AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§ 1251 et seq.; the "CWA"),

General Electric Company

is authorized to discharge from the facility located at

130 Main Street
Somersworth, New Hampshire 03878

to receiving waters named

Salmon Falls River (Hydrologic Unit Code: 01060003)

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on the first day of the calendar month following sixty (60) days after signature.

This permit and authorization to discharge expires at midnight, five (5) years from the effective date. This permit supersedes the noncontact cooling water general permit authorization to discharge issued on March 31, 2009 and amended on March 11, 2010 and September 2, 2010.

This permit consists of 10 pages in Part I, including effluent limitations and monitoring requirements; and 25 pages in Part II, standard conditions.

Signed this 2nd day of September, 2014

Ken Moraff, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency
Region 1
Boston, Massachusetts

PART I.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge non-contact cooling water from **Outfall Serial Number 005** into the Salmon Falls River. Such discharges shall be limited and monitored by the permittee as specified below. Samples taken in compliance with the monitoring requirements specified below shall be taken at a location that provides a representative analysis of the effluent.

Effluent Characteristic	Units	Discharge Limitations		Monitoring Requirements	
		Avg. Monthly	Max Daily	Monitoring Frequency	Sample Type
Flow	MGD	Report	0.44	1 Day/Week	Totalizer[1]
Discharge Temperature	°F	Report	90°F[2]	1/Week	Grab
pH[3]	S.U.	Report	6.5-8.0	1/Week	Grab
pH of Upstream Receiving Water[4]	S.U.	Report	Report	See Footnote [5]	Grab
Total Residual Chlorine[6]	mg/l	-------	1.0	Quarterly	Grab
Total Phosphorus[7]	mg/l	-------	Report	Quarterly	Grab
Total Nitrogen[7]	mg/l	-------	Report	Quarterly	Grab
SELECTED POLLUTANT SCAN [8, 9, 10, 11]					
Benzene	µg/L	Report		4/Year	Grab
Ethylbenzene	µg/L	Report		4/Year	Grab
Toluene	µg/L	Report		4/Year	Grab
Total Xylenes	µg/L	Report		4/Year	Grab
Benzo(a)anthrancene	µg/L	Report		4/Year	Grab
Benzo(a)pyrene	µg/L	Report		4/Year	Grab
Benzo(b)fluoranthene	µg/L	Report		4/Year	Grab
Benzo(k)fluoranthene	µg/L	Report		4/Year	Grab
Chrysene	µg/L	Report		4/Year	Grab
Dibenzo(a,h)anthracene	µg/L	Report		4/Year	Grab
Indeno(1,2,3-cd)pyrene	µg/L	Report		4/Year	Grab
Acenaphthene	µg/L	Report		4/Year	Grab
Acenaphthylene	µg/L	Report		4/Year	Grab

Anthrancene	µg/L	Report	4/Year	Grab
Benzo(g,h,i)perylene	µg/L	Report	4/Year	Grab
Fluoranthene	µg/L	Report	4/Year	Grab
Fluorene	µg/L	Report	4/Year	Grab
Napthalene[12]	µg/L	Report	4/Year	Grab
Phenanthrene	µg/L	Report	4/Year	Grab
Pyrene	µg/L	Report	4/Year	Grab
Acetone	µg/L	Report	4/Year	Grab
Chromium	µg/L	Report	4/Year	Grab
Nickel	µg/L	Report	4/Year	Grab
Zinc	µg/L	Report	4/Year	Grab
Iron	µg/L	Report	4/Year	Grab

Footnotes are found after the effluent limits and monitoring requirement table for Outfall Serial Number 015.

2. During the period beginning on the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge non-contact cooling water from **Outfall Serial Number 015** into the Salmon Falls River. Such discharges shall be limited and monitored by the permittee as specified below. Samples taken in compliance with the monitoring requirements specified below shall be taken at a location that provides a representative analysis of the effluent.

Effluent Characteristic	Units	Discharge Limitations		Monitoring Requirements	
		Avg. Monthly	Max Daily	Monitoring Frequency	Sample Type
Flow	MGD	Report	0.06 MGD	1 Day/Week	Totalizer[1]
Discharge Temperature	°F	Report	83°F	1/Week	Grab
pH[3]	S.U.	Report	6.5-8.0	1/Week	Grab
pH of Upstream Receiving Water[4]	S.U.	Report	Report	See Footnote [5]	Grab

Footnotes:

[1] Effluent discharge flow shall be monitored for at least one 24 hour "day" per week by a continuous recording flow meter containing a totalizer.

[2] Once through helper cooling towers shall be used, at a minimum, when the discharge temperature at Outfall 005 exceeds 88°F.

[3] This is a state of New Hampshire certification requirement. Refer to Part I.C.2. for specific monitoring requirements. The pH of the effluent shall not be less than 6.5 S.U. or greater than 8.0 S.U. at any time unless in compliance with the conditions specified in Part I.C.2.

[4]The pH shall be in the specified range or within 0.5 S.U. of the upstream receiving water pH in accordance with Part I.C.2. of this permit.

[5] Upstream receiving water monitoring and reporting is required when the permittee demonstrates compliance with pH limits in accordance with Part I.C.2. of this permit.

[6] Calendar year quarterly monitoring for total residual chlorine is only required when the facility is using chlorinated municipal water as the source water for NCCW.

[7] Monitoring shall be conducted once in January, April, July and October under wet weather conditions. For the purposes of this sampling event, wet weather sampling shall proceed during or after a storm event of sufficient intensity to produce a stormwater discharge at Outfall 005.

[8] The quantitative methodology used for PAH analysis must achieve the ML of $\leq$0.1 µg/L for each Group I PAH compound and $\leq$5 µg/L for each Group II PAH compound.

[9] Samples shall be collected during the week of March 15, April 15, July 15 and October 15 during dry weather conditions. If a sample cannot be obtained during the specified sampling week and a sample is still unable to be taken within a two week period after the specified sampling week, an explanation as to why the sample could not be taken must be included with the appropriate DMR submittal. In the case of a missed sample as described above, a supplemental sample shall be taken during the next sampling period, separated by at least one week from the scheduled sampling week.

[10] For the purposes of this sampling, dry weather sampling conditions are met when no more than 0.1 inches of rainfall has occurred at the facility during the 48-hour period prior to sampling.

[11] After the completion of three years of monitoring for the selected volatile organic compounds, polycyclic aromatic hydrocarbons, and metals, the permittee may submit a report to EPA and NHDES-WD, which summarizes and analyzes the results of the monitoring and recommends modifications to the sampling plan.

[12] The permittee shall sample and analyze for naphthalene using analytical methods for semi-volatile organic compounds and volatile organic compounds.

3. Any change in sampling locations must be reviewed and approved in writing by EPA and NHDES. All samples shall be tested using the analytical methods found in 40 CFR Section 136 or alternative methods approved by EPA in accordance with the procedures in 40 CFR Section 136.

4. Any withdrawal or discharge that causes a violation of the water quality standards of the receiving waters is prohibited.

5. No biocides, solutions or chemicals are to be added to the non-contacting cooling water. This permit does not allow the discharge of any chemicals, except otherwise noted, or except for non-toxic chemicals used for pH neutralization and/or dechlorination.

6. The discharge must remain free from pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum or other visible pollutants. It shall remain free from pollutants which produce odor, color, taste or turbidity in the receiving waters which is not naturally occurring and would render it unsuitable for its designated uses.

7. The permittee shall not discharge into the receiving water any pollutant or combination of pollutants in toxic amounts.

8. All existing manufacturing, commercial, mining and silvicultural dischargers must notify EPA as soon as they know or have reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) One hundred micrograms per liter (100 µg/l);
(2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrite; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7); or
(4) Any other notification level established by EPA in accordance with 40 CFR §122.44(f).

b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) Five hundred micrograms per liter (500 µg/l);
(2) One milligram per liter (1 mg/l) for antimony;
(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 C.F.R. §122.21(g)(7).
(4) Any other notification level established by EPA in accordance with 40 C.F.R. §122.44(f).

c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

9. This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable standard or limitation promulgated or approved under sections 301(b)(2)(C) and (d), 304(b)(2),and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

a. Contains different conditions or is otherwise more stringent than the effluent limitation in the permit; or,
b. Controls any pollutants not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

B. MONITORING AND REPORTING

1. For a period of six months from the effective date of the permit, the permittee may either submit monitoring data and other reports to EPA in hard copy form or report electronically using NetDMR, a web-based tool that allows permittees to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. **Beginning no later than six months after the effective date of the permit,** the permittee shall begin reporting using NetDMR, unless the facility is able to demonstrate a reasonable basis that precludes the use of NetDMR for submitting DMRs and reports. Specific requirements regarding submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

a. Submittal of Reports Using NetDMR

NetDMR is accessed from: http://www.epa.gov/netdmr. **Within six months of the effective date of this permit**, the permittee shall begin submitting DMRs and reports required under this permit electronically to EPA using NetDMR, unless the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt-out request").

DMRs shall be submitted electronically to EPA no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA, including the NHDES Monthly Operating Reports (MORs), as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA or to NHDES.

b. Submittal of NetDMR Opt-Out Requests

Opt-out requests must be submitted in writing to EPA for written approval at least sixty (60) days prior to the date a facility would be required under this permit to begin using NetDMR. This demonstration shall be valid for twelve (12) months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to

EPA unless the permittee submits a renewed opt-out request and such request is approved by EPA. All opt-out requests should be sent to the following addresses:

Attn: NetDMR Coordinator
U.S. Environmental Protection Agency, Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

and

Attn: NPDES Compliance Supervisor
New Hampshire Department of Environmental Services (NHDES)
Water Division
Wastewater Engineering Bureau
P.O. Box 95
Concord, New Hampshire 03302-0095

c. Submittal of Reports in Hard Copy Form

Monitoring results shall be summarized for each calendar month and reported on separate hard copy Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period. All reports required under the permit, including NHDES Monthly Operating Reports, shall be submitted as an attachment to the DMRs. Signed and dated original DMRs and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Water Technical Unit (OES04-SMR)
5 Post Office Square - Suite 100
Boston, MA 02109-3912

Duplicate signed copies of all reports or notifications required above shall be submitted to the State at the following address:

New Hampshire Department of Environmental Services
Water Division
Wastewater Engineering Bureau
P.O. Box 95
Concord, New Hampshire 03302-0095

Any verbal reports, if required in **Parts I** and/or **II** of this permit, shall be made to both EPA-New England and to NHDES-WD.

C. State Permit Conditions

The permittee shall comply with the following conditions, which are included as State certification requirements.

1. The permittee shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the use assigned to said water by the New Hampshire Legislature (RSA 485-A:12).

2. The pH of the discharge shall be in the range of 6.5 to 8.0 Standard Units (S.U.) unless the upstream ambient pH in the receiving water is outside of this range and it is not altered by the facility's discharge or activities. If the permittee's discharge pH is lower than 6.5 S.U., the permittee may demonstrate compliance by showing that the discharge pH was either higher than, or no more than 0.5 S.U. lower than, the ambient upstream receiving water pH. If the permittee's discharge pH is higher than 8.0 S.U., the permittee may demonstrate compliance by showing that the discharge pH is either lower than, or no more than 0.5 S.U. higher than, the upstream receiving water pH. For this demonstration the upstream receiving water sample must be collected on the same day as the discharge pH is measured. The location where the upstream ambient pH sample is collected shall be representative of upstream conditions unaffected by the facility's discharge(s) or activities.

3. This NPDES Permit is issued by the EPA under Federal law. Upon final issuance by the EPA, the NHDES may adopt this permit, including all terms and conditions, as a State permit pursuant to RSA 485-A:13. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of the permit as issued by the other agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation.

In the event any portion of this permit is declared, invalid, illegal or otherwise issued in violation of state law, such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the U.S. Environmental Protection Agency.

D. Special Conditions – Cooling Water Intake Structure (CWIS)

1. The permittee's non-contact cooling water intake structure (CWIS) shall reflect the best technology available (BTA) for minimizing the adverse environmental impacts due to the CWIS. In order to satisfy this BTA requirement, the permittee shall comply with the following requirements:

a. The CWIS maximum daily intake shall not exceed a withdrawal flow of 0.377 MGD. In addition, the permittee shall operate its variable speed pump to withdraw NCCW such that only the minimum required amount of cooling water is pumped to meet the facility's cooling demands. The permittee shall cease or reduce the intake of cooling water whenever withdrawal of source water is not necessary.

b. Maintain a physical screen at the opening of the CWIS with mesh size openings of approximately 0.5 inches in diameter and a maximum CWIS through-screen velocity of no more

than of 0.5 feet per second (fps) to minimize the entrainment and impingement mortality of adult and juvenile fish at the CWIS.

c. There shall be no changes to the CWIS, including any of the BTA requirements listed in Part I.D.1, above, unless approved by EPA as providing equivalent or greater protection for fish species.

2. Upon authorization of this permit, the permittee shall implement an Impingement Monitoring Program at the CWIS. The Impingement Monitoring Program shall include the following:

a. All locations in the CWIS where fish and organisms could potentially be impinged or trapped shall be included as inspection sites.

b. Visual inspection of these sites shall take place at least once per week at varying times of day, operating conditions and source water conditions. Monitoring shall be for all fish species.

c. A monitoring log must be maintained on-site to document the program and shall include the following information:

i. Date and time of each inspection;
ii. Name of observer/operator; and
iii. The presence or absence of impinged fish and organisms.

d. Impingement monitoring shall not be conducted when adverse weather conditions cause the effort to be unsafe or hazardous. Also, monitoring shall not be conducted when ice formation on the surface of the intake canal or other conditions preclude a reasonable view of the submerged CWIS. The specific reason for the missed monitoring event must be documented and included in the monitoring log required in Part I.D.2.c. (above).

e. If any adult or juvenile fish are observed against the impingement screens, the following information shall also be collected:

i. The total number of fish; and for each individual fish impinged:

1. The identification of each fish, to species if possible;
2. The total length of each fish;
3. The condition of each fish (alive, injured, dead); and
4. The treatment of each fish (released or discarded).

ii. Any additional actions taken by the permittee (e.g., cooling water intake flow reduced).

f. The log book shall contain appropriate reference material to ensure that those involved in planning and conducting the inspection have the necessary knowledge and ability to (1) ensure sampling accuracy and effectiveness, including the ability to identify all fish found in this area to the species level, and (2) return trapped organisms to the river by means designed to maximize their survival.

