costs for encapsulating the basement walls were estimated at approximately \$120,000; however, Ransom concluded that the likelihood of success was low due to the difficulty of accessing walls around the existing pipes and equipment, the irregularity of the existing walls and floors, and the hydrostatic pressures.

3. Installing Cut-Off/Barrier Walls, such as steel or vinyl sheet piles, soil-bentonite slurry walls, and jet-grouted walls. Vibrated sheet piles were eliminated from further consideration because of their higher material costs, difficulty with installation due to subsurface utilities in the area of the building, the likelihood of the cut-off wall needing to extend into bedrock to prevent seepage under the wall, and the higher potential for leakage through joints in the wall. Costs of the soil-bentonite slurry wall were estimated to be upwards of \$120,000, but that wall alone would not likely prevent seepage during a flooding event. Ransom concluded that costs associated with a jet-grouted curtain wall would be upwards of \$300,000, and that inconsistent subsurface conditions would lead to variable results.

Ransom concluded that bentonite slurry wall alternative and interior waterproofing of the basement walls and floor in combination may be required to reduce the flow of groundwater into the basement to insignificant quantities, but that further investigation was needed to assess the potential success. Given the uncertainties associated with the remediation strategies, the estimated cost of the repairs, and the uncertain future of the Power Plant, Ipswich Utilities elected to continue with the collection and discharge of the seepage water under the RGP.

Dam Repair

During the same period, Ipswich Utilities became aware that the elevation of water in the cooling pond was remaining at its maximum design elevation without a preceding storm event, and flow was frequently observed from the emergency overflow. Both of these observations were an indication that the inflow of water to the cooling pond had increased. Ipswich Utilities was aware of some seepage on the face of the Dow Brook Reservoir dam beginning in the 1980s. The seeps observed at that time were approximately 3 to 8 feet wide and produced flow on the order of 5 gallons per minute (gpm).

In April 2008, Ipswich Utilities contracted with Ransom to collect a water sample from a seep present below the dam face, a water sample from the Dow Brook Reservoir, and a groundwater sample from a groundwater monitoring well (MW104) located adjacent to the cooling pond for chemical analysis. Based on the analytical results, it was Ransom's opinion that the seep's chemical composition was closer to that of the reservoir water than to the groundwater sample collected from the monitoring well. The analytical results supported the hypothesis that the seep was the result of water from the reservoir moving through the dam core rather than a breakout of groundwater. The seepage volume from the Reservoir Dam was also believed to be responsible for the increase inflow of water into the cooling pond and increased groundwater seepage into the basement. A copy of the Seepage Evaluation is provided as Attachment C.

On April 4, 2018, Ipswich Utilities personnel noted a large area of seepage at the downstream slope/toe of the dam. On April 26, 2018, on behalf of Ipswich Utilities, Haley & Aldrich, Inc. (H&A) notified the Massachusetts Department of Conservation and Recreation, Office of Dam Safety (DCR/ODS), that seepage observed on April 10, 2018 occurred over a 30-foot long area and the seepage volume was estimated to be approximately 30 to 40 gpm. H&A recommended that action be taken to prevent further

damage to the dam. On June 5, 2018, DCR/ODS classified the dam as Unsafe and issued a Certificate of Non-Compliance and Dam Safety Order (the Order) to the Town of Ipswich to begin actions to address the deficiencies. The Order requires that all repair work be completed no later than December 2019. Copies of H&A's inspection report and DCR/ODS's Order are provided as Attachment D.

In response, Ipswich Utilities is currently investigating the dam in advance of an emergency repair scheduled to begin in fall 2018. The cost of the project is estimated at \$750,000. The objective is to repair the core of the dam to improve its safety and function. In addition to the intended effects, repair of the dam is anticipated to reduce the inflow of water into the cooling pond, such that the routine discharge of water via the cooling pond's emergency outflow pipe may be eliminated. The dam repair is also expected to reduce the hydrostatic pressures that are driving seepage into the basement of the Power Plant, which should also reduce the volume of water requiring discharge. Although some continued seepage into the basement is anticipated, repair of the dam may result in the elimination of the discharge to the Egypt River from the cooling pond, except during a significant storm event.

DISCHARGE OPTIONS

Current Conditions

The monthly average effluent flow volumes since December 2016 have ranged from approximately 700 to 3,000 gallons per day (gpd), with daily flows of up to approximately 9,400 gpd. The system currently discharges to the north end of the cooling pond in batches of approximately 30 gallons. The pond overflows to the Egypt River via an overflow riser located in the southern end. There is currently no flow meter on the cooling pond discharge pipe.

On July 13, 2018, Ransom estimated the cooling pond's discharge volume based on observations of the discharge channel cross-section and a surface flow velocity estimate. The estimated discharge volume from the cooling at the time of our site visit was 0.08 million gallons per day (MGD). To confirm whether the estimate was reasonable, Ransom compared it to the seepage rate through the dam reported by H&A in April 2018. A seepage rate of 40 gpm (0.058 MGD) was reported for the major seep observed at the time, but other smaller seeps were also observed. Based on this information, Ransom estimates that the current discharge volume from the cooling pond to the Egypt River is on the order of 58,000 to 80,000 gallons per day (gpd).

Discharge to Municipal Sewer

Municipal sewer lines are not available near the Power Plant, so a direct sewer line connection is not available. Ipswich Utilities considered hauling the discharge water to the municipal sewer plant; however, additional evaluation would be needed to assess the feasibility of this option because of existing treatment limits in place at the municipal treatment facility. This option was not given further consideration because it would only address a fraction (estimated at approximately 5 percent) of the discharge to the Egypt River from the Site, since the majority of the discharge consists of the overflow of the cooling pond.

On-Site Infiltration

The former leach field/subsurface infiltration basins were abandoned when the drainage infrastructure associated with High Street was reconstructed, so these are no longer available to accept the discharge.

In a meeting with MassDEP at the Site on March 22, 2017, site conditions were reviewed to assess the feasibility of redirecting the discharge from the cooling pond to a subsurface infiltration basin. The Power Plant has an on-site subsurface sanitary disposal system located on the hill to the north of the Power Plant. This system was designed with a limited capacity to service one rest room and a kitchenette used by workers in the Power Plant. Discharging to the existing leach field was not given further consideration because of concerns about overwhelming its limited design capacity.

Regarding other on-site areas, the cooling pond is located immediately adjacent to the parking lot to the west, High Street/Route 1A is located 50 feet to the east of the building, and the Egypt River is located approximately 30 feet south of the access road. Based on the limited land area, there are no practicable locations for the installation of a new infiltration structure. Therefore, on-site infiltration of the discharge was eliminated as a feasible alternative.

1. Will the continued discharge impair existing uses of the receiving water or result in a level of water quality less than that specified for the Class?
2. Since expiration of the previous RGP in September 9, 2015, did discharge from the facility meet the requirements of the RGP issued on September 9, 2010 "2010 RGP"? Note that cumulative degradation resulting from a discharger's noncompliance may warrant further investigation. If the facility has been in noncompliance, explain how the facility plans to return to compliance.

A summary of the analytical results for the Treatment System effluent sample collected from September 2015 through June 2018 is provided in Table 1 as Attachment E. The concentrations of copper and iron have exceeded their RGP effluent limits 25 and 33 times, respectively, out of the last 34 sampling events. Lead and zinc have exceeded their RGP effluent limits 5 and 15 times, respectively, out of the last 34 sampling events.

Ipswich Utilities has contacted multiple vendors in an effort to find an appropriate treatment system for the effluent. A bench test was conducted by GE Power, Water & Process Technologies on August 2, 2017. However, the results of that analysis were inconclusive because the concentrations of metals in the influent were all below their corresponding RGP effluent limits. Ipswich Utilities personnel have focused their current efforts on removing sediment from the influent in an attempt to decrease the concentrations of total metals in the discharge.

To evaluate the impact of the discharge on the water quality in the Egypt River, Ransom estimated the potential pollutant loading from the concentration and flow data collected since September 2018. Using the data from Table 1, Ransom calculated the average concentration for each metal of concern (copper, iron, lead, and zinc). Table 1 includes the average daily flow rate calculated from the daily flow meter readings provided by Ipswich Utilities personnel. Ransom calculated an average of the daily average effluent flow rate from data from the past 34 months. An estimated pollutant loading for each metal was calculated by multiplying the average effluent concentration by the average daily effluent flow rate.

Ransom estimated the anticipated concentration of each metal in the Egypt River using the estimated daily pollutant loading and flow rates in the Egypt River. Based on observations of the channel cross-section and a velocity estimate made at a point upstream of the discharge point on July 13, 2018, Ransom estimated that the flow in the Egypt River was on the order of 2.58 MGD. Ransom also used Stream Stats to provide the 7Q10 flow of the Egypt River. The value obtained from Stream Stats was 0.12 cubic feet per second (0.06458 MGD). The estimated metals concentrations in the Egypt River attributed to the effluent discharge are summarized in Table 2 provided as Attachment E. As shown in the table, the average estimated metals concentrations attributed to the treatment system discharge are below the 2010 RGP Effluent limits. Based on these calculations, we conclude that the continued discharge will not impair the existing uses of the receiving water or result in a level of water quality less than that specified for the Class.

PROPOSED RESPONSE ACTIONS

Ipswich Utilities wishes to take a wholistic approach to the discharge permitting at the Power Plant. There is a single discharge point to the Egypt River; this is the overflow pipe from the cooling pond. The cooling pond was designed as a closed-loop system and is currently used approximately 5 days per year to provide non-contact cooling water for the Power Plant generators. The cooling pond is also the current receptor for the discharge from the basement sump treatment system. However, the overwhelming source of the water to the cooling pond (and, ultimately, an estimated 95 percent of the discharge volume to the Egypt River) is the seepage through the Dow Brook Reservoir dam and stormwater flow from significant precipitation events.

Ipswich Utilities is currently underway with an extensive repair of the dam. The goal of this effort is to stop the seepage through the dam which has been an issue since the 1980s but has gotten significantly worse in recent months. Ipswich Utilities intends to install a flow meter to quantify the discharge from the cooling pond and is currently assessing alternatives from various vendors. Installation of a flow meter will provide documentation of the effectiveness of the dam repair on decreasing inflow into the cooling pond and will provide more quantitative data for future discharge permitting efforts. Ipswich Utilities has also eliminated its previous use of copper sulfate for algae control in the cooling pond and is working with vendors to identify an alternative but effective algae control method.

Following completion of the dam repair, Ipswich Utilities anticipates that the consistent discharge to the Egypt River from the cooling pond will be significantly reduced if not completely eliminated except during precipitation events. Because the cooling pond itself is not a regulated surface water body, elimination of the discharge to the river would be grounds for terminating the RGP. The dam repairs are scheduled to commence in fall 2018 and are anticipated to take 6 months to complete. We intend to install a flow meter to measure the cooling pond discharge volumes prior to the start of the dam repairs.

Ipswich Utilities requests that a final decision on the RGP NOI for the treatment system discharge and/or additional NPDES permitting for the cooling pond be delayed until the dam repair efforts are complete and we can evaluate the impact of the repair on the discharges from the Power Plant. If discharge permitting is required under NPDES after the dam repairs are complete, we will re-evaluate the applicability of the available General Permits. Based on the interrelated nature of the systems at the Power Plant, and Individual Permit may be the best fit for future permitting needs. We request that the existing RGP authorization be administratively continued until the dam repair work is complete.

Ms. Jennifer Wood
Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program

If you have any questions regarding this response, please feel free to contact either of the undersigned at (978) 465-1822.

Sincerely,

RANSOM CONSULTING, INC.

Nancy E. Marshall, P.E.
Project Manager

Timothy J. Snay
Licensed Site Professional

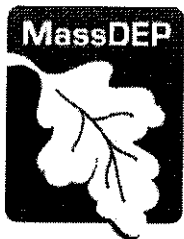
NEM/TJS:cnt
Attachments

cc: Mr. Jon Blair, IMLD

ATTACHMENT A

MassDEP Request for Information

Response to Request for Information
Notice of Intent for 2017 RGP Coverage
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

June 26, 2018

Jon Blair
Town of Ipswich Power Company
272 High Street
Ipswich, MA 01938

Dear Mr. Blair,

The Massachusetts Department of Environmental Protection (MassDEP) and the U.S. Environmental Protection Agency (US EPA) have received your Notice of Intent (NOI) for coverage under the 2017 Remediation General Permit ("2017 RGP"). You are requesting coverage for a discharge to Egypt River, which is an Outstanding Resource Water (ORW). Section 1.3 of the 2017 RGP states that discharges to ORWs are ineligible for coverage unless an authorization is granted by MassDEP, and therefore MassDEP is required to perform an additional review in accordance with the Antidegradation Provisions of the Massachusetts Surface Water Quality Standards (314 CMR 4.00) and MassDEP policy, "Implementation Procedures For The Antidegradation Provisions of the Massachusetts Surface Water Quality Standards, 314 CMR 4.00" ("the Policy") prior to State Authorization of the discharge. Once MassDEP has issued State Authorization, the US EPA can proceed with authorization to discharge under the 2017 RGP.

Per 314 CMR 4.05(3), Egypt River is classified as Class B. These waters are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have excellent aesthetic value.

While we understand that your facility's discharge has been covered under previous versions of the RGP, MassDEP regulations at 314 CMR 4.04(5)(c) require State Authorization for discharge to an ORW each time the permit is re-issued. The 2017 RGP will expire on April 8, 2022.

In order to proceed with State Authorization, 314 CMR 4.04(5)(b) requires the applicant to demonstrate compliance with MassDEP regulations 314 CMR 4.04(5)2 through 314 CMR 4.04(5)4 and the Policy. To facilitate this process, we request a response with explanation to each of the questions listed below.

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.
TTY# MassRelay Service 1-800-438-2370
MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

1. Are there less environmentally damaging alternative sites for the discharge, sources for disposal, or methods to eliminate the discharge that are reasonably available or feasible? This demonstration must include an analysis of the reuse and conservation of discharge water, relocation of the activity, land application of discharge water or use of closed systems, alternative methods of production or operation, improved process controls, improved discharge water treatment facility operation, alternative methods of treatment and treatment beyond applicable technology requirements of the Federal Clean Water Act. Technologically feasible alternatives must be compared with the potential environmental degradation.
2. To the maximum extent feasible, are the discharge and activity designed and conducted to minimize adverse impacts on water quality, including implementation of source reduction practices? All reasonable efforts to minimize the environmental impacts of the proposed discharge must be made. Emphasis is placed on source reduction. This includes investigation of changes in plant production processes or raw materials that reduce, avoid, or eliminate the use of pollutants, including, but not limited to, nutrients, toxics and hazardous substances, or generation of pollution by-product per unit product, so as to reduce overall risks to the environment. Compliance with M.G.L. Ch. 21I (the Toxics Use Reduction Act) is required.
3. Will the continued discharge impair existing uses of the receiving water or result in a level of water quality less than that specified for the Class?
4. Since expiration of the previous RGP in September 9, 2015, did discharge from the facility meet the requirements of the RGP issued on September 9, 2010 "2010 RGP"? Note that cumulative degradation resulting from a discharger's noncompliance may warrant further investigation. If the facility has been in noncompliance, explain how the facility plans to return to compliance.

Please send responses to these questions to:

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program, c/o Jennifer Wood
1 Winter Street
Boston, MA 02108
e-mail: jennifer.wood@state.ma.us

Please send your response within 30 days of the date of this letter. Your continued authorization to discharge is contingent upon receipt of your response.

Following receipt of your response, we will reach out to you if additional information is needed. Once all necessary information is obtained, MassDEP will make a tentative determination regarding State Authorization and then publish the tentative authorization in the Environmental Monitor for public comment. Once the public comment period is closed, MassDEP will issue a final decision about State Authorization. Once MassDEP has issued State Authorization, the US EPA can proceed with authorization to discharge under the 2017 RGP.

If you have any questions about this process, please contact Jennifer Wood at 617-654-6536 or at the above e-mail address.

Sincerely,

A handwritten signature in black ink, appearing to be 'SK' or similar, written over the printed name.

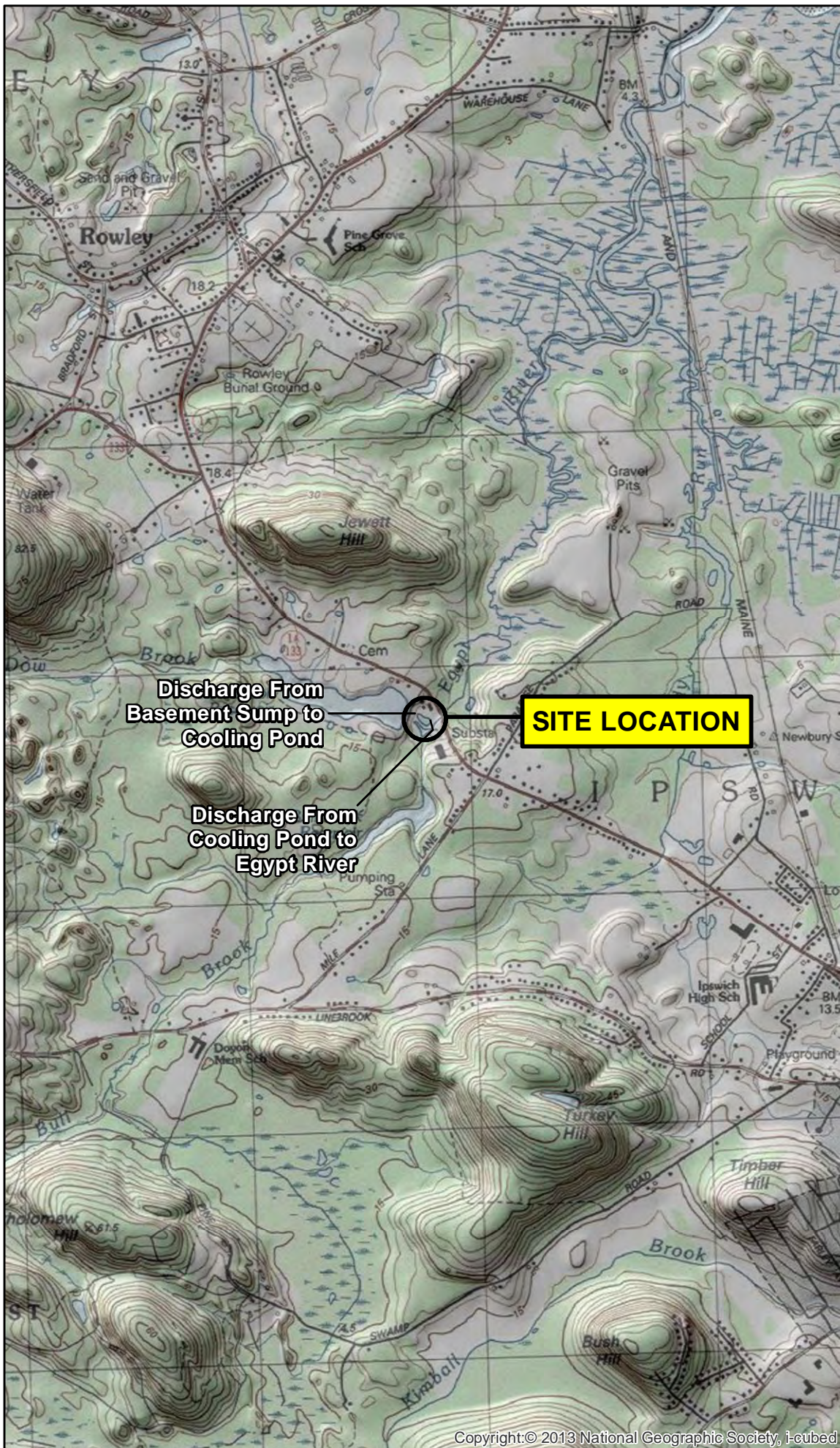
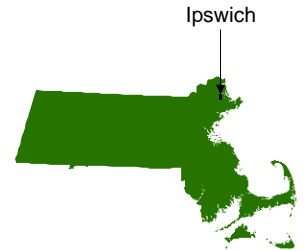
Susannah King
NPDES Section Chief