The monitoring log must be made available for review by EPA, NHDES or New Hampshire Fish & Game Department (NHFGD) when requested.

g. All live adult and juvenile fish and other aquatic organisms impinged or trapped on or in the CWIS shall be returned to the river by means designed to maximize their survival. All solid materials except for naturally occurring materials such as leaves, branches, and grass will be removed from the screen and will not be discharged to the water.

h. Any unusual impingement event must be reported to the EPA, the NHDES, and the NHFGD within 24 hours by telephone. If the permittee observes four (4) or more fish on the CWIS during any one of the following situations, this would qualify as an unusual impingement event, warranting notification: 1) during a required impingement monitoring program observation event, 2) at any time the CWIS is viewed, or 3) when the cumulative number of individual fish observed on the CWIS totals four (4) or more based on multiple observations over the course of any 24-hour period. The 24-hour notice must be followed with a written report.

The written report, to be submitted within five working days of the event, shall include the following information:

i. The time and date of the occurrence;
ii. The species, sizes, and approximate number of fish involved in the incident;
iii. The condition of the fish (dead or alive);
iv. The actions taken by the facility (i.e., fish returned to river, fish collected, cooling water intake flow reduced, etc.); and
v. The remedial action the permittee will take to prevent or reduce the likelihood of a recurrence of the incident, to the maximum extent practicable.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.

b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed $25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

Note: See 40 CFR §122.41(a)(2) for complete “Duty to Comply” regulations.

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or notifications of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Provide Information

The permittee shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or permittee;
(2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).

c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

8. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. The permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Regional Administrator. (The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

(1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
(3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.
ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

a. Definition. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
(4) The permittee complied with any remedial measures required under B.3. above.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by

imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The permittee shall allow the Regional Administrator or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. Planned Changes. The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
(2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
(3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. Anticipated noncompliance. The permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

(2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

e. Twenty-four hour reporting.

(1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(2) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)
(b) Any upset which exceeds any effluent limitation in the permit.
(c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the permit to be reported within 24 hours. (See 40 CFR §122.44(g).)

(3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

f. Compliance Schedules. Reports of compliance or noncompliance with, any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d., D.1.e., and D.1.f. of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e. of this section.

h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and Federal standards and limitations to which a “discharge”, a “sewage sludge use or disposal practice”, or a related activity is subject to, including “effluent limitations”, water quality standards, standards of performance, toxic effluent standards or prohibitions, “best management practices”, pretreatment standards, and “standards for sewage sludge use and disposal” under Sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in "approved States", including any approved modifications or revisions.

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of "daily discharges" over a calendar month calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" measured during the calendar week divided by the number of "daily discharges" measured during the week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Best Professional Judgment (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT), or other appropriate technology-based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Coal Pile Runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period.

Construction Activities - The following definitions apply to construction activities:

(a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

(b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.

(c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

(d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

Daily Discharge means the discharge of a pollutant measured during the calendar day or any other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

Discharge Monitoring Report Form (DMR) means the EPA standard national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by "approved States" as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source", or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation (See "Point Source" definition).

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Regional Administrator on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States", the waters of the "contiguous zone", or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under Section 304(b) of CWA to adopt or revise "effluent limitations".

EPA means the United States "Environmental Protection Agency".

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable "daily discharge" concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as "maximum concentration" or "Instantaneous Maximum Concentration" during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean "a value that shall not be exceeded" during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of "Maximum Daily Discharge" and "Average Daily Discharge" concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program".

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants";

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source"; and

(d) Which has never received a finally effective NPDES permit for discharges at that "site".

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore rig or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Regional Administrator in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Regional Administrator shall consider the factors specified in 40 CFR §§125.122 (a) (1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants", the construction of which commenced:

(a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or

(b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means "National Pollutant Discharge Elimination System".

Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved" State.

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to any pipe ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (Natural Resources Defense Council et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D. D.C. 1979)); also listed in Appendix A of 40 CFR Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operation is not the operator of the treatment works or (b) not a "POTW".

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality".

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary Industry Category means any industry which is not a "primary industry category".

Section 313 water priority chemical means a chemical or chemical category which:

(1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);

(2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and

(3) satisfies at least one of the following criteria:

(i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
(ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
(iii) are pollutants for which EPA has published acute or chronic water quality criteria.

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets, raw materials used in food processing or production, hazardous substance designated under section 101(14) of CERCLA, any chemical the facility is required to report pursuant to EPCRA Section 313, fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 CFR §110.10 and §117.21) or Section 102 of CERCLA (see 40 CFR § 302.4).

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to Section 405(d) of the CWA, and is required to obtain a permit under 40 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Toxic pollutants means any pollutant listed as toxic under Section 307 (a)(1) or, in the case of "sludge use or disposal practices" any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a "treatment works treating domestic sewage", where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

Waste Pile means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;

(b) All interstate waters, including interstate "wetlands";

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in Paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in Paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test. (See Abbreviations Section, following, for additional information.)

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

Active sewage sludge unit is a sewage sludge unit that has not closed.

Aerobic Digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural Land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

(2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e. essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to the strata on the other side.

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all the measurements taken during an hour. At least two measurements must be taken during the hour.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Industrial wastewater is wastewater generated in a commercial or industrial process.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management agency under section 208 of the CWA, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination or organic and inorganic substances, or pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis on information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirements) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

Qualified ground water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of a site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off the land surface.

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to:, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
Surfactant	Surface-active agent

Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
WET	"Whole effluent toxicity" is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	"Chronic (Long-term Exposure Test) – No Observed Effect Concentration". The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.
A-NOEC	"Acute (Short-term Exposure Test) – No Observed Effect Concentration" (see C-NOEC definition).
LC_{50}	LC_{50} is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND REGION
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FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

PUBLIC NOTICE START AND ENDS DATES: **May 30, 2014 – June 28, 2014**

PUBLIC NOTICE NUMBER: **NH-005-14**

NPDES PERMIT NUMBER: **NH0023558**

NAME AND ADDRESS OF APPLICANT:

General Electric Company
130 Main Street
Somersworth, New Hampshire 03878

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

General Electric Company
130 Main Street
Somersworth, New Hampshire 03878

RECEIVING WATER: **Salmon Falls River**

CLASSIFICATION: **Class B**

SIC CODE: **3612, 3825**

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Attachment C Facility Process Flow Diagram

Attachment D EPA Heat Balance Calculation

Attachment E GE Map of Monitoring Well Locations

Attachment F GE Summary of Groundwater Analytical Results

I. Proposed Action, Type of Facility and Discharge Location

Representatives of the General Electric Somersworth Facility (GE) have applied to the U.S. Environmental Protection Agency (EPA) for issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge effluent into the designated receiving water, the Salmon Falls River. GE owns and operates the facility, which manufactures state of the art electric meters for the energy business. The facility is located in Somersworth, NH at a point in the river approximately 8.5 miles upstream from the confluence of the Salmon Falls River with the Cocheco River, which forms the Piscataqua River. Non-contact cooling water (NCCW) is withdrawn from the Salmon Falls River via an opening along the wall of a hydroelectric plant canal which diverts water from the Salmon Falls River. The canal runs along the west side of the GE property. The facility has the ability to use potable city water instead of river water under certain circumstances. The facility discharges NCCW back into the Salmon Falls River via Outfall 005 and Outfall 015. Both outfalls are located on the west bank of the river, downstream of the canal.

NCCW is water that is used to reduce the temperature of industrial operations and equipment. By definition, this water does not come into direct contact with any raw material, intermediate product, waste product (other than heat), or finished product. GE incorporates the use of a non-contact cooling water system to cool the facility buildings (Outfall 005) and two hydroelectric turbines located in Building W1 (Outfall 015). The location of GE's NCCW intake, outfalls and the receiving water are shown in Attachment A.

GE has reported that under wet weather conditions, stormwater from a portion of the property drains into a stormwater collection network and mixes with NCCW just prior to being discharged at Outfall 005. Beginning on March 4, 2009, the facility has been authorized to discharge industrial stormwater under the 2008 Multi-Sector General Permit (Tracking Number NHR05BO19). The facility is covered under Sector AC, Subsector AC.1 – Electronic, Electrical, Photographic, and Optical Goods (Primary SIC Code 3612).

In addition, the facility has reported additional flow, resulting from infiltration of groundwater into the stormwater collection network, which also mixes with NCCW before being discharged at Outfall 005.

Historically, GE has been authorized to discharge NCCW from Outfalls 005 and Outfall 015 to the Salmon Falls River under the EPA NCCW General Permit NPDES Number NHG250317. In discussions with EPA in early 2011, GE requested that the effluent discharge maximum daily temperature limit for Outfall 005 be increased from its current limit of 83°F to 90°F. GE sought this higher temperature limit because, during the summer months, the higher temperature of the surface intake water plus the facility's heat load may result in NCCW effluent temperatures above 83°F. It is not appropriate for EPA to set individual limits within the existing NCCW General Permit; therefore, an individual permit must be issued in this case. On September 16, 2011, GE submitted an individual NPDES permit application to EPA for discharges of NCCW effluent from the two existing outfalls, as well as groundwater discharge from Outfall 005. The NCCW discharges remain covered under the General Permit until an individual permit is issued.

On April 23, 2012, GE responded to a Notice of Deficiency (NOD) from the EPA regarding the individual NPDES permit application (NH0023558). Upon receipt of the NOD response letter from GE, EPA requested additional data (via email messages) to support its understanding of NCCW operations at the facility. GE responded to EPA's data request with written descriptions of facility NCCW operations and photographs of relevant facility features.

II. Description of Discharge

A quantitative summary of monitoring results for those effluent parameters limited and monitored in the existing permit for the 64-month period August 2008 through November 2013 is presented in Attachment B. The data was compiled from quarterly Discharge Monitoring Report (DMR) data submitted by the facility to the New Hampshire Department of Environmental Services, Water Division, (NHDES) and EPA. Monitoring data was not collected for Outfall 015 from January 2012 through November 2013 because the hydro was shut down and no discharge occurred at Outfall 015. Summary monthly average flow data from Outfall 015 for November 2009, July 2010 and August 2010 were considered suspect by EPA. In each case, the calculated average was one order of magnitude greater than expected. A data entry error was likely the cause of the suspect data. The daily maximum flow recorded for January 2009 at Outfall 015 was also considered suspect by EPA for the same reason. EPA requested that that permittee review the raw data and calculations that produced the monthly average flow data and the daily maximum flow. The review of the raw flow data by the permittee confirmed that the suspect flow data was incorrect. This information was removed from the DMRs.

GE submitted quantitative data with their reapplication submissions (Forms 1 and 2C) along with the DMR data; all of which are on file at the EPA Boston Office. The Draft Permit contains Outfall 005 and 015 effluent limits for flow, temperature and pH. Total Residual Chlorine (TRC) limits are also included for those instances when the facility uses potable water, rather than surface water, as source water.

III. Receiving Water Description

The Salmon Falls River is a Class B waterbody pursuant to New Hampshire Statutes RSA 485-A:8. Class B waterbodies are considered suitable for fishing, swimming and other recreational purposes, and for use as a water supply after adequate treatment. The state has identified this section of the river as a warm water fishery.

A general description of the river's characteristics in the area of the facility's discharge follows. The river forms the town of Somersworth's eastern border with Maine. The river flows over an old dam and passes through a low density residential area along Salmon Falls Road. The river then passes under a bridge on Salmon Falls Road and flows past two large farms and a half mile of forested wetland before it reaches an area of dense development across from Berwick, Maine. Here the New Hampshire Northcoast Railroad tracks run along the river's edge as it passes over two dams at the General Electric Company hydro power facility on Main Street. This area includes the canal on the west bank of the river, the GE Somersworth Facility and Outfalls 005 and 015. The river continues to flow past dense development as it pools behind a third dam on Buffumsville Road and then passes the Somersworth Wastewater Treatment Plant. The Salmon Falls River then winds around a small forested hill and crosses into Rollinsford.

Section 303(d) of the Federal Clean Water Act requires states to identify those waterbodies that are not expected to meet surface water quality standards (WQSs) after the implementation of technology-based controls and, as such, require the development of total maximum daily loads (TMDL). This section of the Salmon Falls River (Assessment unit NHIMP600030406-02) is assessed as impaired, requiring a TMDL for some uses and marginally impaired for other uses on NHDES's *Final 2012 Section 303(d) Surface Water Quality List* submitted to EPA for approval. Each Assessment Unit has six designated use descriptions; Aquatic Life, Drinking Water After Adequate Treatment, Fish Consumption, Primary Contact Recreation, Secondary Contact Recreation and Wildlife. The Aquatic Life category rating is "Insufficient Information/no data" for Chlorophyll a, "Insufficient Information/potentially not attaining

standards" for non-native aquatic plants, "Supports parameters marginally above criteria" for pH and "Insufficient Information / potentially not attaining standards" for total phosphorus. The use of this section of the river as "Drinking Water After Adequate Treatment" is rated as "Good" (Fully Supported). Fish Consumption is rated "Poor" (Not Support, Marginal) due to atmospheric deposition of mercury (a state-wide listing). Primary Contact Recreation, i.e., swimming, is also rated "Poor" (Not Support, Marginal) because of Escherichia coli, which is rated as "Impaired/TMDL, marginal impairment" due to illicit connections/hook-ups to storm sewers. Secondary Contact Recreation, i.e., boating, is rated as "Insufficient Information/No Data." Wildlife is also labeled as "Insufficient Information/No Data." The discharge of NCCW from this facility is not expected to contribute to these impairments and marginal impairments.

IV. Permit Basis and Explanation of Effluent Limitations

The facility's discharge effluent limitations and monitoring requirements are found in Part 1 (Effluent Limitations and Monitoring Requirements) of the Draft Permit. The permit application and any supplemental information submissions are part of the administrative file.

A. General Requirements

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. This Draft Permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable state regulations. During development, EPA considered the most recent technology-based treatment requirements, water quality-based requirements, and all limitations and requirements in the current permit. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. The standard conditions of the Draft Permit are based on 40 CFR §122.41 and consist primarily of management requirements common to all permits. The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308(a) of the CWA in accordance with 40 CFR §§122.41(j), 122.44(i) and 122.48.

EPA is required to consider technology and water-quality based criteria in addition to the current permit conditions when developing permit limits.

B. Technology-Based Requirements

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (*See* 40 C.F.R. Part 125, Subpart A). Subpart A of 40 C.F.R. Part 125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA promulgated effluent limitations and, in the absence of promulgated technology-based effluent guidelines, Best Professional Judgment (BPJ) for case-by-case determinations of effluent limitations under Section 402(a)(1)(B) of the CWA.

In general, statutory deadlines for meeting technology-based guidelines (effluent limitations) established pursuant to the CWA have expired. Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit.