Cc: Nancy Marshall, Ransom Consulting, Inc., via e-mail
Vicki Halmen, Ipswich Wastewater Director, via e-mail
David Butler, MassDEP NERO, via e-mail
Shauna Little, EPA Region 1, via e-mail

ATTACHMENT B

Figures from 2017 Notice of Intent

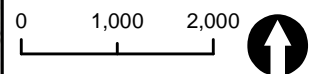
Response to Request for Information
Notice of Intent for 2017 RGP Coverage
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts



Notes

1. Data Source: USGS National Map Seamless Server, 24K DRG, 1/3" NED
2. USGS Quad Name: Ipswich
3. Latitude: 42° 41' 55" N
Longitude: 70° 52' 12" W
UTM Northing: 4728819 mN
UTM Easting: 346831 mE

Scale and Orientation



Prepared For

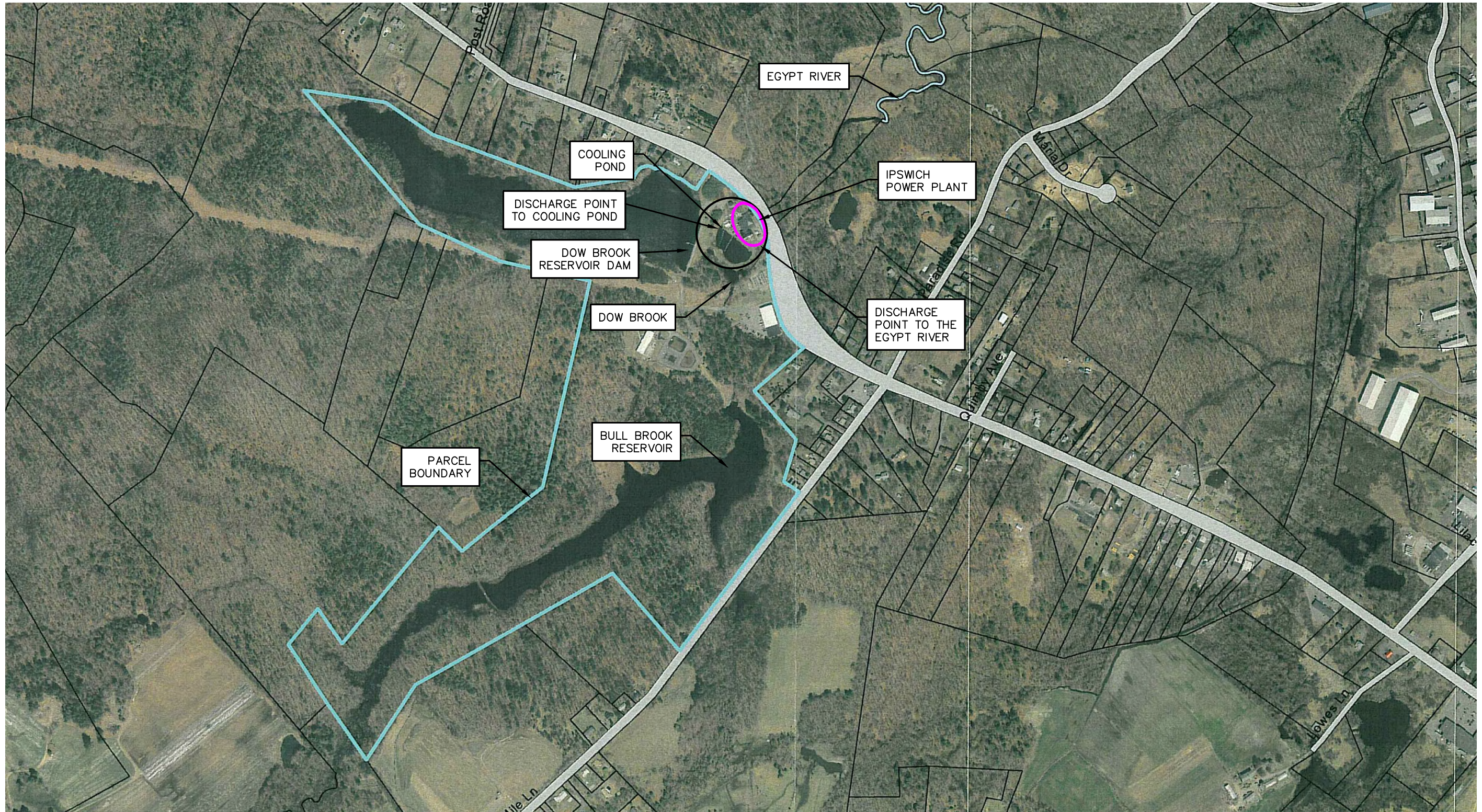
Ipswich Municipal Light
Department
272 High Street
Ipswich, Massachusetts

Site Address

Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

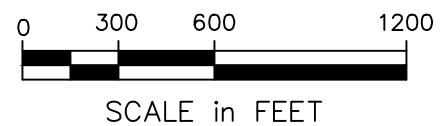
061.01184 | July 2017

Figure 1
Site Location Map



NOTE:

1. SITE PLAN BASED ON MAPPING PROVIDED BY IPSWICH MUNICIPAL LIGHT DEPARTMENT.



RANSOM

Consulting, Inc.

PREPARED FOR:
IPSWICH MUNICIPAL LIGHT
DEPARTMENT
272 HIGH STREET
IPSWICH, MASSACHUSETTS

SITE:
IPSWICH POWER PLANT
276 HIGH STREET
IPSWICH, MASSACHUSETTS

SITE AREA PLAN

DATE: JULY 2017
PROJECT: 061.01184
FIGURE: 2

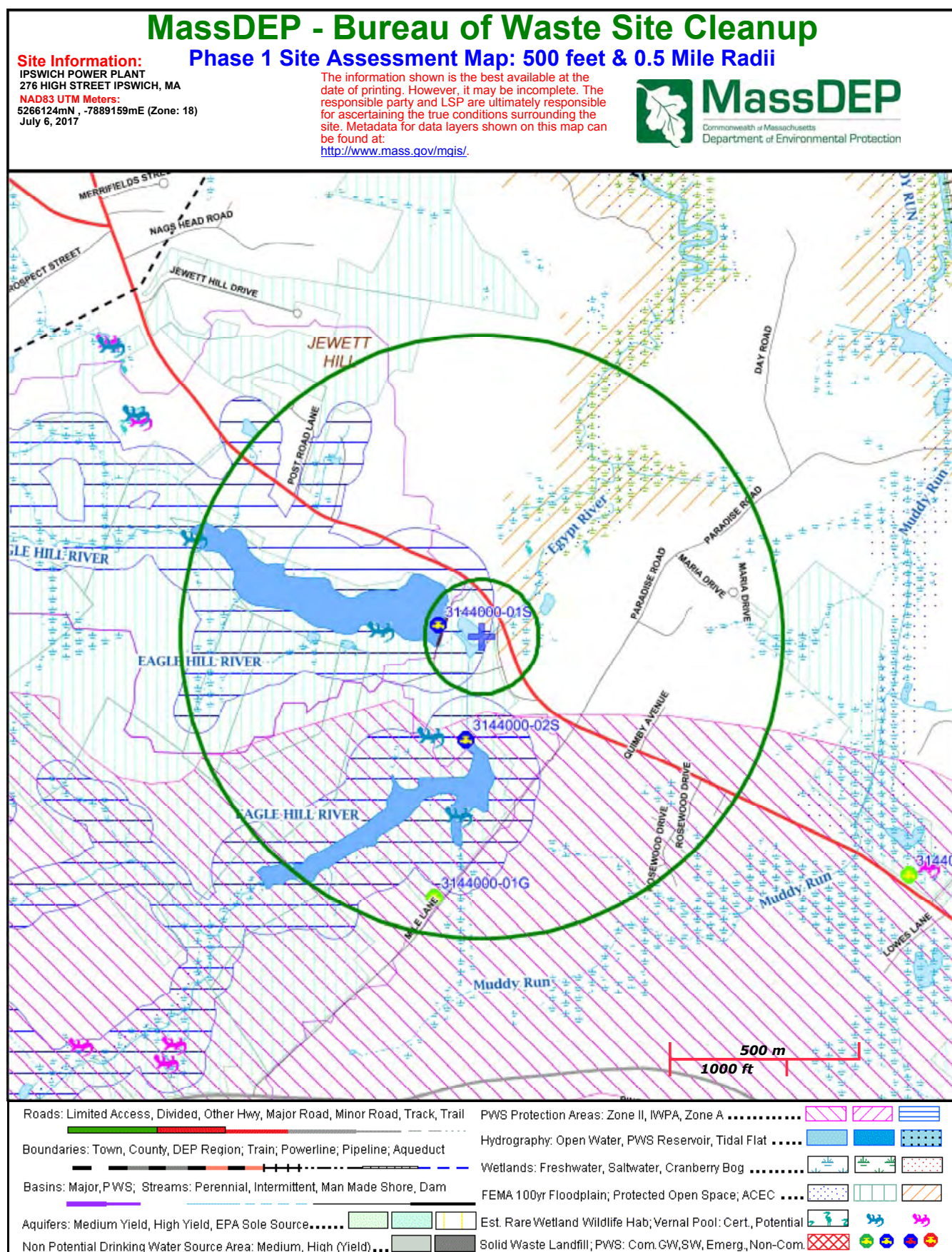
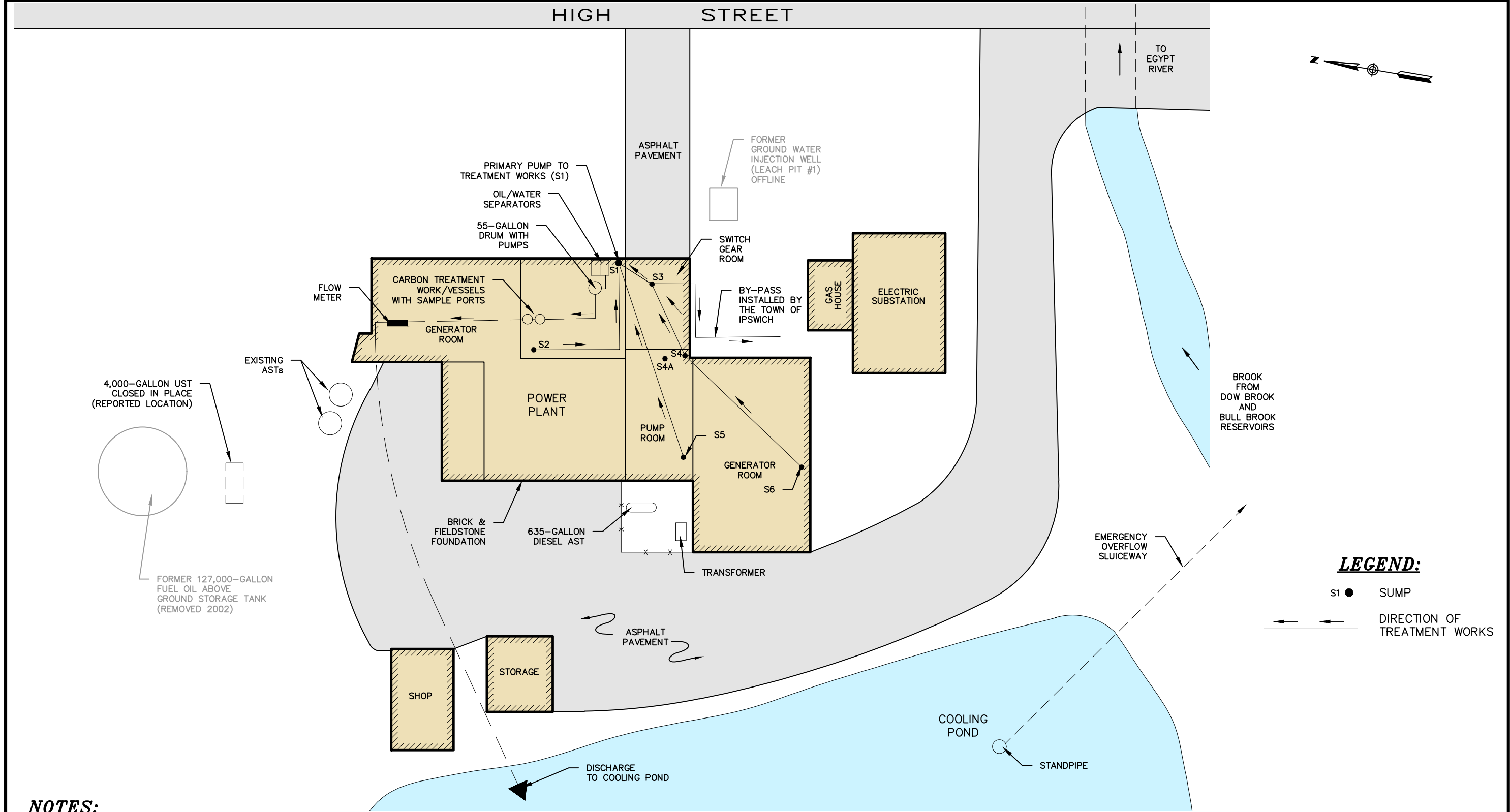
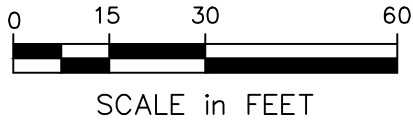


Figure 3: Sensitive Resources



NOTES:

- 1. SITE PLAN BASED ON MEASUREMENTS AND OBSERVATIONS MADE BY RANSOM ENVIRONMENTAL CONSULTANTS, INC.
- 2. COLLECTION TRENCHES IN THE FLOOR LEAD TO IDENTIFIED SUMPS, WHICH PUMP TO THE TREATMENT SYSTEM.
- 3. SOME FEATURES ARE APPROXIMATE IN LOCATION AND SCALE.



RANSOM Environmental Consultants, Inc.		GROUNDWATER COLLECTION AND TREATMENT SYSTEM	
PREPARED FOR: IPSWICH MUNICIPAL LIGHT DEPARTMENT 272 HIGH STREET IPSWICH, MASSACHUSETTS		SITE: IPSWICH POWER PLANT 276 HIGH STREET IPSWICH, MASSACHUSETTS	
		DATE:	JULY 2017
		PROJECT:	061.01184.002
		FIGURE:	4

ATTACHMENT C

Copy of Seepage Evaluation

Response to Request for Information
Notice of Intent for 2017 RGP Coverage
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

To: Carl Lemiesz, Ipswich Municipal Light Department

From: Nancy Marshall
Tim Snay

Date: May 1, 2008

Subject: Seepage Evaluation
Dow Brook Reservoir
Ipswich, Massachusetts

Nancy E. Marshall
2008.05.01
15:23:57 -04'00'

Timothy J. Snay
2008.05.01
15:27:49 -04'00'

On April 8, 2008, at the request of the Ipswich Municipal Light Department (IMLD), Ransom collected water samples from seeps present within the slope above the cooling pond located and at the toe of the Dow Brook Reservoir at the Ipswich Power Plant. For comparison purposes, Ransom collected water samples from the Dow Brook Reservoir and from one groundwater monitoring well (MW104) located between the Power Plant's cooling pond and the reservoir. The groundwater sample was collected using low flow sampling techniques. The following parameters were measured in the three water samples in the field using a Quanta Hydrolab[®] unit:

1. Temperature (degrees Celsius or °C);
2. Specific conductivity (milliSiemens per centimeter or mS/cm);
3. Dissolved Oxygen (milligrams per liter or mg/l);
4. Dissolved Oxygen (percent saturation);
5. pH;
6. Oxygen Reduction Potential (millivolts or mv);
7. Turbidity (Nephelometric Turbidity Units or NTU); and
8. Salinity (mg/l).

Subsequent to measurement of the field parameters, the water samples were submitted to Alpha Analytical, Inc. (Alpha) of Westborough, Massachusetts for the following laboratory analyses:

1. Total dissolved solids (mg/l);
2. Alkalinity (milligrams of calcium carbonate per liter or mg CaCO₃/l);
3. Nitrogen as ammonia (mg/l);
4. Total phosphorus (mg/l); and
5. Total potassium (mg/l).

A summary of the field and laboratory chemical analysis data is attached.

Based on the analytical results, it is Ransom's opinion that the seep's chemical composition is closer to that of the reservoir water than to the groundwater collected from MW104.

TABLE 1: SUMMARY OF WATER SAMPLE FIELD SCREENING & CHEMICAL ANALYSIS RESULTS
Seepage Evaluation
Ipswich Power Plant
Ipswich, Massachusetts

Sample Type	Groundwater	Seep	Surface Water
Sample Location	MW104		Reservoir
Sample Identification	MW104-W1-040808	SEEP1-S1-040808	SW101-S2-040808
Field Parameters			
Temperature (degrees Celsius)	6.08	5.03	8.07
Specific conductivity (mS/cm)	0.027	0.246	0.258
Dissolved Oxygen (mg/l)	1.69	5.86	6.54
Dissolved Oxygen (% Sat)	13.7	39.3	50.6
pH (S.U.)	7.79	6.08	6.02
Oxygen reduction potential (mv)	276	427	278
Turbidity (NTU)	143	115	191
Salinity (mg/l)	0.01	0.11	0.12
Laboratory Parameters			
Total Dissolved Solids	Concentrations in Milligrams per Liter		
	120 84		110
Alkalinity (mg CaCO ₃ /l) 50		20	19
Nitrogen (ammonia)	0.497	BRL (0.4)	BRL (0.4)
Total Phosphorus	0.04	0.06	0.02
Total Potassium	BRL (2.5)	BRL (2.5)	BRL (2.5)

NOTES:

1. Samples were collected on April 8, 2008, by Ransom Environmental Consultants, Inc. (Ransom).
2. The field parameters were measured by Ransom using a Quanta Hydrolab[®] unit.
3. The laboratory parameters were analyzed by Alpha Analytical, Inc., of Westborough, Massachusetts.
4. BRL () = below reporting limit indicated in parentheses.