In the absence of published technology-based effluent guidelines, the permit engineer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using Best Professional Judgment (BPJ).

C. Water Quality-Based Requirements

Water-quality based limitations are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water-quality standards. See Section 301(b) (1)(C) of the CWA. A water-quality standard consists of three elements: (1) beneficial designated use or uses for a waterbody or a segment of a waterbody; (2) a numeric or narrative water-quality criteria sufficient to protect the assigned designated use(s); and (3) an antidegradation requirement to ensure that once a use is attained it will not be eroded. Receiving water requirements are established according to numerical and narrative standards in the state's water-quality standards adopted under state law for each stream classification. When using chemical-specific numeric criteria to develop permit limits both the aquatic-life acute and chronic criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Aquatic-life acute criteria are considered applicable to daily time periods (maximum daily limit) and aquatic-life chronic criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR Section 122.44 (d)(1) and are implemented under 40 CFR Sections 122.45(d) and (f). Therefore, the Region establishes maximum daily and average monthly limits for chemical specific toxic pollutants based, in part, on a reasonable measure of the facility's actual or projected flow rates on an average monthly and a maximum daily basis for all production-based facilities that have a continuous discharge. Also, the dilution provided by the receiving water is factored into this process. Furthermore, narrative criteria from the state's water-quality standards are often used to limit toxicity in discharges where: (1) a specific pollutant can be identified as causing or contributing to the toxicity but the state has no numeric standard; or (2) toxicity cannot be traced to a specific pollutant.

The NPDES permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water-quality criterion. See CFR Section 122.44(d)(1). An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion. In determining reasonable potential, EPA considers: (1) existing and planned controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from permit's reissuance application, Monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the species to toxicity testing; (4) statistical approach outlined in Technical Support Document for Water Quality-based Toxics Control, March 1991, EPA/505/2-90-001 in Section 3; and, where appropriate, (5) dilution of the effluent in the receiving water. In accordance with New Hampshire statutes and administrative rules (50 RSA 485-A:8, Env-Ws 1705.02), available dilution for discharges to freshwater receiving waters is based on a known or estimated value of the annual seven consecutive-day mean low flow at the 10-year recurrence interval (7Q10) for aquatic life or the long-term harmonic mean flow for human health (carcinogens only) in the receiving water at the point just upstream of the discharge. Furthermore, 10 % of the receiving water's assimilative capacity is held in reserve for future needs in accordance with New Hampshire's Surface Water Quality Regulations Env-Wq 1705.01. The current set of these Regulations, newly revised, were readopted and became effective on May 21, 2008. Hereinafter, these New Hampshire's Surface Water Quality Regulations are referred to as the NH Standards.

D. Anti-Backsliding

EPA's antibacksliding provision as identified in Section 402(o) of the CWA and at 40 CFR §122.44(l) prohibits the relaxation of permit limits, standards, and conditions unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued. Antibacksliding provisions apply to effluent limits based on technology, water quality, best professional judgment (BPJ), and State Certification requirements. Relief from antibacksliding provisions can only be granted under one of the defined exceptions [See 40 CFR §122.44(l)(i)].

In this case, GE's two outfalls, 005 and 015, are covered under the NCCW General Permit number NHG250317, issued March 31, 2009, and as amended on March 11, 2010, and September 2, 2010. In the Draft Permit, the pH and mean daily temperature for Outfall 015 are as stringent as the current limits in the NCCW General Permit for New Hampshire facilities.

For Outfall 005, the TRC limit is less stringent than the current general permit and has been recalculated based on the maximum flow of 0.217 MGD of municipal water that could potentially be introduced into the cooling water system and discharged through Outfall 005 during extreme low flow conditions in the river. As an alternative to declorination, the permittee requested a new limit restricting the use of municipal water. The pH limit remains the same. The Draft Permit contains a higher limitation on the maximum discharge temperature at Outfall 005. This new limit is based on new information, which is an allowable exception to antibacksliding at 40 CFR § 122.44(l)(2)(i)(B)(*1*).

The maximum daily flow limit for both outfalls combined at the facility is 0.50 MGD. The flow limit for Outfall 005 is 0.44 MGD and the flow limit for Outfall 015 is 0.06 MGD. This is more stringent than the current NCCW GP 1.0 MGD flow limit for this facility.

E. Antidegradation

Federal regulations found at 40 CFR § 131.12 require states to develop and adopt a statewide antidegradation policy which maintains and protects existing instream water uses and the level of water quality necessary to protect the existing uses, and maintains the quality of waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water. The New Hampshire Antidegradation Regulations, which are found at Env-Wq 1708, apply to any new or increased activity that would lower water quality or affect existing or designated uses, including increased loadings to a waterbody from an existing activity.

This Draft Permit is being issued with allowable effluent limits established to protect the existing and designated uses of the Salmon Falls River. NHDES has made a preliminary antidegradation determination that there shall be no significant adverse impacts to the receiving waters and no loss of existing uses as a result of the discharge authorized by this permit.

F. CWA § 316(a)

Heat is defined as a pollutant under Section 502(6) of the CWA. 33 U.S.C. § 1362(6). As with other pollutants, discharges of heat (or "thermal discharges") generally must satisfy both technology-based standards (specifically, the BAT standard) and any more stringent water quality-based requirements that may apply. State WQS may include numeric temperature criteria, as well as narrative criteria and designated uses that apply to particular water body classifications and may necessitate restrictions on

thermal discharges. New Hampshire WQS provide that "(I)n prescribing minimum treatment provisions for thermal wastes discharged to interstate waters, the Department shall adhere to the water quality requirements and recommendations of the New Hampshire Fish and Game Department, the New England Interstate Water Pollution Control Commission, or the United States Environmental Protection Agency, whichever requirements and recommendations provide the most effective level of thermal pollution control." See NH Statute 485-A:8.VIII.

Section 316(a) of the CWA, 33 U.S.C. § 1326(a), provides, however, that thermal discharge limits less stringent than technology-based and/or water quality-based requirements may be authorized if the biological criteria of Section 316(a) are satisfied. The approval of less stringent thermal discharge limits under CWA § 316(a) is referred to as a "Section 316(a) variance." Thermal discharge variances, and the demonstration that an applicant must make to obtain one, are addressed in CWA§ 316(a) and EPA regulations, including those promulgated at 40 CFR § 125, Subpart H. In essence, the applicant must demonstrate that the alternative, less stringent effluent limitations it desires, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the water body (BIP) receiving the thermal discharge. See 33 USC § 1326(a); 40 CFR § 125.73(a) and (c)(1)(i). An existing thermal discharger can perform either a predictive or retrospective analysis in an effort to demonstrate that the protection and propagation of the BIP will be assured despite its proposed thermal discharge variance. If the applicant makes this demonstration to the satisfaction of EPA (or, if appropriate, the State), then the permitting authority may issue the permit with the requested alternative, variance-based thermal discharge limits. Conversely, if the demonstration does not adequately support the requested variance-based thermal discharge limits, the permitting authority shall deny the requested variance. In that case, the permitting authority shall either impose limits based on the otherwise applicable technology-based and water quality-based requirements or, at its discretion, impose alternative variance-based limits that the permit record demonstrates will assure the protection and propagation of the BIP.

In this case, GE requested a discharge temperature limit of 90°F at Outfall 005 in its NPDES individual permit application. In order to support this discharge temperature limit request, GE also applied for a Section 316(a) variance as part of its application.

G. CWA § 316(b)

Technology-based NPDES permit requirements for cooling water intake structures (CWISs) are based on CWA § 316(b), 33 USC § 1326(b), which requires that "the location, design, construction, and capacity of the facility's cooling water intake structure(s) (CWIS) reflect the BTA for minimizing adverse environmental impact." As with effluent discharge limits, CWIS requirements must also comply with any more stringent conditions that might be necessary to achieve compliance with any applicable State WQS. See 40 CFR § 125.84(e).

The operation of CWISs can cause or contribute to a variety of adverse environmental effects, such as (a) killing or injuring tiny aquatic organisms, including but not limited to fish larvae and eggs, by entraining them in the water withdrawn from a water body and sent through the cooling system and (b) killing or injuring larger organisms, including but not limited to juvenile and adult fish, by impinging them against the intake structure's screens, racks, or other structures. Section 316(b) applies to discharge permits seeking to withdraw cooling water from a water of the United States.

In this case, CWA § 316(b) applies due to the withdrawal of fresh water from a hydroelectric plant canal that diverts water from the Salmon Falls River for use in GE's NCCW system. At this time there are no national categorical standards in effect that apply to GE's CWIS. As a result, EPA developed technology-based requirements by applying Section 316(b) on a site-specific basis using BPJ. A detailed discussion of the requirements pertaining to this regulation is presented in Section VI of this Fact Sheet.

V. Explanation of Permit's Effluent Limitations

A. Facility Information

According to GE, the Somersworth facility has been at its current location for more than 50 years. Historically, GE has used water from Salmon Falls River (via a canal located on the west side of the GE property) to cool its facility buildings and two hydroelectric turbines located in Building W1. The NCCW source water exits the canal and is moved by two intake pumps through a 12-inch diameter underground pipe, enters the southern facility building and is used to cool the building. It then discharges through Outfall 005. Just prior to discharge, the NCCW mixes with stormwater runoff from a portion of the property. Stormwater discharge from this facility is authorized under the 2008 Multi-Sector General Permit (Tracking Number NHR05BO19). Groundwater infiltration is also collected by the stormwater system and mixes with any stormwater and the NCCW just prior to being discharged via Outfall 005.

The water that is ultimately discharged from Outfall 015 follows the same path as the Outfall 005 NCCW until the water passes through the two intake pumps described below. At the discharge of these pumps the line travels to a long service trunk that runs the length of the building, where water for noncontact cooling and toilets branch off at many different spots from this "header" to feed the various needs of the plant. One of these branches travels from the header through an underground service trunk to Building I. In this building it goes through a meter to record flow and then travels to the hydroelectric plant via more underground service trunks. From there it goes through two hydraulic cooling units used to cool the hydro generators and then out to the river through a drain in the basement of the building (015) where the water can be captured and sampled as needed.

Beginning with the CWIS, a more detailed description of the water use at the facility follows. The CWIS is made up of a rectangular opening along the east wall of the hydroelectric plant canal that is 46" wide by 96" high. The opening leads to a concrete vault. There are two overlapping screens covering the entrance to this CWIS that create an approximate 0.5 inch diameter mesh size. Water from the Salmon Falls River, after flowing down the canal and passing through the intake screens, is moved from the concrete vault by one of two Grundfos variable speed pumps (Model # CR32-5-2, 20 horsepower), located at a pumping station in Building E. The pumps are physically restricted by the control panel from operating simultaneously (i.e., the pumps are operated with a manual switch that toggles between operation of Pump One or Pump Two). The maximum diverted flow from the canal is 262 gallons per minute (gpm) (or 0.58 cubic feet per second (cfs); 0.377 MGD) based on a review of the pump curve and flow meter readings from calendar year 2012.

Canal water is pumped into a 12 inch inside diameter cast iron pipe, installed circa 1930. The water travels the length of the pipe (roughly 1200 feet), where it is moved to various areas inside the facility. Any water used for sanitary purposes or industrial processes other than non-contact cooling is discharged to the municipal sewer system. Just prior to being discharged, non-contact cooling water may be diverted to a once through cooling tower. This single pass cooling system is used in the warmer

months (approximately May 1 through October 1) to reduce the Outfall 005 discharge temperature before mixing with the receiving water of the Salmon Falls River. When the cooling tower is in use, cooling water is diverted to a sump where two pumps, with a combined maximum capacity of 0.352 million gallons per day (MGD), move water through the single-pass cooling towers. The water is then discharged to the Salmon Falls River via Outfall 005. When the cooling tower is not in operation, non-contact cooling water discharges by gravity to Outfall 005. The outfall is a pipe protruding from a rock wall located on the southeastern portion of the property and the west bank of the river, approximately 250 feet downstream from the hydroelectric dam.

A relatively smaller volume of water is also withdrawn exclusively from the CWIS described above and sent directly to the hydroelectric plant. This water branches off at the "downstream" end of the 12 inch cast iron pipe. A maximum of approximately 0.06 MGD is used to cool the two hydroelectric turbines located at Building W1, also located on the west side of the river. Cooling water used at the hydroelectric plant is ultimately discharged to the Salmon Falls River via Outfall 015.

The discharge points of Outfalls 005 and 015 are located more than 200 feet from each other in the river. The location of GE's NCCW intake and outfalls and the receiving water are shown in Attachment A. The process flow diagram of the facility is shown in Attachment C.

B. Derivation of Effluent Limits under the Federal CWA and/or the State of New Hampshire's Water Quality Standards

1. Flow

Outfall 005

The facility flow design that discharges via Outfall 005 results in NCCW mixing with water derived from a stormwater piping network. This stormwater contribution joins Outfall 005 just before being discharged to the receiving water. The permittee obtained coverage for the facility under the EPA Multi-Sector General Permit (MSGP) for stormwater discharges associated with industrial activity.

In addition, the permittee performed a review of precipitation data compared with measured discharge flow and determined that the discharge flow does not behave within the expected definition of dry and wet weather conditions from the stormwater contribution to the discharge. The permittee has indicated that there is an unknown amount of groundwater infiltration into the stormwater piping network. The permittee maintains that it is not feasible to meter the NCCW flow separately from the stormwater and groundwater at Outfall 005.

Single Limit for Outfalls 005 and 015 Flow Combined

The maximum daily flow reported by the permittee for Outfalls 005 in the permit application is 0.43 MGD. The maximum daily flow reported by the permittee for Outfall 015 is 0.06 MGD, with an average flow of 0.034 MGD. The maximum capacity of the intake pumps (0.38 MGD) at the CWIS provides NCCW that is ultimately discharged at both outfalls. As discussed previously, NCCW flow at Outfall 005 is mixed with stormwater (under wet weather conditions) and groundwater just prior to discharge. According to the permittee, NCCW cannot be metered separately from the stormwater and groundwater at Outfall 005 The permittee requested a single flow discharge limit from both outfalls combined of at least 0.5 MGD (e-mail from M. Cole, GeoInsight, Inc., to J. Nagle, EPA, dated January 22, 2014). Based on this request, EPA has proposed an overall flow limit of 0.50 MGD for both outfalls combined. Since the discharge at Outfall 015 is not combined with stormwater or groundwater it is expected to have much less maximum flow uncertainty. EPA has proposed that the maximum flow at

Outfall 015 can be reasonably predicted to be 0.06 MGD. Therefore, the flow limit for Outfall 005 is projected to be 0.50 MGD minus 0.06 MGD, or 0.44 MGD. This flow limit is only about a 2% increase over the historical maximum daily flow reported by the permittee for Outfall 005. All dilution calculations for Outfalls 005 and 015 use these two projected maximum flow values. The monitoring frequency shall be once per week. The reason for any missing monitoring information must be included in the cover sheet to the Discharge Monitoring Report.