ATTACHMENT D

Copies of H&A's Inspection Report and DCR/OSD Order

Response to Request for Information
Notice of Intent for 2017 RGP Coverage
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts



HALEY & ALDRICH, INC.
465 Medford St.
Suite 2200
Boston, MA 02129
617.886.7400

26 April 2018
File No. 131007-002

Massachusetts Department of Conservation and Recreation
Office of Dam Safety
251 Causeway Street, Suite 800
Boston, MA 02114-2104

Attention: William Salomaa, Director

Subject: Site Visit and Dam Condition
Dow Brook Reservoir Dam
Ipswich, Massachusetts

Ladies and Gentlemen:

This letter is written concerning the current condition of Dow Brook Reservoir Dam in Ipswich, Massachusetts. Denis Bell of Haley & Aldrich visited the dam site on 10 April 2018 and 25 April 2018. We discussed the observations and recommendations below with the Ipswich Water Director, Vicki Halmen and Superintendent Joseph Ciccotelli during the visit.

Dow Brook Reservoir Dam Condition

Site personnel noticed seepage on the downstream slope/toe of the dam on 4 April 2018. Denis Bell visited on 10 April 2018 and observed the seepage. During the site visit the water level within Dow Brook Reservoir was recorded at El. 33.3.

The observed seep on 10 April 2018 measured about 11 ft on the downstream slope, perpendicular to the dam axis, and 8 ft wide, along the dam axis. The seep was actively producing water during the site visit; however, the water was visually clear and causing minor damage to the grass vegetation on the slope.

In addition to the seeps on the main dam, seepage was also observed at the left abutment contact. Seepage at this location has been observed since the 1980s and records indicate the seep was historically estimated at 5 gallons per minute, the seep was clear and damage was not reported.

Seepage at the left abutment on 10 April 2018 was different, and larger, than the seepage reported since the 1980s. Seepage observed on 10 April 2018 occurred over a 30 ft long area and visually estimated at 30 to 40 gallons per minute. Minor erosion was observed at the left abutment, including gullies, less than 2 in. in depth.

On 25 April 2018, Mr. Bell completed an additional site visit and contacted Massachusetts Office of Dam Safety and informed them of the conditions. On 25 April 2018, the water level was at spillway invert level, about 2 ft lower than on 10 April 2018. The seepage areas were saturated and thinly vegetated. The seeps were not actively flowing on 25 April 2018.

Recommendations

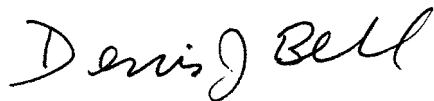
The seeps at Dow Brook Dam are concerning and action should be taken to prevent further damage to the dam. In addition, the seeps should be monitored daily.

We recommend the water level be maintained at, or below, spillway invert elevation until repairs can be made to bring the dam into compliance with Massachusetts Dam Safety Regulations.

Closure

Please contact the undersigned at 617-886-7343 if you wish to discuss the above information or have additional questions.

Sincerely yours,
HALEY & ALDRICH, INC.



Denis J. Bell, P.E.
Senior Engineer



Attachments:

Dam Follow Up Inspection Form

C: Town of Ipswich; Vicki Halmen

Commonwealth of Massachusetts
Department of Conservation and Recreation
Office of Dam Safety Poor and Unsafe Condition Dam Follow-up Inspection Form

(Complete this inspection form and provide a cover letter on consulting firm letterhead that briefly summarizes the current follow-up inspection and findings. The cover letter shall be signed and stamped by the Registered Professional Engineer in charge of the inspection)

Dam Name: Dow Brook Reservoir Dam
Dam Owner: Town of Ipswich
Nat. ID Number: MA00165
Hazard Potential: Significant
Location of Dam (town): Ipswich, Massachusetts
Coordinate location (lat,long): 42°41.9' N, 70°52.3' W
Date of Inspection: 25 April 2018
Weather: Light Rain, 50s

Consultant Inspector(s): Haley & Aldrich, Inc.; Denis J. Bell, P.E.

Others in Attendance at Field Inspection:

Attachments:

Figure 1	Project Locus
Figure 2	Site Plan
Appendix A	Photos

I. Previous Inspection date/Overall Condition:

- Date of most recent formal Phase I Inspection Report:
29 August 2017
- Overall condition reported in most recent Phase I Inspection Report:
Satisfactory

II. Previous Inspection Deficiencies:

- List identified deficiencies in the most recent Phase I Inspection Report:
 1. The trees and vegetation on the left upstream abutment contact with the dam should be removed and health grass cover established and maintained.
 2. Minor cracking and rusting was observed at the spillway and should be patched.
 3. The seepage breakout at the left toe of the dam should be monitored and riprap should be installed to prevent the seep from eroding the toe.

III. Overall Condition of Dam at the Time of the Current Follow-up Inspection:

- a. **State the current condition:** UnSafe
- b. **Have conditions changed since the previous inspection?** Yes

IV. Comparison of Current Conditions to Condition Listed in Previous Phase I Inspection Report:

- a. **Have any of the deficiencies listed in the previous Phase I Inspection Report worsened?**

Yes

- b. **If yes, list the changes.**

The seep at the left abutment has increased to over a 30 to 40 ft length of the dam.

- c. **Are there any additional deficiencies that have been identified in the current inspection?**

Yes

- d. **If yes, list the deficiencies and describe.**

Seeps have developed on the downstream toe of the dam at the right side. The observed seep measured about 11 ft on the downstream slope, perpendicular to the dam axis, and 8 ft wide, along the dam axis. The seep was actively producing water on the site visit on 10 April 2018; however, the water was visually clear and causing minor damage to the grass vegetation on the slope. Two additional seeps were observed 8 to 12 ft north of the main seep on the downstream slope. The additional seeps were 3 to 4 ft in diameter and at about El. 26. The seeps were located about 73 to 90 ft north of the bridge.

On 25 April 2018, with the reservoir water level about 3 ft lower than 10 April 2018, the seep area of concern was wet and saturated with standing puddles, however, water was not observed to be actively flowing.

V. Dam Safety Orders:

- **List dam safety orders that have been issued to the dam owner pertaining to this dam.**

None.

VI. Maintenance:

1. **Indicate if there exists an operation and maintenance plan for the dam.**
Yes, the dam is operated as the water supply for Ipswich and is operated daily.
2. **Indicate if it appears the dam is being maintained.**
Yes, the dam is staffed and maintained.

VII. Recommendations:

1. The reservoir level should be maintained at the Spillway Invert Elevation, or lower, until repairs are completed to bring the dam into compliance with Massachusetts Dam Safety Regulations.
2. The condition of the dam should be monitored daily for signs of additional seepage and deterioration.
3. The dam should be repaired to prevent seepage and bring the dam into compliance with dam safety regulations.

VIII. Other Comments or Observations:

IX. Updated Site Sketch with Photo Locations:

See Attached

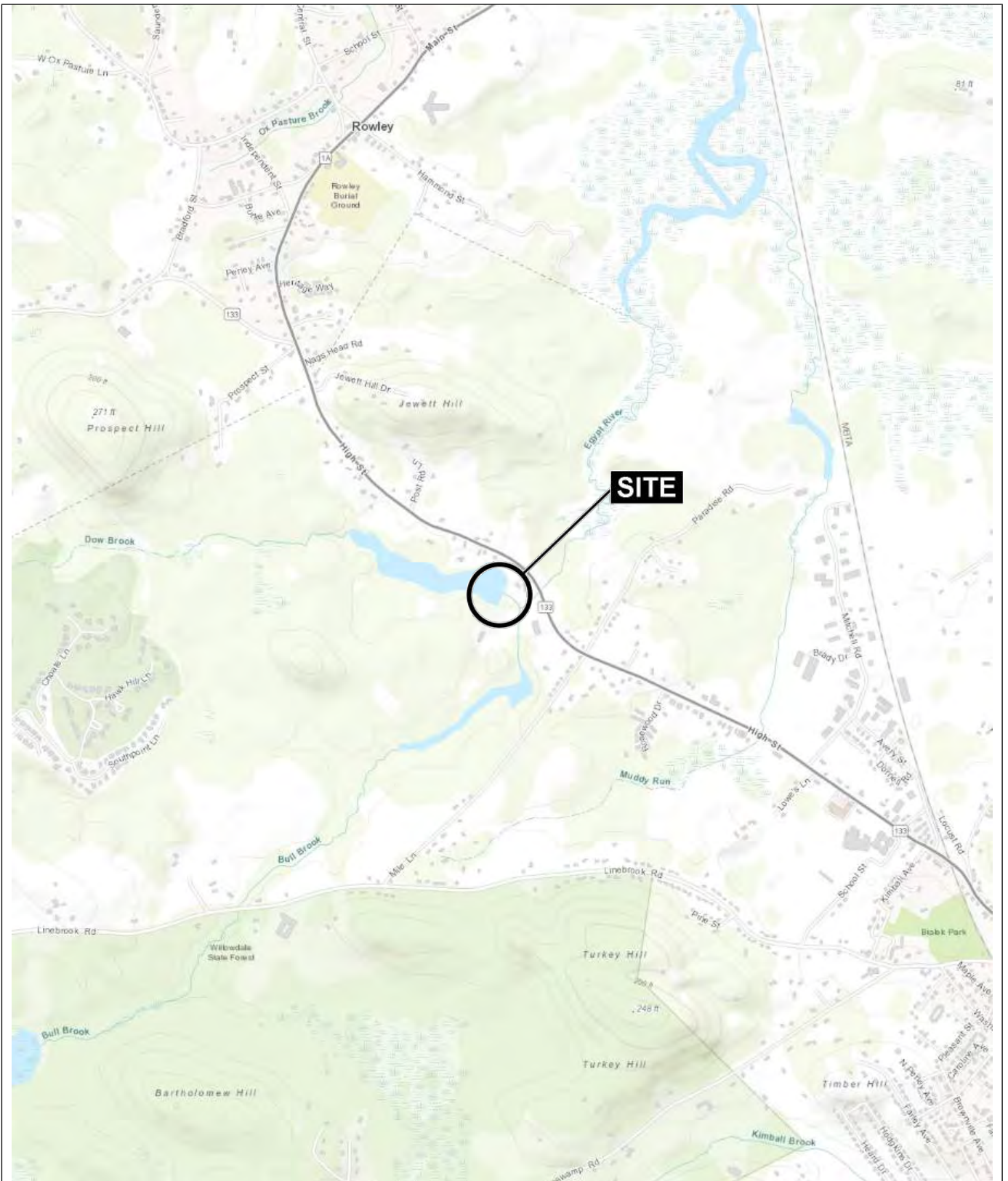
X. Updated Photos:

See Attached

XI. Copy of Locus Map from Phase I Report:

See Attached

XII. Other applicable attachment:

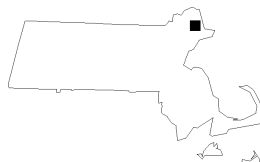


MAP SOURCE: ESRI

SITE COORDINATES: 42°41'54"N, 70°52'15"W

**HALEY
ALDRICH**

DOW BROOK RESERVOIR DAM
MA 00165
IPSWICH, MASSACHUSETTS



PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
AUGUST 2017

FIGURE 1

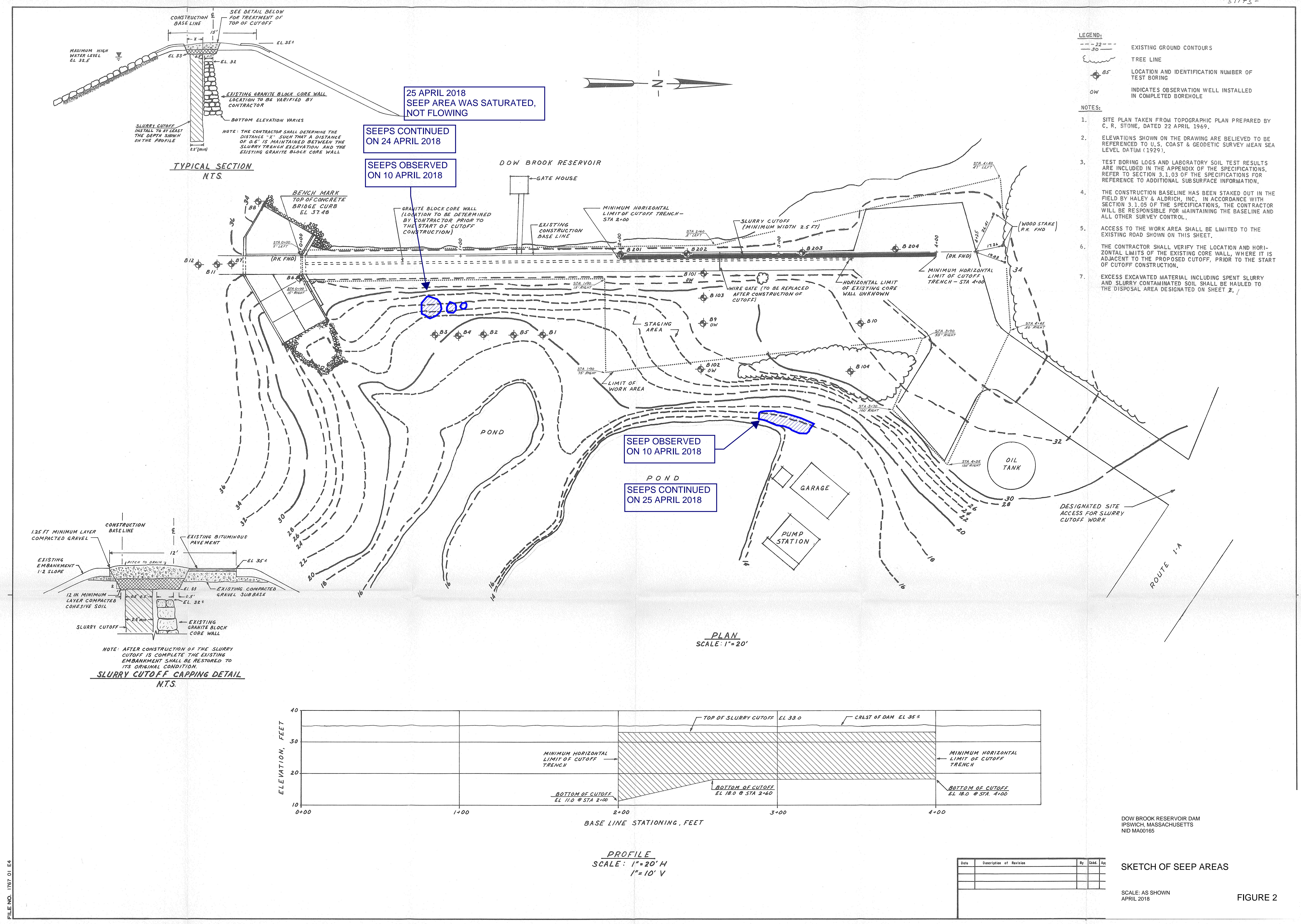




Photo 1
Spillway with Water at El. 33.3
4/10/2018



Photo 2
Area of Seeps on Downstream Slope
4/10/2018



Photo 3
Area of Seep, 73 ft from Bridge
4/10/2018



Photo 4
Water Level at El. 33.3 at the Gatehouse
4/10/2018



Photo 5
Seep at Dam
4/10/2018



Photo 6
Seep at Dam, about 11 ft by 8 ft
4/10/2018



Photo 7
Seep at Dam
4/10/2018



Photo 8
Flashboards at El. 33.3
4/10/2018



Photo 9
Right Downstream Slope
4/10/2018



Photo 10
Seeps at Downstream Toe of Left Abutment
4/10/2018



Photo 1
Spillway with Water at El. 31.3
4/25/2018



Photo 2
Area of Seeps on Downstream Slope
4/25/2018



Photo 3
Area of Seep, 73 ft from Bridge
4/25/2018



Photo 4
Seep
4/25/2018



Photo 5
Seep at Dam
4/25/2018



Photo 6
Seep at Dam, about 11 ft by 8 ft
4/25/2018



Photo 7
Seep at Dam
4/25/2018



Photo 8
Flashboards Removed, Spillway Invert about El. 31.3
4/25/2018



Photo 9
Downstream Slope
4/25/2018



Photo 10
Seeps at Downstream Toe of Left Abutment
4/25/2018



June 5, 2018
Certified Mail No. 7017 3040 0000 5048 2588
Return Receipt Requested

Town of Ipswich
c/o Tony Marino, Town Manager
25 Green Street
Ipswich, MA 01938

Subject: CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER

Dam Name:	Dow Brook Reservoir Dam
Location:	Ipswich
National ID No:	MA00165
Known Condition:	UNSAFE
Hazard Potential:	Significant
Essex Registry of Deeds:	Book 2701, Page 479

Dear Mr. Marino:

In accordance with 302 CMR 10.08, the Department of Conservation and Recreation (DCR), Office of Dam Safety (ODS) has determined that Dow Brook Reservoir Dam does not meet accepted dam safety standards and is a potential threat to public safety. Therefore, DCR hereby issues a **CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER**.

ODS records indicate that the Town of Ipswich is the Owner of the Dow Brook Reservoir Dam, National Inventory of Dams No. MA00165. ODS classifies the dam as an **Intermediate Size, Significant Hazard Potential** Structure. Significant Hazard Potential Dams are dams that may cause the loss of life and property damage in the event of dam failure.

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston MA 02114-2119

617-626-1250 617-626-1351 Fax

www.mass.gov/orgs/department-of-conservation-recreation



Charles D. Baker
Governor

Karyn E. Polito
Lt. Governor

Matthew A. Beaton, Secretary, Executive
Office of Energy & Environmental Affairs

Leo Roy, Commissioner
Department of Conservation & Recreation

On April 25, 2018, an inspection of the Dow Brook Reservoir Dam was performed by engineering consultants Haley & Aldrich, Inc. As a result of this inspection, the dam was determined to be **STRUCTURALLY DEFICIENT** and in **UNSAFE** condition. The dam has been found to be in need of repair, breaching or removal to bring the dam into compliance with dam safety regulations.

The CERTIFICATE OF NON-COMPLIANCE is based on the above-referenced inspection report results which listed the observance of the following deficiencies:

- **Seeps have developed on the downstream toe of the dam on the right side. The observed seep measured about 11 ft on the downstream slope, perpendicular to the dam axis, and 8 ft wide, along the dam axis. During the April 10, 2018 site visit, the seep was actively producing water. On April 25, 2018, with the reservoir level about 3 ft lower than on April 10, the seep area of concern was wet and saturated with standing puddles, but water was not actively flowing.**
- Two additional seeps were observed 8 to 12 ft north of the main seep on downstream slope. These additional seeps were 3 to 4 in diameter.
- Seepage breakout at left toe
- Trees and vegetation on the left upstream abutment contact with the dam
- Minor cracking and rusting observed at spillway

These foregoing deficiencies compromise the structural integrity of the dam and present a potential threat to public safety. ODS has determined that the dam needs to be repaired, breached or removed in order to bring the dam into compliance with dam safety regulations.

As stated in the most recent Phase I inspection report dated August 29, 2017, the Ipswich Power Plant is located near the tow of the dam. A failure of Dow Brook Reservoir Dam is expected to flood the Power Plant and cause Route 1A to be impassable, possibly washing out the culvert/bridge. Also, the southeast end of Hammond Street, Warehouse Lane and Railroad Avenue could be impacted by flood waters.

G.L. c. 253, Sections 44-48 and 302 CMR 10.00 set forth the jurisdiction for ODS and its authority to take action and order actions to be taken. For your information a copy of the Dam Safety Regulations, 302 CMR 10.00 Dam Safety, can be found on the ODS website.

DAM SAFETY ORDER:

In accordance with the authority of G.L. c. 253, Section 47, 302 CMR 10.07 and 10.08 you are hereby **ORDERED** to comply with the following:

- 1) **Maintain a drawn down impoundment level.** The impoundment shall be maintained at the Spillway Invert Elevation, or lower, until the above referenced deficiencies are resolved. The condition of the dam should be monitored frequently for signs of additional seepage and deterioration.

- 2) **Conduct Follow-up Inspections:** You shall complete follow-up visual inspections at three (3)-month intervals, conducted by a registered professional civil engineer qualified to conduct dam inspections, at your cost, until adequate repairs are made or the dam is adequately breached. You shall submit the first Follow-up inspection to ODS no later than **August 1, 2018**.

Follow-up inspections are to be summary in format and shall provide a written description, including photographs, of any changes in condition. Your engineer is to use the attached ODS Poor Condition Dam Follow-up Inspection Form to report follow-up inspection findings. The form is also available electronically on the ODS web site. Your engineer shall include a cover letter on engineering firm letterhead that briefly summarizes the current follow-up inspection and findings.

You shall submit one (1) hard copy printed double-sided and one (1) electronic pdf copy of all completed follow-up visual inspection reports to ODS within thirty (30) days of the date of follow-up inspection field work.

- 3) **Conduct Phase II Inspection and Investigations.** You shall hire at your cost, a qualified registered professional engineer with dam engineering experience (engineer) to conduct a Phase II Inspection and Investigation of the dam to evaluate the structural integrity and spillway hydraulic adequacy of your dam and to develop/implement a plan to bring the dam into compliance with dam safety regulations by adequately repairing, breaching or removing the dam (see attached Phase II Investigation Outline).

- a. You shall commence the Phase II Inspection and Investigation no later than **September 3, 2018**. The Phase II Inspection and Investigation is to conform to the attached Phase II Investigation Outline. You are to, in a letter to ODS, no later than **August 20, 2018**, identify your selected engineer and inform ODS of the start date of the Phase II work.
- b. The Phase II Inspection and Investigation is to be completed, signed and stamped by your engineer and copies of the Phase II final report are to be delivered to ODS no later than **December 3, 2018**.

You shall include a cover letter with the submitted Phase II report which describes your selected alternative to bring the dam into compliance with dam safety regulations. The owner shall submit a statement of your intent to implement inspection report recommendations to address structural and operational deficiencies to ODS upon submission of the required Phase II Inspection and Investigation completed by your engineer.

- 4) **Bring the dam into compliance and complete all repair, breach or removal work no later than December 3, 2019.** With your Phase II submittal, you must also provide a proposed timeline to design, permit and construct the selected alternative to repair, breach or remove the dam. The selected alternative must be completed, and the dam brought into compliance with Dam Safety regulations, by December 3, 2019.

5) Additional Requirements:

- a. You shall furnish copies of all required submittals listed above via certified mail.
- b. In order to maintain compliance with the Commonwealth's Wetlands Protection Laws you may have to seek requisite approval from your local Conservation Commission in accordance with G.L. c. 131, §40. You are obligated to contact and maintain communication with the Ipswich Conservation Commission and any other local, state or federal permitting agency to ensure compliance with the Wetlands Protection Act and any other regulatory requirements.
- c. You must inform the following parties about the condition of the dam and your developing plans to bring the dam into compliance with dam safety regulations: all abutters of the impoundment upstream; property owners within one-half mile downstream of the Dow Brook Reservoir Dam; Division of Fisheries & Wildlife, Northeast District, 85 Fitchburg Rd, Ayer, MA 01432; Department of Environmental Protection, Northeast Region, 205B Lowell St, Wilmington, MA 01887; Select Board, 25 Green St, Ipswich, MA 01938; Conservation Commission, 25 Green St, Ipswich, MA 01938; Emergency Management Director, 25 Green St, Ipswich, MA 01938.

Please be advised that in accordance with G.L. c. 253, § 47, "any person who fails to comply with the provisions of this chapter or of any order, regulation or requirement of the department relative to dam safety, shall be fined an amount not to exceed \$5,000 for each offense, to be fixed by the court." Furthermore, each violation shall be regarded as a separate and distinct offense and, in case of a continuing violation, each day's continuance thereof shall be deemed to be a separate and distinct offense.

Nothing in this order releases the owner from the requirements of any prior Dam Safety Order issued for this dam.

In accordance with 302 CMR 10.08, this CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER will be recorded by the DCR at the Registry of Deeds in the county where the dam lies. Issuance of a Certificate of Compliance following adequate repair or breaching of the dam will be required to discharge the CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER.

Please direct any technical questions, correspondence, or submittals to Emily Caruso, Department of Conservation and Recreation, Office of Dam Safety, 180 Beaman Street, West Boylston, MA 01583 or Emily.Caruso@state.ma.us. Other questions regarding process and administration of Dam Safety regulations should be directed to Bill Salomaa, Director of Office of Dam Safety, at William.Salomaa@state.ma.us. Additional dam safety information can be found at the DCR-ODS website: <http://www.mass.gov/eea/agencies/dcr/conservation/dam-safety/>.

Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to be 'Leo Roy', written in a cursive style.

Leo Roy
Commissioner

CC: Vicki Halmen, Water/Wastewater Director, Ipswich
Ipswich Select Board
Ipswich Emergency Management Director
Ipswich Conservation Commission
Senator Bruce E. Tarr
Representative Bradford R. Hill
Barbara Newman, U.S. Army Corps
Northeast Region, DEP
Deirdre Buckley, MEPA
Northeast District, DFW
Rob Lowell, DCR
William Salomaa, DCR
Ariana Johnson, Esq., DCR
Nick Wildman, DER

Department of Conservation and Recreation
Office of Dam Safety
Phase II Inspection and Investigation Outline

I.	Review of existing information.....
II.	Updated Detailed Phase I surface inspection in compliance with Office of Dam Safety Phase I Inspection format.....
III.	Subsurface Investigations – borings, sampling, analysis.....
IV.	Topographic Survey, wetlands flagging/delineation, of sufficient detail to support not only the Phase II effort, but sufficient for the future implementation of design phase.....
V.	Stability and seepage analyses – Seismic and static stability evaluation of dam (upstream and downstream slopes, internal materials), seepage potential, internal erosion potential, piping potential.....
VI.	Hydrologic/Hydraulic Analysis and spillway inadequacy resolution.....
VII.	Alternatives analysis and presentation of conceptual designs and associated estimated design, permitting and construction costs to bring the dam structure into compliance with Chapter 253 Section 44-48 and 302 CMR 10.00 Dam Safety Regulations by either executing selected repair plan or breach plan.....
VIII.	Final Report Presented to the Office of Dam Safety.....

Commonwealth of Massachusetts
Department of Conservation and Recreation
Office of Dam Safety Poor Condition Dam Follow-up Inspection Form

(Complete this inspection form and provide a cover letter on consulting firm letterhead that briefly summarizes the current follow-up inspection and findings. The cover letter shall be signed and stamped by the Registered Professional Engineer in charge of the inspection)

Dam Name:
Dam Owner:
Nat. ID Number:
Hazard Potential:
Location of Dam (town):
Coordinate location (lat, long):
Date of Inspection:
Weather:

Consultant Inspector(s): firm name and name of Registered Professional Engineer in charge of inspection.

Others in Attendance at Field Inspection: include list of names, affiliation and phone numbers.

Attachments: Updated site sketch with photo locations, Updated photos, and copy of locus map from Phase I report and other applicable attachments.

- I. Previous Inspection date/Overall Condition:**
 - Date of most recent formal Phase I Inspection Report:
 - List the overall condition reported in most recent Phase I Inspection Report:
- II. Previous Inspection Deficiencies:**
 - List identified deficiencies in the most recent Phase I Inspection Report:
- III. Overall Condition of Dam at the Time of the Current Follow-up Inspection:**
 - a. State the current condition
 - b. Have conditions changed since the previous inspection? Yes or no.
- IV. Comparison of Current Conditions to Condition Listed in Previous Phase I Inspection Report:**
 - a. Have any of the deficiencies listed in the previous Phase I Inspection Report worsened?
 - b. If yes, list the changes.
 - c. Are there any additional deficiencies that have been identified in the current inspection?

d. If yes, list the deficiencies and describe.

V. Dam Safety Orders:

- List dam safety orders that have been issued to the dam owner pertaining to this dam.

VI. Maintenance:

1. Indicate if there exists an operation and maintenance plan for the dam.
2. Indicate if it appears the dam is being maintained.