This combined facility limit is more stringent than the current NCCW GP 1.0 MGD flow limit for this facility. The flow limit of 0.44 MGD for Outfall 005 takes into account the maximum withdrawal of 0.377 MGD at the cooling water intake structure that could potentially be discharged entirely to Outfall 005 (if Outfall 015 is not discharging), along with additional flow from stormwater and infiltrated groundwater that joins the discharge just prior to being discharged from Outfall 005.

2. pH

The Draft Permit contains a pH limitation of 6.5-8.0 standard units (S.U.) for both outfalls. As stated previously, NCCW does not come in direct contact with any raw material, intermediate product, waste product (other than heat) or finished product. Since the effluent discharged by the GE facility is not treated, it can be surmised that the pH of the effluent will be nearly the same, allowing for sampling accuracy, as the pH of the intake water.

The NH Standards, Env-Wq 1703.18(b), requires the pH of effluent discharging to Class B waters to be in the range of 6.5 to 8.0 S.U. Effluent pH can be outside this range if it is due to natural causes. Since GE does not treat or add chemicals to its NCCW, the facility's discharge is not expected to alter the receiving water's naturally occurring pH. The Draft Permit prohibits the addition of chemicals to the non-contact cooling water.

The monthly maximum and minimum values for pH provided by GE for the period August 2008 through November 2013 do not violate the State's Water Quality limits for pH. Therefore, the Draft Permit retains a weekly monitoring requirement for pH under dry weather conditions.

3. Total Residual Chlorine (TRC)

The Draft Permit contains a TRC maximum daily limitation for those instances when a chlorinated municipal water supply is used as the source of the NCCW. 40 CFR § 141.72 requires that a public water system's residual disinfection concentration cannot be less than 0.2 mg/l for more than four hours. The discharge of potable water from public water supplies has the potential to exceed water-quality standards for chlorine. Therefore, EPA is proposing limits on the concentration of chlorine in the discharge from the facility when it utilizes a potable water supply for cooling water. GE stated in its permit application that the primary source of the NCCW water is the Salmon Falls River but that the facility uses the chlorinated municipal water supply from Somersworth, NH as an emergency backup source of NCCW during periods of low water flow in the canal. This water would be discharged at Outfall 005. In such cases, the facility has the ability to substitute municipal water for river water at a rate of up to approximately 150 gallons per minute (gpm) or 0.216 MGD. According to the permittee, the municipal water supplier is allowed to supply water with a TRC concentration of up to 4 mg/l (ppm), although the annual average for the year 2012 from Somersworth was calculated as 0.67 mg/l (ppm). EPA has used the maximum potential TRC concentration of 4 ppm when calculating the protective TRC limit in this case. The Draft Permit establishes a TRC limit and quarterly monitoring requirement for TRC when the NCCW source water is chlorinated water. In addition, the permittee also requested a

maximum permitted limit which regulates the rate of chlorinated municipal water that shall be used in order to meet the TRC maximum daily limit proposed in the Draft Permit.

Municipal water is not used as a secondary source for the hydro facility. Since no chlorinated municipal water would be discharged at Outfall 015, no TRC or municipal flow limit has been included for Outfall 015.

The State of New Hampshire's WQS for chlorine, found at Chapter 1700, Surface Water Quality Regulations, Part Env-Wq 1703.21(b), is the same as the recommended federal water quality criteria:

freshwater acute – 19 ug/l (0.019 mg/l),
freshwater chronic – 11 ug/l (0.011 mg/l)

In the Draft Permit, the maximum daily and average monthly concentration allowed in the effluent are based on the appropriate water quality criterion and the available dilution in the receiving water. The dilution factor is an estimate of the available dilution afforded the permittee's effluent by the receiving water. The dilution factor is calculated using the plant's discharge flow, an estimate of the 7Q10 low flow of 18.5 MGD in the Salmon Falls River, and 90 percent of the Assimilative Capacity Reserve, in accordance with NH Regulation Env-Wq 1705.01.

The permittee's maximum daily total residual chlorine limits are calculated by multiplying the dilution factor by the water quality criterion.

Dilution Factors (DF) Calculations when the water supply is from the drainage basin:

7Q10 = 18.5 MGD

$$DF = \frac{7Q10}{\text{Facility's Design Flow}} \times 0.9 \text{ (90\% assimilative capacity reserve)}$$

Outfall 005
Acute (Maximum Daily) $\frac{18.5 \text{ MGD}}{0.216 \text{ MGD}} \times 0.9 = 77.08$

Maximum Daily TRC Limitation Calculations:

Dilution Factor x TRC acute criteria = TRC acute limitation

Outfall 005
Acute (Maximum Daily) 77.08 x 0.019 mg/l = 1.46 mg/l (ppm)

However, Section 101(a)(3) of the Act, and New Hampshire standards at Env-Wq 1703.21(a) prohibit the discharge of toxic pollutants in toxic amounts. In order to reduce the potential for the formation of chlorinated compounds and to be protective of the States' narrative standards, EPA-Region 1 has, historically, established a maximum Total Residual Chlorine (TRC) limitation of 1.0 mg/l for both the average monthly and the maximum daily limitations. In this situation, the 1.0 mg/L limit for the maximum daily effluent limit is more stringent than the 1.46 mg/L limit that would be allowed based on available dilution and the NH Standards for acute aquatic-life criteria of 0.019 mg/L. Hence, the TRC

daily maximum limit of 1.0 mg/L is proposed for the Draft Permit as a grab sample to be monitored once per quarter when municipal water is discharged at Outfall 005.

A proposed limit for the rate of municipal water used to meet the freshwater acute criteria of 0.019 mg/l is calculated as follows:

$$\frac{[18.5 \text{ MGD}}{X \text{ MGD}} \times 0.9] = \frac{4 \text{ mg/l}}{0.019 \text{ mg/l}}$$

The rate of municipal water can be no more than X = 0.05 MGD.

The remaining water rate of 0.166 MGD must come from river water that contains no TRC.

Further, New Hampshire has narrative criteria in their water-quality regulations that prohibit toxic discharges in toxic amounts (New Hampshire Part Env-Wq 1703.21(a)). This permit does not allow the discharge of any chemicals except for non-toxic chemicals used for pH neutralization and/or dechlorination. The use of additives to control biological growth, corrosion, and/or scale in cooling water is prohibited. Therefore, the effluent should not produce a toxic effect to any aquatic life. The proposed limits on chlorine will ensure that chlorine is not discharged in toxic amounts.

4. Temperature

The Salmon Falls River is classified as a warm water fishery by the New Hampshire Fish and Game Department (NHFGD). In general, NHFGD recommends that the maximum daily temperature not exceed 83ºF for effluent discharged to a warm water fishery. NH Statue RSA 485-A:8 II specifically requires that "Any stream temperature increase associated with the discharge of ... cooling water ... shall not be such to appreciably interfere with the uses assigned to this class." The daily maximum temperature limit for Outfall 015 will remain at its current General Permit limit of 83ºF because this limit is consistent with NH Water Quality Standards and this outfall consistently meets this limit.

For Outfall 005, however, GE's individual NPDES permit application requested a §316(a) variance in order to allow an increase in the maximum daily effluent discharge temperature limit of 83ºF, as currently required in the General Permit, to a maximum daily effluent temperature of 90ºF. As part of their application, GE submitted a receiving water temperature demonstration engineering calculation to demonstrate the potential impact of the higher temperature limit on the receiving water. GE determined that its actual NCCW intake and discharge flows are significantly less than the 1.0 MGD flow value that GE reported in their NCCW General Permit Notice of Intent. Because effluent flows are less than 1 MGD and provide much less NCCW, the potential exists for the discharge water from Outfall 005 to exceed the current limit of 83ºF during the summer months, when ambient river temperatures increase. GE reported a maximum daily temperature of 84.1° F in July 2011. EPA considered GE's request for a CWA Section 316(a) variance and conducted its own temperature demonstration engineering calculation and heat balance analysis (see Attachment D).

Technology-Based Limits
As discussed in Section IV.B. of this Fact Sheet, in the absence of published technology-based effluent guidelines, the permit engineer is authorized under Section 402(a)(1)(B) of the ACT to establish technology-based temperature limits by applying the BAT standard on a case-by-case, BPJ basis in consideration of (i) the appropriate technology for the category or class of point sources of which the

applicant is a member, based upon all available information; and (ii) any unique factors relating to the applicant (see 40 CFR 125.3(c)(2)).

In this case, the facility uses a single pass (once-through) cooling tower system in the warmer months to reduce the Outfall 005 discharge temperature before mixing with the receiving water of the Salmon Falls River. The use of this once-through cooling tower provides for a technology based standard that results in the discharge of NCCW at the permitted limit. This temperature limit will not violate State WQS in the Salmon Falls River. EPA, therefore, has established that the use of the once-through cooling tower system to meet the permitted temperature limit at Outfall 005 is a technology-based temperature limit.

Thermal Discharge Analysis
The heat balance analysis approach applied parameters representing a "worst case" scenario. In this scenario the Salmon Falls River is flowing at the river's 7Q10 flow (the lowest seven days flow expected to occur at a ten years frequency), the river's ambient temperature is 79°F (NCCW source water temperature), GE's NCCW effluent discharge temperate for Outfall 005 is at its requested maximum daily permit limit of 90°F and the current maximum daily temperature limit of 83°F for Outfall 015. The analysis (presented in Attachment D) demonstrated that GE's combined NCCW discharge would result in delta T (ΔT) of 0.26º F.

On January 30, 2012 representatives of NHDES and NHFG informally determined that the 90ºF temperature limit for NCCW from Outfall 005 at the Draft Permit's proposed flow limit was within the NHDES and NHFG "acceptable ΔT range" under NH Statue RSA 485-A:8 II and was not expected to result in any adverse impacts to the balanced indigenous population of the Salmon Falls River's ecosystem or otherwise violate State WQSs.

EPA and NHDES also reviewed GE's thermal calculation, which was similar to the agency's analysis. The agencies consider the analysis results to be valid and that, for Outfall 005 of this Draft Permit, the 90° F NCCW thermal limit, coupled with the Draft Permit's discharge flow limit, meets applicable state WQSs. In this case, a §316(a) variance is not required. Instead of granting GE's request for a variance, EPA and NHDES determined that the thermal discharge will not violate State WQSs

5.0 Pollutant Scan

Groundwater quality is monitored by the permittee on a limited portion of the site as a results of a No. 6 fuel oil release that was reported to the New Hampshire Department of Environmental Services (NHDES) in 2008. A remediation system was installed by the permittee to mitigate polycyclic aromatic hydrocarbon (PAH) impacts which were observed in a well-defined area around the hydro penstock. Groundwater quality testing is completed biannually by GE in May and November under the conditions of a Groundwater Management Permit (GMP) issued by the NHDES. Groundwater analytical data collected by the permittee to date indicates that minimal groundwater impacts are associated with the No. 6 fuel oil release, and these are only in the vicinity of the penstock that runs from west to east across the site to the north of Building M. According to GE, stormwater drainage in the vicinity of the penstock generally flows overland and directly into the Salmon Falls River or into stormwater catch basins that discharge through Outfall 010. The stormwater drainage network that discharges at Outfall 005 is located significantly to the south of where the groundwater impacts were identified; therefore, the permittee maintains that impacts to groundwater reflected in well sampling results are extremely unlikely to impact the water quality of the Outfall 005 discharge. A map of the monitoring well locations is shown in Attachment E. Results from the groundwater monitoring are found in Attachment F.

The permittee has identified two other factors that EPA has considered regarding the potential for groundwater impacts to seep into the Outfall 005 drainage network: 1) according to the permittee, a bedrock elevation high exists between the penstock location and the stormwater drainage network associated with Outfall 005 that creates a physical barrier to southward plume migration (in addition to the fact that groundwater and plume flow is to the east due to hydraulic gradient), and 2) groundwater quality data collected by the permittee in 2013 indicated significantly lower polycyclic aromatic hydrocarbon (PAH) concentrations compared to previous results. The permittee maintains that this reduction in PAH concentrations is likely attributable to the fact that the 2013 samples were field-filtered to remove colloidal particles so that the sample would be more representative of dissolved-phase PAHs. The permittee judged that PAHs adhered to colloidal material would be unlikely to migrate beyond the immediate area of the penstock.

The permittee maintains that based on investigations performed as part of the remedial activities at the site, there are no indications of impacts to the stormwater/groundwater discharged at Outfall 005 that are related to the known fuel oil release. In order to document that the groundwater infiltration discharged at Outfall 005 does not include these contaminants, EPA is requiring a subset of the priority pollutants to be scanned for this discharge. The subset of the priority pollutants is listed below and further discussed in Sections V.B.5.1 and V.B.5.2.

Section 308 of the CWA allows EPA to require the Permittee to report information necessary for the establishment of appropriate permit limits and conditions or monitoring requirements. To protect the Salmon Falls River, the Draft Permit includes the requirement to conduct sampling four times a year under dry weather conditions at Outfall 005 for a portion of the 126 EPA Priority Pollutants and selected non-conventional pollutants possibly included in the groundwater being discharged at Outfall 005. Samples shall be collected during the week of March 15, April 15, July 15 and October 15 during dry weather conditions. If a sample cannot be obtained during the specified sampling week and a sample is still unable to be taken within a two week period after the specified sampling week, an explanation as to why the sample could not be taken must be included with the appropriate DMR submittal. In the case of a missed sample as described above, a supplemental sample shall be taken during the next sampling period, separated by at least one week from the scheduled sampling week.

For the purposes of this sampling, dry weather sampling conditions are met when no more than 0.1 inches of rainfall has occurred at the facility during the 48-hour period prior to sampling.

The selected priority pollutants are listed below:

- BTEX: benzene, toluene, ethylbenzene, total xylenes
- Group I PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene
- Group II PAHs: acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene
- Acetone
- Chromium
- Nickel
- Zinc
- Iron

These pollutants were selected on a site-specific basis, as discussed below, and will provide documentation as to whether the groundwater discharged at Outfall 005 contains contaminates related to the known 2008 fuel oil release. The partial list of pollutants is derived from Category I of Appendix III of the RGP, Sub-Category B – Fuel Oils and Other Oil Sites (including Residential Non-Business Remediation Discharges).

The permit may be reopened to include chemical specific limitations for any of the pollutants described if the sampling data demonstrates that the effluent has a reasonable potential to cause or contribute to an excursion above State Water Quality Standards (see 40 CFR §122.44(d)(1)(iii)).

5.1 Volatile Organic Compounds (VOCs)

Refined petroleum products contain numerous types of hydrocarbons. Individual components partition to environmental media based on physical and chemical properties including solubility and vapor pressure. Rather than establishing effluent limits for every compound found in petroleum products, limits are typically established for the compounds that would be the most difficult to remove from the environment and demonstrate the greatest degree of toxicity. Generally, the higher the solubility of a VOC in water, the more difficult it is to remove. VOCs such as benzene, toluene, ethyl benzene, and the three xylene compounds (i.e., total xylenes) (BTEX) are found at relatively high concentrations in gasoline and light distillates. BTEX concentrations decrease in the heavier grades of petroleum distillate products.

5.2 Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs are a group of organic compounds that form through the incomplete combustion of hydrocarbons and are present in petroleum derivatives and residuals. Discharge of these products can introduce PAHs into surface water where they may volatilize, photolyze, oxidize, biodegrade, bind to suspended particles or sediments, or accumulate in aquatic organisms (with bioconcentration factors often in the 10-10,000 range). In soils, PAHs may also undergo degradation, accumulation in plants, or transport via groundwater. Volatilization and adsorption to suspended sediments with subsequent deposition are the primary removal processes for medium and high molecular weight PAHs. Several PAHs are well known animal carcinogens, while others can enhance the response of the carcinogenic PAHs.

There are 16 PAH compounds identified as priority pollutants under the CWA (see Appendix A to 40 CFR §423). Group I PAHs are comprised of seven known animal carcinogens. They are: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Group II PAHs are comprised of nine priority pollutant PAHs which are not considered carcinogens, but which can enhance or inhibit the response of the carcinogenic PAHs. They are: acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene.

As described above, a fuel oil release was identified at the facility in 2008. A remediation system was installed by GE to mitigate PAH impacts. According to the permittee, PAH impacts were observed in a well-defined area around the hydro penstock. A map of the monitoring well locations is shown in Attachment E. Results from the groundwater monitoring are found in Attachment F. The permittee maintains that based on investigations performed as part of the remedial activities at the site, there are no indications of impacts to the stormwater/groundwater discharged at Outfall 005 that are related to the known fuel oil release. In order to document that the groundwater infiltration discharged at Outfall 005

does not include these contaminants, EPA is requiring a subset of the priority pollutants to be scanned for this discharge.

The proposed Permit established quarterly monitoring at Outfall 005 for naphthalene and the seven Group I PAHs and 9 Group II PAHs listed below:

- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Chrysene
- Dibenzo(a,h)anthracene
- Indeno(1,2,3-cd)pyrene
- Acenaphthene
- Acenaphthylene
- Anthracene
- Benzo(g,h,i)perylene
- Fluoranthene
- Fluorene
- Naphthalene (analytical method requirements also established)
- Phenanthrene
- Pyrene

The Draft Permit requires that the quantitative methodology used for PAH analysis must achieve the ML of ≤0.1 µg/L for each Group I PAH compound and ≤5 µg/L for each Group II PAH compound. Naphthalene is commonly measured using test methods for both VOCs and semi-volatile organic compounds (SVOCs). Therefore, the Draft Permit also maintains the requirement that naphthalene be monitored using both SVOC and VOC analytical methods. The other 15 priority pollutant PAHs are only analyzed using SVOC methods. Should monitoring data indicate the persistence of PAHs in concentrations that may cause or contribute to an excursion above water quality criteria, the permit may be modified, reissued or revoked pursuant to 40 CFR §122.62.

5.3 Metals

Many types of metals occur in ground and surface waters around New England. Certain metals like chromium, nickel, and zinc can be toxic to aquatic life, and may bioaccumulate in plants and animal species. In addition, metals such as iron may have an organoleptic effect (i.e., taste and odor). While certain metals, such as chromium are actually required by the human body in small amounts, they can be toxic in larger doses. Aquatic organisms are often more sensitive than humans to metals. Metals may be present in the discharge from Outfall 005 as part of fuel oil that may be incorporated in the groundwater.

Because monitoring data are not available for metals from the groundwater component of the Outfall 005 discharges, EPA has included monitoring requirements to ensure chromium, nickel, zinc, and iron are not present in quantities that could cause or contribute to an excursion above WQC. The Draft Permit requires that total recoverable metals be analyzed. The draft permit also specifies the MLs for analysis. EPA is required by 40 CFR Section 122.45(c) to express NPDES permit limitations as "total

recoverable metal". See EPA's *National Recommended Water Quality Criteria* (822-R-02-047), November 2002, for applicable conversion factors.

6. Nutrients

The Upper Piscataqua River, receives most of its flow from the Cocheco River and Salmon Falls River. The Upper Piscataqua River watershed receives nitrogen loading from point sources (wastewater treatment plants and regulated stormwater runoff), "non-point" sources (unregulated stormwater runoff and septic) and atmospheric deposition. Wastewater treatment plants in the watershed contributing to nitrogen loads in the Upper Piscataqua include facilities on the Cocheco and Salmon Falls Rivers.

Great Bay and many of the rivers that feed it are approaching, or in the case of the Upper Piscataqua River, have reached their assimilative capacity for nitrogen and are suffering from the adverse water quality impacts of nutrient overenrichment. They are, consequently, failing to attain many water quality standards. The impacts of excessive nutrients are evident throughout the Great Bay estuary and the Upper Piscataqua River. Regulatory findings are consistent with a growing body of technical and scientific literature pointing toward an estuary in environmental decline as a result of nutrient overloading.

Because EPA is concerned with nutrient loading in the Upper Piscataqua River and Great Bay, the Draft Permit is proposed to include nutrient monitoring. Since stormwater runoff has been identified as a nutrient contributor to the receiving water, the discharge from Outfall 005 (which contains stormwater runoff) will require quarterly monitoring for Total Nitrogen and Total Phosphorus. To ensure that stormwater is present in the outfall discharge, monitoring shall be conducted under wet weather conditions. For the purposes of this sampling event, wet weather sampling shall proceed during or after a storm event of sufficient depth or intensity to produce a stormwater discharge at Outfall 005.

VI. Cooling Water Intake Structure, CWA Section 316(b)

With any NPDES permit issuance or reissuance, EPA is required to evaluate or re-evaluate compliance with applicable standards, including the technology standard specified in Section 316(b) of the CWA for cooling water intake structures (CWIS). Section 316(b) requires that:

> [a]ny standard established pursuant to Section 301 or Section 306 of this Act and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. 33 U.S.C. § 1326(b).

The operation of CWISs can cause or contribute to a variety of adverse environmental effects, such as killing or injuring fish larvae and eggs entrained in the water withdrawn from a water body and sent through the facility's cooling system, or by killing or injuring fish and other organisms by impinging them against the intake structure's screens. CWA § 316(b) applies if a point source discharger seeks to withdraw cooling water from a water of the United States through a CWIS. CWA § 316(b) applies to this permit due to the presence and operation of a CWIS at GE.

A. Introduction and Regulatory Background

In the absence of applicable regulations, EPA has made § 316(b) determinations on a case-by-case basis using best professional judgment (BPJ), for both new and existing facilities with regulated CWISs. In

December 2001, EPA promulgated new, final § 316(b) regulations that provide specific technology-based requirements for *new* facilities of any kind with a CWIS with an intake flow greater than two (2) MGD. 66 FR 65255 (Dec. 18, 2001) (Phase I rule). The Phase I rule is in effect but does not apply to this permit because GE is not a new facility.

In July 2004, EPA published final regulations applying § 316(b) to large, *existing* power plants (Phase II rule), defined in 40 CFR § 125.91 as existing point sources employing CWISs that withdraw at least 50 MGD and generate and transmit electric power as their primary activity. Following litigation that resulted in the remand to EPA of many of the rule's provisions, *see Riverkeeper, Inc. v. U.S. EPA*, 475F.3d 83 (2d Cir. 2007); *rev'd in part, Entergy Corp. v. Riverkeeper, Inc.,*129 S. Ct. 1498, 1510 (2009), the Agency suspended the Phase II rule in July 2007. 72 FR 37107 (July 9, 2007). The suspension left only 40 CFR § 125.90(b) in effect, which provides that in the absence of applicable categorical standards, BTA determinations are to be made on a case-by-case, BPJ basis.

On June 16, 2006, EPA published the Phase III Rule, which established categorical requirements for new offshore oil and gas extraction facilities that have a design intake flow threshold of greater than 2 MGD, but dictated that the BTA would be determined on a case-by-case, BPJ basis for existing electrical generation facilities with a design intake flow less than 50 MGD and existing manufacturing facilities. 71 FR 35006 (June 16, 2006). In 2009, EPA petitioned the 5th Circuit to remand those provisions of the Phase III Rule that established 316(b) requirements for existing electrical generators with a design intake flow less than 50 MGD and at existing manufacturing facilities on a case-by-case basis using best professional judgment. On July 23, 2010, the United States Court of Appeals for the 5th Circuit issued a decision upholding EPA's rule for new offshore oil and gas extraction facilities. Further, the Court granted the request by EPA and environmental petitioners to remand the existing facility portion of the rule back to the Agency for further rulemaking. *ConocoPhillips Co. v. U.S. Envtl. Prot. Agency*, 612 F.3d 822, 842 (5th Cir. 2010).

On May 19, 2014, EPA signed final regulations to apply CWA § 316(b) to CWISs at existing power plants and manufacturers, and new units at existing facilities. *See* forthcoming Federal Register publication, Docket #EPA-HQ-OW-2008-0667. The rule responds to the remanded portions of the Phase II and Phase III rules. Existing facilities subject to the new rule include facilities that are designed to withdraw more than 2 MGD. Since GE Somersworth is designed to withdraw less than 2 MGD, BTA for the minimization of adverse environmental impacts must be determined on a BPJ basis for this facility. As a result, EPA has developed technology-based requirements for the facility's CWISs by applying CWA § 316(b) on a BPJ, site-specific basis.

1. Methodology for the BPJ Application of CWA § 316(b)

Neither the CWA nor EPA regulations dictate a specific methodology for developing BPJ-based limits under § 316(b). In the preamble to the proposed regulations for CWISs at existing facilities, EPA indicates that the Agency has broad discretion in determining the "best" available technology for minimizing adverse environmental impact (See 76 FR 22196). EPA has read CWA § 316(b) to intend that entrainment and impingement be regarded as "adverse impacts" that must be minimized by application of the BTA.

EPA has looked by analogy to factors considered in the development of effluent limitations under the CWA and EPA regulations for guidance concerning additional factors to consider in making a BTA determination under CWA § 316(b). In setting effluent limitations on a site-specific BPJ basis, EPA considers a number of factors specified in the statute and regulations. *See, e.g.,* 33 U.S.C. §§

1311(b)(2)(A) and 1314(b)(2); 40 C.F.R. § 125.3(d)(3).[1] These factors include: (1) the age of the equipment and facilities involved, (2) the process employed, (3) the engineering aspects of applying various control techniques, (4) process changes, (5) cost, and (6) non-water quality environmental impacts (including energy issues). The CWA sets up a loose framework for assessing these statutory factors in setting BAT limits.[2] It does not require their comparison, merely their consideration.[3] [I]n enacting the CWA, Congress did not mandate any particular structure or weight for the many consideration factors. Rather, it left EPA with discretion to decide how to account for the consideration factors, and how much weight to give each factor.[4] In sum, when EPA considers the statutory factors in setting BAT limits, it is governed by a standard of reasonableness.[5] It has "considerable discretion" in evaluating the relevant factors and determining the weight to be accorded to each in reaching its ultimate BAT determination.[6] One court has succinctly summarized the standard for judging EPA's consideration of the statutory factors in setting BAT effluent limits: [s]o long as the required technology reduces the discharge of pollutants, our inquiry will be limited to whether the Agency considered the cost of technology, along with other statutory factors, and whether its conclusion is reasonable.[7] Thus, in determining the BTA for this permit, EPA has the discretion to consider the above-listed factors and to decide how to consider and weigh them in making its decision. Again, the factors from the effluent limitation development process are not strictly applicable as a matter of law to a BTA

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[1] *See also NRDC v. EPA*, 863 F.2d at 1425 ("in issuing permits on a case-by-case basis using its "Best Professional Judgment," EPA does not have unlimited discretion in establishing permit limitations. EPA's own regulations implementing [CWA § 402(a)(1)] enumerate the statutory factors that must be considered in writing permits.").

[2] *BP Exploration & Oil, Inc.*, 66 F.3d at 796; *Weyerhauser v. Costle*, 590 F.2d 1011, 1045 (D.C. Cir. 1978) (citing Senator Muskie's remarks on CWA § 304(b)(1) factors during debate on CWA). *See also EPA v. Nat'l Crushed Stone Ass'n*, 449 U.S. 64, 74, 101 S.Ct. 295, 300, 66 L.Ed.2d 268 (1980) (noting with regard to BPT that "[s]imilar directions are given the Administrator for determining effluent reductions attainable from the BAT except that in assessing BAT total cost is no longer to be considered in comparison to effluent reduction benefits").

[3] *Weyerhauser*, 590 F.2d at 1045 (explaining that CWA § 304(b)(2) lists factors for EPA "consideration" in setting BAT limits, while CWA § 304(b)(1) lists both factors for EPA consideration and factors for EPA "comparison" -- *e.g.*, "total cost versus effluent reduction benefits" -- in setting BPT limits).

[4] *BP Exploration & Oil, Inc.*, 66 F.3d at 796; *Weyerhauser v. Costle*, 590 F.2d at 1045.

[5] *BP Exploration & Oil*, 66 F.3d at 796; *Am. Iron & Steel Inst. v. EPA*, 526 F.2d 1027, 1051 (1975), *modified in other part*, 560 F.2d 589 (3d Cir. 1977), *cert. denied*, 435 U.S. 914 (1978).

[6] *Texas Oil & Gas Ass'n*, 161 F.3d at 928; *NRDC v. EPA*, 863 F.2d at 1426. *See also Weyerhauser*, 590 F.2d at 1045 (discussing EPA's discretion in assessing BAT factors, court noted that "[s]o long as EPA pays some attention to the congressionally specified factors, the section [304(b)(2)] on its face lets EPA relate the various factors as it deems necessary").