VII. Recommendations:

VIII. Other Comments or Observations:

IX. Updated Site Sketch with Photo Locations:

X. Updated Photos:

XI. Copy of Locus Map from Phase I Report:

XII. Other applicable attachment:

ATTACHMENT E

Tables

Response to Request for Information
Notice of Intent for 2017 RGP Coverage
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

Table 1: Monthly Remediation General Permit (RGP) Sampling Results: September 2015 - June 2018
Ipswich Power Plant - Effluent Samples
Response to Request for Information
Notice of Intent for 2017 RGP Coverage
Ipswich Power Plant
276 High Street
Ipswich, Massachusetts

RGP Required Sampling Parameters:	Organics	Total Metals				Non-Organics and Misc.		
	1,1-DCE	Copper	Iron	Lead	Zinc	Chloride	pH	Flow
Units	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(S.U.)	(gpd)
RGP App VI Test Method:	8260C	6010C	6010C	6010C	6010C	300.0, 4500CL-D	4500H	NA
RGP App III Effluent Limits:	3.2 ⁹	0.0052 ⁸	1.0 ⁹	0.0013 ⁸	0.0666 ⁸	Monitor Only	6.5–8.3	Monitor Only
RGP App IV Minimum Levels:	5	0.015	0.02	0.02	0.015	---	---	---
Dates	Effluent Sample Results (units shown above)							
Sep 2015	BRL (0.50)	0.0791	7.6	0.0612	0.154	98.9	7.2	1,376
Oct 2015	BRL (0.50)	BRL (0.0100)	BRL (0.0500)	BRL (0.0100)	BRL (0.0500)	140	7.1	1,040
Nov 2015	BRL (0.50)	0.05	2.6	0.0321	0.116	99.5	7.2	800
Dec 2015	BRL (0.50)	0.0793	2.1	0.0216	0.111	144	7.7	1,302
Jan 2016	BRL (0.50)	BRL (0.01)	0.096	BRL (0.0100)	BRL (0.0500)	111	7.3	2,337
Feb 2016	BRL (0.50)	0.0362	7.0	BRL (0.0100)	0.0819	134	7.0	2,010
Mar 2016	BRL (0.50)	0.0431	2.8	0.0205	0.104	95	6.8	2,828
Apr 2016	BRL (0.50)	0.0105	1.7	BRL (0.05)	BRL (0.0500)	122	7.6	2,454
May 2016	BRL (0.50)	BRL (0.01)	1.7	BRL (0.1)	BRL (0.0500)	106	7.6	2,078
Jun 2016	BRL (0.50)	0.216	27	BRL (0.1)	0.136	109	7.2	1,757
Jul 2016	BRL (0.50)	BRL (0.0100)	1.5	BRL (0.0100)	BRL (0.0500)	107	7.2	1,430
Aug 2016	BRL (0.50)	0.018	5.8	BRL (0.0100)	BRL (0.0500)	112	6.8	1,535
Sep 2016	BRL (0.50)	0.0607	8.0	0.0139	0.113	102	7.1	1,506
Oct 2016	BRL (0.50)	0.0870	6.3	0.022	0.134	63.4	6.5	1,665
Nov 2016	BRL (0.50)	0.0221	4.7	BRL (0.0100)	0.0586	120	7.5	2,009
Dec 2016	BRL (0.50)	0.0405	5.8	0.0192	0.171	213	7.5	1,215
Jan 2017	BRL (0.50)	0.0211	1.4	BRL (0.0100)	0.0546	118	6.7	1,875
Feb 2017	BRL (0.50)	0.018	1.6	BRL (0.010)	0.094	172	7.5	1,489
Mar 2017	BRL (0.50)	0.076	7.1	0.015	0.204	217	7.6	2,379
Apr 2017	BRL (0.50)	0.023	7.3	BRL (0.010)	0.087	128	7.2	3,044
May 2017	BRL (0.50)	0.0532	5.25	0.01462	0.07638	100	7.0	2,238
Jun 2017	BRL (0.50)	0.02140	1.54	0.00225	0.05078	63.2	7.5	2,402
July 28, 2017	BRL (0.50)	0.02157	2.65	0.00180	0.05598	127	7.2	1,398
Aug 2017	BRL (0.50)	0.02650	6.74	0.00515	0.0968	135	6.5	687
Sep 2017	BRL (0.50)	0.02335	5.42	0.00297	0.03318	58.5	7.0	784
Oct 2017	BRL (0.50)	0.01578	3.83	0.00150	0.08102	126	6.8	794
Nov 2017	BRL (0.50)	0.01779	7.09	0.00450	0.05808	145	6.5	1,104
Dec 2017	BRL (0.50)	0.01123	3.86	0.00187	0.05091	221	6.5	1,096
Jan 2018	BRL (0.50)	0.00713	2.47	BRL (0.00100)	0.02015	134	6.4	1,254
Feb 2018	BRL (0.50)	0.01335	3.70	0.00117	0.03868	154	7.3	2,195
Mar 2018	BRL (0.50)	0.01545	2.63	0.00366	0.06082	136	7.3	2,383
Apr 2018	BRL (0.50)	0.01503	3.98	0.00295	0.03910	108	7.0	2,417
May 2018	BRL (0.50)	0.01901	2.37	0.00191	0.06009	101	7.0	2,073
Jun 2018	BRL (0.50)	0.01444	4.34	0.00294	0.05659	149	7.0	1,125
Average	--	0.039	4.801	0.012	0.087	--	--	1,726

Notes:

1. Samples were collected by Ransom Consulting, Inc. and analyzed by Alpha Analytical, Inc. of Westborough, MA.
2. RGP = U.S. EPA Remediation General Permit (RGP) effective in 2010.
3. The effluent limit for a parameter is defined as the greater of the two concentrations listed in Appendix III and Appendix IV of the RGP. The value to be used as the effluent limit is shaded in the table header.
4. 1,1-DCE = 1,1-dichloroethene (a.k.a., 1,1-dichloroethylene)
5. mg/L = micrograms per liter; mg/L = milligrams per liter; S.U. = Specific Units; gpd = gallons per day
6. BRL () = below reporting limit indicated in parentheses.
7. Values shown in **boldface** type are greater than the applicable effluent limit for that parameter.
8. Monthly average value.
9. Daily maximum value.

TABLE 2: ESTIMATE OF POTENTIAL POLLUTANT LOADING

**Response to Request for Information
 Notice of Intent for 2017 RGP Coverage
 Ipswich Power Plant
 276 High Street
 Ipswich, Massachusetts**

Metals	Number of Samples Analyzed	Number of RGP Effluent Exceedances	Average Concentration (mg/l)	Average Treatment System Flow Rate (gpd)	Estimated Pollutant Loading (mg/d)	Estimated Stream Flow on 7/13/18 (MGD)	Estimated Egypt River Concentration from Observed Flow (mg/l)	Stream Stat 7Q10 Flow (MGD)	Estimated Egypt River Concentration from 7Q10 Flow (mg/l)	2010 RGP Effluent Limit (mg/l)
Copper	34	25	0.035	1,708	224	2.58	2.289E-05	6.458E-02	0.00091	0.015
Iron	34	33	4.647	1,708	30,044	2.58	3.076E-03	6.458E-02	0.123	1.0
Lead	34	5	0.012	1,708	80	2.58	8.242E-06	6.458E-02	0.00033	0.02
Zinc	34	15	0.075	1,708	484	2.58	4.960E-05	6.458E-02	0.00198	0.0666

Notes:

1. Monthly samples were collected from September 2015 through June 2018.
2. The monthly flow rate was calculated from daily flow meter readings in the System discharge pipe recorded by Ipswich Utilities personnel.
3. The Average Flow used in the loading estimate was calculated as the average of the monthly flow rate averages over the previous 34 months.
4. Estimated pollutant loading is calculated from the average concentration and Average Flow Rate from the Treatment System.
5. The flow used estimate the stream concentration was 2.58 million gallons per day based on observations at the head of the Egypt River made by Ransom on July 13, 2018.
6. The 7Q10 flow was estimated at 0.12 cubic feet per second (0.064580 MGD) based on USGS Stream Stats.
7. mg/l = milligrams per liter; MGD = million gallons per day; gpd = gallons per day; mg/d = milligrams per day.

Wood, Jennifer (DEP)

From: Nancy Marshall <nmarshall@ransomenv.com>
Sent: Friday, July 19, 2019 5:40 PM
To: Wood, Jennifer (DEP)
Cc: Jon Blair; Timothy J. Snay
Subject: RE: Ipswich Update Request

Hi Jennifer: Sorry for the delay. I spoke to Jon this morning and then the day just...disappeared!


Points from our discussion:

1. The dam repairs are complete.
2. Even after the repairs, the Dow Brook Dam continues to have significant seepage. The location and design of this dam seem to be a reality that cannot be avoided.
3. Ipswich is looking into sealing processes for the plant's fieldstone foundation, which might improve the groundwater seepage into the basement. They are working on redirecting the stormwater runoff from the roof and roadway away from the building. New catch basins, gutter improvements, landscaped swales, and French drains are all being actively explored. If the groundwater penetration into the building can be reduced, then the contribution to the cooling pond can be limited to the seepage from the reservoir through the dam. We looked at this for them back in 2012 and didn't come up with any cost-effective options but it's worth revisiting.
4. Historically, the facility treated the cooling pond with chemicals like copper-sulfate. That is no longer being done.
5. We have estimated daily discharge volumes from the pond by extrapolating from a measured discharge rate. The source of water into the cooling pond is about 40,000 gallons per day from the dam, precipitation, and an average of 1,200 – 2,300 gallons per day from the treatment system.
6. We have also be collecting monthly samples of the pond discharge and upstream and downstream sample to allow us to assess potential impacts that the treatment system may be having on the pond discharge and that the pond discharge may be having on the stream.

It construction season so it's been crazy busy around here. I should be in all next week (except for working from home on Wednesday morning while my burner get cleaned). Please try me at your convenience or let me know when I should give you a call.

Thanks,
Nancy



Nancy E. Marshall, P.E.
Project Manager
RANSOM CONSULTING, INC.
tel (978) 465-1822 ■ cell (978) 766-0184
[website](#) | [vCard](#) | [map](#) 

From: Wood, Jennifer (DEP) <jennifer.wood@state.ma.us>
Sent: Wednesday, July 17, 2019 2:45 PM
To: Nancy Marshall <nmarshall@ransomenv.com>

Subject: Ipswich Update Request

Hi Nancy, When you are available would you call/e-mail me about the current status of dam repair and any signs of improvement? For this week I am at 978-694-3336 but please do not leave a message. Thank you, Jennifer