[7] *Assn of Pacific Fisheries v. EPA*, 615 F.2d 794, 818 (9th Cir. 1980) (industry challenge to BAT limitations for seafood processing industry). *See also Chemical Manufacturers Assn (CMA) v. EPA*, 870 F.2d 177, 250 n.320 (5th Cir. 1989), *citing* Congressional Research Service, *A Legislative History of the Water Pollution Control Act Amendments of 1972* at 170 (1973) (hereinafter "*1972 Legislative History*") (in determining BAT, "[t]he Administrator will be bound by a test of reasonableness."); *NRDC v. EPA*, 863 F.2d at 1426 (same); *American Iron & Steel Inst.*, 526 F.2d at 1051 (same).

determination under § 316(b) because they are not specified in § 316(b). Nevertheless, EPA has looked to the effluent limitation development process for guidance and will consider these factors, as well as the general and facility-specific cooling water intake structure BTA requirements contained in EPA's July 31, 2008 NCCW General Permit, to the extent the Agency deems them relevant to its determination of the BTA. Ultimately, EPA's determination of the BTA must be reasonable.

According to 40 C.F.R. § 125.3(c)(2), a BPJ-based BAT analysis also should consider the "appropriate technology for the category of point sources of which the applicant is a member, based on all available information," and "any unique factors relating to the applicant."

As also indicated above, the United States Supreme Court recently held that EPA is authorized, though not statutorily required, to consider a comparative assessment of an option's costs and benefits in determining the BTA under CWA § 316(b). *Entergy*, 129 S.Ct. 1498, 1508-1510, *rev'g in part*, Riverkeeper, 475F.3d 83. As the Supreme Court explained, in its determination, "EPA sought only to avoid extreme disparities between costs and benefits." *Entergy*, 129 S.Ct. at 1509. As the Court also explained, EPA had for decades engaged in this type of cost/benefit comparison using a "wholly disproportionate test" to ensure that costs were not unreasonable when considered in light of environmental benefits.[8] *Id.* at 1509 (citing *In re Public Service Co. of New Hampshire*, 1 E. A. D. 332, 340 (1977); *In re Central Hudson Gas and Electric Corp.*, EPA Decision of the General Counsel, NPDES Permits, No. 63, pp. 371, 381 (July 29, 1977)). In *Public Service*, EPA's Administrator stated that "I do not believe that it is reasonable to interpret Section 316(b) as requiring the use of technology whose cost is wholly disproportionate to the environmental benefit to be gained." In *Central Hudson*, *id.*, EPA's then General Counsel stated that:

> ... EPA must ultimately demonstrate that the present value of the cumulative annual cost of modifications to cooling water intake structures is not wholly out of proportion to the magnitude of the estimated environmental gains (including attainment of the objectives of the Act and § 316(b)) to be derived from the modifications.

The relevant "objectives of the Act and § 316(b)" include the minimization of adverse environmental impacts from cooling water intake structures, restoring and maintaining the physical and biological integrity of the Nation's waters, and achieving, wherever attainable, water quality providing for the protection and propagation of fish, shellfish and wildlife, and providing for recreation, in and on the water. 33 U.S.C. §§ 1251(a)(1) and (2), 1326(b).

2. State Water Quality Standards

In addition to satisfying technology-based requirements, NPDES permit limits for CWISs must also satisfy any more stringent provisions of state WQS or other state legal requirements that may apply, as well as any applicable conditions of a state certification under CWA § 401. *See* CWA §§ 301(b)(1)(C), 401(a)(1), 401(d), 510; 40 C.F.R. §§ 122.4(d), 122.44(d). *See also* 40 C.F.R. § 125.84(e) NH Env-Wq §§ 1701.02(b), 1703.19. This means that permit conditions for CWISs must satisfy numeric and narrative water quality criteria and protect designated uses that may apply from the state's WQS.

[8] As the Court described, in developing the Phase II Rule, EPA had (for the first time) used a "significantly greater than test." The Court also indicated that either test was permissible under the statute. 129 S.Ct. at 1509.

The CWA authorizes states to apply their WQS to the effects of CWISs and to impose more stringent water pollution control standards than those dictated by federal technology standards.[9] The United States Supreme Court has held that once the CWA § 401 state certification process has been triggered by the existence of a discharge, then the certification may impose conditions and limitations on the activity as a whole – not merely on the discharge – to the extent that such conditions are needed to ensure compliance with state WQS or other applicable requirements of state law.[10]

With respect to cooling water withdrawals, both sections 301(b)(1)(C) and 401 authorize the Region to ensure that such withdrawals are consistent with state WQS, because the permit must assure that the overall "activity" associated with a discharge will not violate applicable WQS. *See PUD No. 1*, 511 U.S. at 711-12 (Section 401 certification); *Riverkeeper I,* 358 F.3d at 200-202; *In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. 490, 619-41 (EAB 2006). Therefore, in EPA-issued NPDES permits, limits addressing CWISs must satisfy: (1) the BTA standard of CWA § 316(b); (2) applicable state water quality requirements; and (3) any applicable conditions of a state certification under CWA § 401. The standards that are most stringent ultimately determine the Final Permit limits.

The New Hampshire Fish and Game Department has designated the Salmon Falls River a warm water fishery. The NH-DES has primary responsibility for determining the permit limits that are necessary to achieve compliance with State law requirements. Since the NPDES permit that EPA expects to issue to GE will be subject to State Certification under CWA § 401, the permit will also need to satisfy any NH-DES conditions of such a certification (See also 40 CFR §§ 124.53 and 124.55).

B. Effects of Cooling Water Intake Structures

Section 316(b) of the CWA addresses the adverse environmental impact of cooling water intake structures (CWIS) at facilities requiring NPDES permits. The principal adverse environmental impacts typically associated with CWISs evaluated by EPA are the *entrainment* of fish eggs, larvae, and other small forms of aquatic life through the plant's cooling system, and the *impingement* of fish and other larger forms of aquatic life on the intake screens.

Entrainment of organisms occurs when a facility withdraws water into the CWIS from an adjacent water body. Fish eggs, larvae, and other planktonic organisms in the water are typically small enough to pass

[9] The regulation governing the development of WQS notes that "[a]s recognized by section 510 of the Clean Water Act, States may develop WQSs more stringent than required by this regulation." 40 C.F.R. § 131.4(a). The Supreme Court has cited this regulation in support of the view that states could adopt water quality requirements more stringent than federal requirements. *PUD No. 1 of Jefferson County v. Wash. Dep't of Ecology*, 511 U.S. 700, 705 (1994). *See also* 33 U.S.C. § 1370; 40 C.F.R. § 125.80(d). *See also* 40 C.F.R. § 125.80(d); *Riverkeeper, Inc. v. U.S. Environmental Protection Agency,* 358 F.3d 174, 200-201 (2d Cir. 2004) ("*Riverkeeper I"*).

[10] *PUD No. 1*, 511 U.S. at 711-12. holds that "in setting discharge conditions to achieve WQS, a state can and should take account of the effects of other aspects of the activity that may affect the discharge conditions that will be needed to attain WQS. The text [of CWA § 401d)] refers to the compliance of the applicant, not the discharge. Section 401(d) thus allows the State to impose "other limitations" on the project in general to assure compliance with various provisions of the Clean Water Act and with "any other appropriate requirement of State law." For example, a state could impose certification conditions related to CWISs on a permit for a facility with a discharge, if those conditions were necessary to assure compliance with a requirement of state law, such as to protect a designated use under state WQS. *See id.* at 713 (holding that § 401 certification may impose conditions necessary to comply with designated uses).

through intake screens and become entrained along with the cooling water within the facility (See 76 FR 22197). As a result, the organisms are subjected to death or damage due to high velocity and pressure, increased temperature, and chemical anti-biofouling agents.[11] The number of organisms entrained is dependent upon the volume and velocity of cooling water flow through the plant and the concentration of organisms in the source water body that are small enough to pass through the screens of CWIS. The extent of entrainment can be affected by the intake structure's location, the biological community in the water body, the characteristics of any intake screening system or other entrainment reduction equipment used by the facility, and by season.

Impingement of organisms occurs when a facility draws water through its CWIS and organisms too large to pass through the screens, and unable to swim away, become trapped against the screens and other parts of the intake structure (See 76 FR 22197). Impinged organisms may be killed, injured or weakened, depending on the nature and capacity of the plant's filter screen configuration, cleaning and backwashing operations, and fish return system used to return organisms back to the source water.[12] In some cases, contact with screens or other equipment can cause an organism to lose its protective slime and/or scales, or suffer other injuries, which may result in delayed mortality. The quantity of organisms impinged is a function of the intake structure's location and depth, the velocity of water drawn to the entrance of the intake structure (approach velocity) and through the screens (through-screen velocity), the seasonal abundance of various species of fish, and the size of various fish relative to the size of the mesh in any intake barrier system (e.g., screens). It should be noted that this discussion focuses on fish because more information is available on CWIS impacts to fish, but CWISs can also harm other types of organisms (*e.g.*, shellfish).

The most direct impact of impingement and entrainment mortality is the loss of large numbers of aquatic organisms, including fish, benthic invertebrates, phytoplankton, fish eggs and larvae, and other susceptible organisms. EPA believes that reducing impingement and entrainment mortality will contribute to the health and sustainability of fish populations by lowering the total mortality rate for these populations. For many species, these losses may not lead to measurable reductions in adult populations; however, these losses can contribute to impacts to threatened and endangered species, indigenous populations, and a reduction in ecologically critical aquatic organisms, including important elements of an ecosystem's food chain. For instance, because predation rates are often linked to concentration of prey, reductions in a prey fish from impingement and entrainment mortality may indirectly result in reductions to predator species or increases to species in apparent competition. In addition, impingement and entrainment mortality can diminish a population's compensatory reserve, which is the capacity of a species to increase survival, growth, or reproduction rates in response to environmental variability, including temperature extremes, heavy predation, disease, or years of low recruitment.[12]

For commercially and recreationally important stocks, impingement and entrainment mortality represent an additional source of mortality to populations being harvested at unsustainable levels. Although reductions in impingement and entrainment mortality may be small in magnitude compared to fishing pressure and often difficult to measure due to the low statistical power of fisheries surveys, a reduction in mortality rates on overfished populations is likely to increase the rate of stock recovery. Thus, reducing impingement and entrainment mortality may lead to more rapid stock recovery, a long-term

[11] EPA 2011. Environmental and Economic Benefits Analysis of the Proposed Section 316(b) Existing Facilities Regulation: Section 2.3 CWIS Impacts to Aquatic Ecosystems. EPA. March 28, 2011 .
[12] EPA. Environmental and Economic Benefits Analysis for Proposed Section 316(b) Existing Facilities Rule. March 28, 2011. EPA 821-R-11-002.

increase in commercial fish catches, increased population stability following periods of poor recruitment, and, as a consequence of increased resource utilization, an increased ability to minimize the invasion of exotic species. Finally, fish and other species affected directly and indirectly by CWISs can provide other valuable ecosystem goods and services, including nutrient cycling and ecosystem stability.

C. Impingement and Entrainment at GE

Impingement

Neither GE nor NHFG has conducted a formal impingement study at the facility. According to GE, the CWIS was installed at the facility at least 50 years ago and there is no history of impingement at the CWIS. GE has not observed adult or juvenile fish in or near the intake structure. There is no documentation of adults or juvenile fish observed impinged against the CWIS fixed screen and the observations are consistent throughout the year, with no seasonality variations. GE states that it inspects the CWIS area three times per week for evidence of impingement of adult or juvenile fish and that it documents the results of the inspections on a weekly basis. GE submitted copies of its CWIS inspection results for the period March 30, 2009 through December 29, 2011. The logs are included in the administrative record for this permit and indicated that no impinged fish were observed. The NHFG has not conducted any fish surveys on the Salmon Falls River impoundment above the Great Falls Upper Dam or in the canal splitting off on the river right (at GE's facility). According to NHFG records there are no stocking programs being conducted in the area nor are they aware of any studies that have been conducted in the past.

Entrainment

GE has not conducted a formal entrainment study at the facility. As discussed in greater detail below, the CWIS is located in a hydroelectric plant canal that is not considered productive fish spawning or early life stage development. In addition, a relatively small volume of water is withdrawn at the CWIS each day (0.377 million gallons). As part of the NCCW GP process, EPA evaluated these factors and determined that a multi-year entrainment study was not necessary.

D. Cooling Water Intake Structure Description

As described previously, the facility withdraws surface water from the Salmon Falls River via a CWIS that is flush with the east wall of a hydroelectric plant canal that diverts water from the Salmon Falls River. The CWIS opening is approximately 160 feet upstream from the end of the canal. The gross opening measures approximately 8 feet deep and 3.8 feet wide. The CWIS opening is protected by two overlapping, fixed 46" by 96" screens that create an approximate 0.5-inch diameter mesh size. The water level in the canal does not reach to top of the 8 foot vertical dimension of the opening under most river level conditions. It is estimated that the water level only rises to approximately 5.8 feet of the vertical depth of the opening under low flow conditions in the canal, resulting in an opening that is effectively 46" by 70". The water is withdrawn using one of two identical Grundfos variable speed pumps (Model # CR32-5-2, 20 horsepower) located at a pumping station in Building E. The pumps are physically restricted by the control panel from operating simultaneously (i.e., the pumps are operated with a manual switch that toggles between operation of Pump One or Pump Two). According to the permittee, the maximum diverted flow from the canal is 262 gallons per minute (gpm) (or 0.58 cubic feet per second [cfs]; 0.377 MGD) based on a review of the pump curve and flow meter readings from calendar year 2012. There is a setback of approximately 4 feet between the intake screen and the intake piping. Water is pumped to a 12" diameter cast iron pipe, installed circa 1930, that is roughly 1200 feet long.

The velocity of water entering a CWIS, or intake velocity, exerts a direct physical force against which fish and other organisms must act to avoid impingement. As intake velocity increases at a CWIS, so does the potential for impingement. EPA considers intake velocity to be one important factor that can be controlled to minimize adverse environmental impacts from impingement at CWISs. See 65 FR 49060, 49087 (Aug. 10, 2000). EPA has identified a "through-screen" velocity (TSV) threshold of 0.5 feet per second (fps) as protective to minimize impingement of most species of adult and juvenile fish. This determination is fully discussed at 65 FR 49060, 49087-88. Based on the information provided by the permittee, EPA calculated the TSV of GE's CWIS as follows:

> The "effective open area" of the intake screen was conservatively calculated using a low water level of 26 inches below the top of the screen (i.e., adjusted screen height of 70 inches). The effective open area is:
>
> (46" x 70") / 144" x 90% ($screen\ opening$) = 20.13 $square\ feet$
>
> The minimum effective open area and the maximum diverted flow rates were used to calculate the maximum TSV at the intake screen. Assuming that the withdrawal is distributed equally over the entire effective open area of the intake screen, the maximum TSV is:
>
> 0.58 $cubic\ feet\ per\ second$ / 20.13 $square\ feet$ = 0.03 $feet\ per\ second$
>
> The maximum calculated TSV under worst case conditions is
>
> 0.03 feet per second (fps)

The maximum calculated TSV of 0.03 fps is greater than one order of magnitude below the TSV of 0.5 fps, which EPA has identified as a threshold which is protective to minimize impingement of most species of adult and juvenile fish.

E. Assessment of Cooling Water Intake Structure Technologies

The design, location, construction and capacity of GE's CWIS must reflect BTA for minimizing adverse impacts from impingement and entrainment, as required by CWA § 316(b). The location of a CWIS in the waterbody is an important factor in minimizing its adverse environmental impacts. EPA evaluated the location of the CWIS in the waterbody, the type of waterbody, and the depth of the intake structure to determine how to best minimize adverse environmental impacts under CWA § 316(b). The design, construction, and operation of a CWIS are additional important factors in minimizing its adverse biological impacts. Fish protection technologies, including physical exclusion systems such as barrier nets or screens, may reduce impingement and entrainment impacts if properly designed, installed, and maintained. Capacity (the quantity of receiving water being withdrawn) is another important factor that can minimize the adverse environmental impacts of a CWIS. Reducing capacity results in a corresponding reduction in the number of organisms entrained, thereby reducing entrainment mortality. A reduction in flow can be achieved through implementation of a closed-cycle cooling system (e.g., cooling towers), by using an alternative source of cooling water (e.g., stormwater), or by using a variable frequency drive (VFD) to adjust pump capacity to meet cooling water demand. EPA assumes a reduction in flow is proportional to the reduction in entrainment mortality because fewer organisms are subject to CWIS impacts. In addition, a capacity reduction can minimize impingement if the maximum pumping volume results in a through-screen intake velocity (TSV) no greater than 0.5 fps.

Specifically at GE Somersworth, a BTA determination was performed as part of the facility's authorization to discharge under the EPA NCCW General Permit NPDES Number NHG250317, on

March 31, 2009. The BTA determination was reviewed as part of the amended NCCW General Permit on March 11, 2010 and again on September 2, 2010. The BTA determination under the general permit is being carried forward as the appropriate BTA determination under the proposed individual permit.

1. Existing Cooling Water Intake Structure Technology

"Location"
The location of a CWIS in the water body is an important factor in minimizing its adverse environmental impacts. EPA evaluated the location of the CWIS in the water body, the type of water body, and the depth of the intake structure to determine how to best minimize adverse environmental impacts under CWA.

The GE CWIS is located in a hydroelectric plant canal which diverts water from the Salmon Falls River. The canal structure is not considered high quality habitat for fish spawning, early life stage development, juvenile or adult residence. As such, the location of the CWIS is considered to be a characteristic of the CWIS that is likely to reduce impingement and entrainment, when compared with a CWIS located in the mainstem of the Salmon Falls River. EPA considers this location to be one aspect of BTA.

"Design and Construction"
§ 316(b). The design, construction, and operation of a CWIS are additional important factors in minimizing its adverse biological impacts. Fish protection technologies, including physical exclusion systems such as barrier nets or screens, may reduce impingement and entrainment impacts if properly designed, installed, and maintained.

The design of GE's CWIS incorporates two overlapping 46" by 96" screens that create an approximate 0.5-inch diameter mesh size, preventing adult and juvenile fish from swimming into the pump area. The overall opening is designed to result in a minimal TSV of only 0.03 fps. EPA considers this design to be one aspect of BTA.

"Capacity"
Capacity (the quantity of surface water being withdrawn) is another important factor that can minimize the adverse environmental impacts of a CWIS. Reducing capacity results in a corresponding reduction in the number of organisms entrained, thereby reducing entrainment mortality. EPA assumes a reduction in flow is proportional to the reduction in entrainment mortality because fewer organisms are subject to CWIS impacts. In addition, a capacity reduction can minimize impingement if the maximum pumping volume results in a through-screen intake velocity (TSV) no greater than 0.5 fps.

The GE CWIS uses variable speed intake pumps. This technology allows the facility to withdraw only the flow of water needed for cooling at a given time at the facility. Also, the relative capacity of GE's CWIS is low. The capacity is a small percentage of the overall river discharge and is well under the 1.0 MGD threshold discussed in the NCCW General Permit. EPA considers this capacity technology to be one aspect of BTA.

F. BTA Determination

Based on current CWIS operations, information available at this time, and the location, design, capacity and construction of the CWIS, EPA has determined the adverse environmental impacts of the CWIS at

GE are low. In order to minimize adverse environmental impacts EPA is requiring the following as BTA in Part I.D of the Draft Permit.

1. Limit the facility's maximum daily intake flow to 0.377 MGD. GE shall operate its variable speed pumps to withdraw NCCW such that only the minimum required amount of cooling water is pumped to meet the facility's cooling demands. GE shall cease or reduce the intake of cooling water whenever withdrawal of source water is not necessary.

2. Maintain a screen at the opening of the CWIS with a mesh size openings of approximately 0.5 inches in diameter.

3. Limit the maximum through screen velocity to no more than 0.5 feet per second.

4. Implement an Impingement Monitoring Program. The permittee is required to inspect all areas where adult and juvenile fish may become trapped or impinged at least three times a week. All live fish observed must be returned to the Salmon Falls River. A log book must be kept to document the date and time of the inspection, the name of the individual performing the inspection, the species of fish impinged (if any), the total length of the fish, the condition of the fish (alive, injured, dead), and the treatment of the fish (released or discarded). The log book shall be made available to EPA and/or the State upon inspection or request.

There shall be no changes to the CWIS, including any of the BTA requirements listed above, unless approved by EPA as providing equivalent or greater protection for fish species.

As discussed earlier, the CWIS is located along the wall of a hydroelectric plant canal that diverts water from the Salmon Falls River. The canal is not considered high quality habitat for fish spawning or early life stage development. The density of fish eggs or larvae in the canal is judged to be low. In addition, a relatively small volume of water is withdrawn by the CWIS. Because of these factors, EPA considers the potential to be very low for fish eggs and larvae to be entrained by GE's CWIS. No entrainment monitoring is included in the Draft Permit.

VII. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat (EFH) such as waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910 (a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855(b) (1) (A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999 and are identified on the NMFS website at http://www.nero.noaa.gov/hcd/webintro.html. In some cases, a narrative identifies rivers and other waterways that should be considered EFH due to present or historic use by federally managed species.

While the receiving water of this federal permitting action, the Salmon Falls River, is not specifically listed as essential fish habitat, the near-by Cocheco River and the estuary downstream of the Salmon Falls River, made up of Great Bay and Little Bay, are identified as EFH for juveniles and adult Atlantic salmon life stages. The narrative included with the EFH designations states "All aquatic habitats in the watersheds of the above listed rivers, including all tributaries to the extent that they are currently or were historically accessible for salmon migration" [are included in the EFH designation]. EPA has taken the conservative approach and judged that the Salmon Falls River is likely included as part of the EFH designation, based on the above information.

EPA has concluded that the limits and conditions contained in the Draft Permit minimize adverse effects to the EFH and Atlantic salmon, for the following reasons:

- This is a reissuance of an existing general permit;
- The facility withdraws water from a CWIS that meets 316(b) requirements to minimize adverse impacts to fish from impingement and entrainment;
- The effluent limitations and other permit requirements identified in the Draft Permit and Fact Sheet are designed to be protective of all aquatic species, including those with EFH designations; and
- The Draft Permit prohibits any violation of New Hampshire WQS.

EPA believes that the conditions and limitations contained within the proposed permit adequately protects all aquatic life, including those with designated EFH in the receiving water, and that further mitigation is not warranted. If adverse impacts to EFH are detected as a result of this permit action, or if new information is received that changes the basis for these conclusions, EPA will contact NMFS Habitat Division.

As the federal agency charged with authorizing the discharge from this facility, EPA has submitted the Draft Permit and this Fact Sheet, along with a letter under separate cover, to NMFS Habitat Division for their review.

VIII. Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that has been designated as critical (a "critical habitat"). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, and plants to see if any such listed species might potentially be impacted by the re-issuance of this NPDES permit. Upon review of the current endangered and threatened species in the area, EPA has determined that, at this time, there are no federally threatened or endangered species present in the vicinity of the outfalls from this facility. Furthermore, effluent limitations and other permit conditions (e.g., CWIS BTA requirements) which are in place in this Draft Permit should preclude any adverse effects in the unlikely event that there is any incidental contact with listed species in Salmon Falls River.

Consultation under Section 7 of the ESA is not required. If new information becomes available that changes the basis for this determination, then NMFS will be notified and consultation will be promptly initiated.

IX. Additional Requirements and Conditions

The effluent monitoring requirements have been established to yield data representative of the discharge under the authority of Section 308(a) of the CWA in accordance with 40 CFR § 122.41(j), 122.44(i) and 122.48. The remaining conditions of the permit are based on the NPDES regulations 40 CFR Parts 122 through 125 and consist primarily of management requirements common to all permits.

Sampling in compliance with the Draft Permits monitoring requirements shall be taken at a location that provides a representative analysis of the effluent just prior to the receiving water. If the NCCW effluent is commingled with another permitted discharge, the cooling water must be sampled prior to the commingling.

The Draft Permit includes new provisions related to Discharge Monitoring Report (DMR) submittals to EPA and the State. The Draft Permit requires that, no later than six months after the effective date of the permit, the permittee submit all monitoring data and other reports required by the permit to EPA using NetDMR, unless the permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt-out request"). In the interim (until six months from the effective date of the permit), the permittee may either submit monitoring data and other reports to EPA in hard copy form, or report electronically using NetDMR.

NetDMR is a national web-based tool for regulated Clean Water Act permittees to submit discharge monitoring reports (DMRs) electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR, including contacts for EPA Region 1, is provided on this website.

EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. To participate in upcoming trainings, visit http://www.epa.gov/netdmr for contact information for New Hampshire.

The Draft Permit requires the permittee to report monitoring results obtained during each calendar month using NetDMR, no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA or to NHDES.

The Draft Permit also includes an "opt-out" request process. Permittees who believe they cannot use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing, to EPA at least sixty (60) days prior to the date the facility would otherwise be required to begin using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months from the date of EPA approval. The opt-outs expire at the end of this twelve (12)

month period. Upon expiration, the permittee must submit DMRs and reports to EPA using NetDMR, unless the permittee submits a renewed opt-out request sixty (60) days prior to expiration of its opt-out, and such a request is approved by EPA.

Until electronic reporting using NetDMR begins, or for those permittees that receive written approval from EPA to continue to submit hard copies of DMRs, the Draft Permit requires that submittal of DMRs and other reports required by the permit continue in hard copy format. Hard copies of DMRs must be postmarked no later than the 15th day of the month following the completed reporting period.

X. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations and/or conditions contained in the permit are stringent enough to assure, among other things, that the discharge will not cause the receiving water to violate NH Standards or waives its right to certify as set forth in 40 CFR §124.53. The NHDES is the certifying authority.

Upon public noticing of the Draft Permit, EPA is formally requesting that the NHDES make a written determination concerning certification. The State will be deemed to have waived its right to certify unless certification is received within 60 days of receipt of this request.

The State's certification should include the specific conditions necessary to assure compliance with applicable provisions of the Clean Water Act Sections 208(e), 301, 302, 303, 306 and 307 and with appropriate requirements of State law. In addition, the State should provide a statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to permit issuance, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition. These less stringent conditions may be established by EPA during the permit issuance process based on information received following the public noticing. If the State believes that any conditions more stringent than those contained in the draft permit are necessary to meet the requirements of either the CWA or State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. The only exception to this is the sludge conditions/requirements implementing Section 405(d) of the CWA are not subject to the Section 401 State Certification requirements. Review and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures of 40 CFR Part 124.

EPA has discussed this Draft Permit with the staff of the Wastewater Engineering Bureau and expects that the Draft Permit will be certified. Regulations governing state certification are set forth in 40 CFR §§124.53 and 124.55 certification are set forth in 40 CFR §§124.53 and 124.55.

XI. Comment Period, Hearing Requests, and Procedures for Final Decisions

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Mr. John H. Nagle, U.S. EPA, Office of Ecosystem Protection, Industrial Permits Branch, 5 Post Office Square, Suite 100,

Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a petition for review of the permit to EPA's Environmental Appeals Board consistent with 40 CFR § 124.19.

XII. EPA Contact

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:

Mr. John H. Nagle
U.S. Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square, Suite 100 (OEP06-4)
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1054
FAX No.: (617) 918-0054
EMAIL: nagle.john@epa.gov

XIII. Attachments

Attachment A Location of Facility, Outfalls and Receiving Water

Attachment B DMR Summary Results

Attachment C Facility Process Flow Diagram

Attachment D EPA Heat Balance Calculation

Attachment E GE Map of Monitoring Well Locations

Attachment F GE Summary of Groundwater Analytical Results

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5/27/2014

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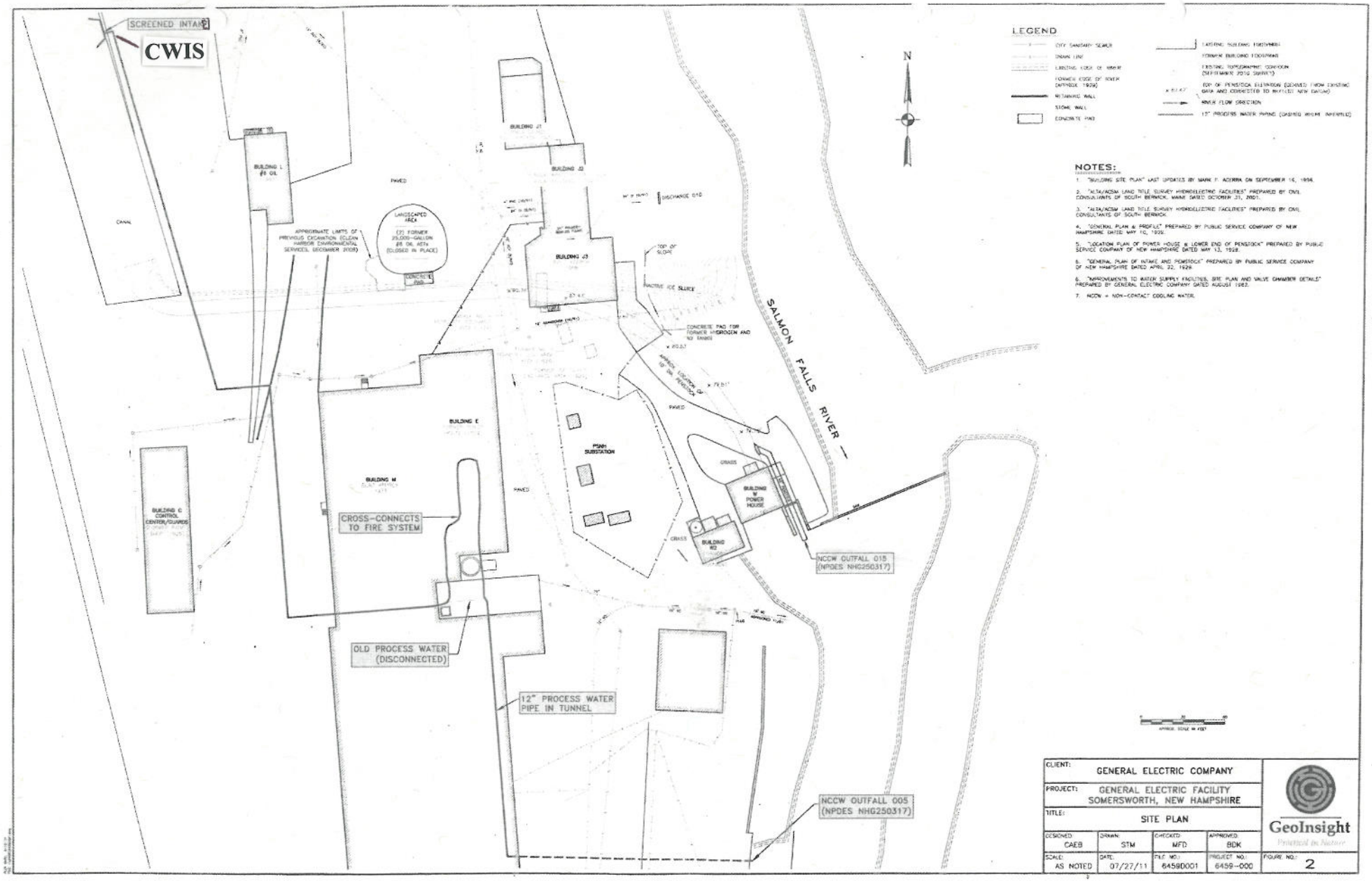
DATE

Ken Moraff, Director
Office of Ecosystem Protection
US Environmental Protection Agency

ATTACHMENT A - GE SOMERSWORTH
LOCATION OF FACILITY, OUTFALLS AND RECEIVING WATER



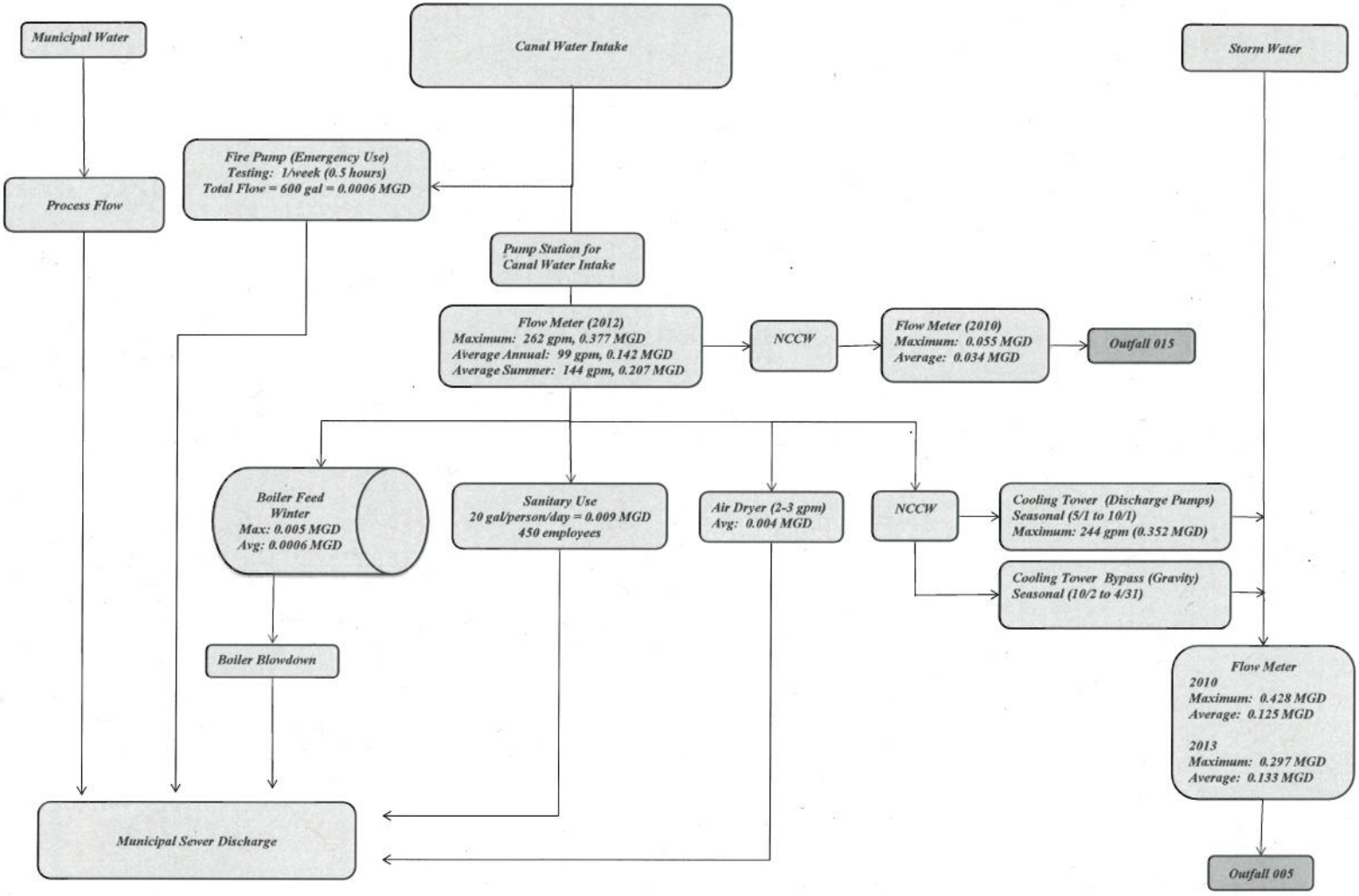
Attachment B
GE Somersworth Data Summary
NH0023558

Outfall 015								
Monthly Reporting								
	Flow		pH		Total Residual Chlorine		Temperature	
Monitoring Period End Date	Monthly Average	Daily Max	Min	Max	Monthly Average	Daily Max	Monthly Average	Daily Max
	MGD		SU		mg/L		deg F	
08/31/2008	0.045268	0.052629	6.5	6.6			72.3	75.1
09/30/2008	0.044415	0.055316	6.5	6.7			66.4	72.9
10/31/2008	0.043382	0.045157	6.6	7.2			56.3	64.4
11/30/2008	0.041706	0.04316	6.7	6.9			45.4	51
12/31/2008	0.041184	0.043197	6.7	6.9			39.4	41.6
01/31/2009	0.050088	0.297958	6.7	6.9			39.2	40.8
02/28/2009	0.041338	0.042384	6.6	7.2			40.7	42.2
03/31/2009	0.03861	0.041788	6.6	6.8			39.2	41.4
04/30/2009	0.036167	0.038892	6.6	7.2			51.2	63.8
05/31/2009	0.037641	0.03912	6.7	6.9			62.9	67.3
06/30/2009	0.037211	0.039868	6.7	6.9			68	69.7
07/31/2009	0.037048	0.04048	6.6	6.9			72.4	76.4
08/31/2009	0.03761	0.040168	6.6	6.9			77.7	81.5
09/30/2009	0.036959	0.040317	6.8	7.2			66.8	70.8
10/31/2009	0.035325	0.036652	6.7	7.6			56.4	61.8
11/30/2009	0.34818	0.036764	6.9	7.2			50.2	53.5
12/31/2009	0.034697	0.04129	6.8	7			40.7	44.9
01/31/2010	0.035552	0.037101	6.5	6.9			39.7	40.4
02/28/2010	0.035048	0.038597	6.5	6.9			40.5	41.5
03/31/2010	0.032696	0.039943	6.6	6.9			42.4	44.5
04/30/2010	0.033584	0.040055	6.7	6.9			55.7	57.6
05/31/2010	0.034186	0.038672	6.8	6.9			62.2	67.6
06/30/2010	0.035	0.0464	6.7	6.9			69.2	74.9
07/31/2010	0.336	0.055352	6.9	7			79	82.1
08/31/2010	0.33882	0.036428	6.9	7			77	81.1
09/30/2010	0.034553	0.040018	6.9	7.4			68.4	74.7
10/31/2010	0.033136	0.036136	6.9	7.1			55.9	59.8
11/30/2010			6.9	7.1	0.032815	0.034932	49.7	54.5
12/31/2010								
01/31/2011	0.033292	0.033997	6.8	7.1			42.3	49.2
02/28/2011	0.033046	0.033884	6.9	7.2			40.7	41.6
03/31/2011	0.031164	0.034109	7.1	7.2			39.5	41
04/30/2011	0.030108	0.030967	6.6	7.1			52.4	59.2
05/31/2011	0.029995	0.031341	6.7	6.8			60.4	64.8
06/30/2011	0.02935	0.041885	6.6	6.9			71.4	72.9
07/31/2011	0.030253	0.033724	6.9	7.6			76.6	79
08/31/2011	0.028467	0.029621	6.7	6.9			72.8	74.5
09/30/2011	0.02715	0.028274	6.7	6.9			68.8	70.8
10/31/2011	0.026934	0.028125	6.6	6.7			58.1	60.9
11/30/2011	0.025776	0.027601	7.1	7.1			49.1	49.1
12/31/2011	0.010818	0.033737						

Attachment B
GE Somersworth Data Summary
NH0023558

Outfall 015								
Monthly Reporting								
	Flow		pH		Total Residual Chlorine		Temperature	
Monitoring Period End Date	Monthly Average	Daily Max	Min	Max	Monthly Average	Daily Max	Monthly Average	Daily Max
	MGD		SU		mg/L		deg F	
01/31/2012								
02/29/2012								
03/31/2012								
04/30/2012								
05/31/2012								
06/30/2012								
07/31/2012								
08/31/2012								
09/30/2012								
10/31/2012								
11/30/2012								
12/31/2012								
01/31/2013								
02/28/2013								
03/31/2013								
04/30/2013								
05/31/2013								
06/30/2013								
07/31/2013								
08/31/2013								
09/30/2013								
10/31/2013								
11/30/2013								
Existing Permit Limit	Req. Monthly	1.000000	6.5	8.0	1.000000	1.000000	Req. Monthly	83.0
Minimum	0.010818	0.027601	6.5	6.6	0.032815	0.034932	39.2	40.4
Maximum	0.34818	0.297958	7.1	7.6	0.032815	0.034932	79.0	82.1
Average	0.05825	0.045413	6.7	7.0	0.032815	0.034932	56.8	60.5
Standard Deviation	0.082962	0.042015	0.2	0.2	N/A	N.A	13.4	13.9
# of Measurements	39	39	39	39	1	1	39	39
# of Exceedences	N/A	0	0	0	0	0	N/A	0

Attachment C
Facility Process Flow Diagram
GE Somersworth Fact Sheet NPDES Permit No. NH0023558



ATTACHMENT D
HEAT BALANCE CALCULATION

Assuming no heat loss to the ambient environment; the energy (heat) gained by the Salmon Fall River equals the energy given up by the effluent. Since heat load is a function of both mass flow rates and temperature, the following formula expresses the energy balance between the River and GE's effluent:

$$Q_{River} = Q_{Effluent}$$

This equation can be rewritten as:

$$\left(M_{River}\, x\, C_p\, x \Delta T_{River}\right) = \left(M_{Effluent} x\, C_p\, x \Delta T_{Effluent}\right)$$

Rewriting the energy balance equation:

$$\Delta T_{River} = \frac{\left(M_{Effluent} x\, C_p\right)}{\left(M_{River}\, x\, C_p\right)} \Delta T_{Effluent}$$

Solving this equation for the most upstream discharge first, Outfall 015:

		8.34 pounds	Weight of 1 gallon of water
C_p	=	1.0 Btu/lb°F	Specific Heat of water at constant pressure
M_{River}	=	18.5MGD (154.3×10^6 lbs/day)	7Q10 flow of the Salmon Falls River at GE's outfalls in Somersworth, NH
$M_{Effluent}$	=	0.06 MGD (0.5×10^6 lbs/day)	GE's draft NPDES Permit Outfall 015 maximum effluent discharge
ΔT_{River}		Unknown; to be determined based on specified criteria	Difference between the Salmon Falls River temperature and a reference temperature
$\Delta T_{Effluent}$	=	4°F	Temperature difference between GE's Outfall 015 effluent temperature limit (83°F) and the specified reference temperature (79°F)*

OUTFALL 015 Calculation:

$$\triangle T_{river} = \frac{0.5 \times 10^6 \text{ lbs/day } x \text{ 1.0 Btu/lb}}{154.3 \times 10^6 \text{ lbs/day } x \text{ 1.0 Btu/lb}} \; x \; 4°F$$

$$\triangle T_{river} = 0.013°F$$

This calculation applies parameters representing a worst case scenario. In this scenario the Salmon Falls River is flowing at the river's 7Q10 flow (the lowest seven days flow for the past ten years), the river's background temperature (79°F), supplied by NHDES*, and GE's Outfall 015 NCCW effluent discharge temperature at its proposed permit limit of 83°F. As calculated, GE's NCCW effluent discharge would raise the Salmon River temperature in the vicinity of Outfall 015 by 0.013°F.

Now, solving for the equation for the downstream discharge, Outfall 005:

		8.34 pounds	Weight of 1 gallon of water
C_p	=	1.0 Btu/lb°F	Specific Heat of water at constant pressure
M_{River}	=	18.5MGD (154.3×10^6 lbs/day)	7Q10 flow of the Salmon Falls River at GE's outfalls in Somersworth, NH
$M_{Effluent}$	=	0.44 MGD (3.7×10^6 lbs/day)	GE's draft NPDES Permit Outfall 005 maximum effluent discharge
ΔT_{River}		Unknown; to be determined based on specified criteria	Difference between the Salmon Falls River temperature and a reference temperature
$\Delta T_{Effluent}$	=	10.987°F	Temperature difference between GE's Outfall 005 effluent temperature limit (90°F) and the specified reference temperature (79°F) plus the slight increase in temperature from the Outfall 015 discharge (0.013°F), which equals (79.013°F)

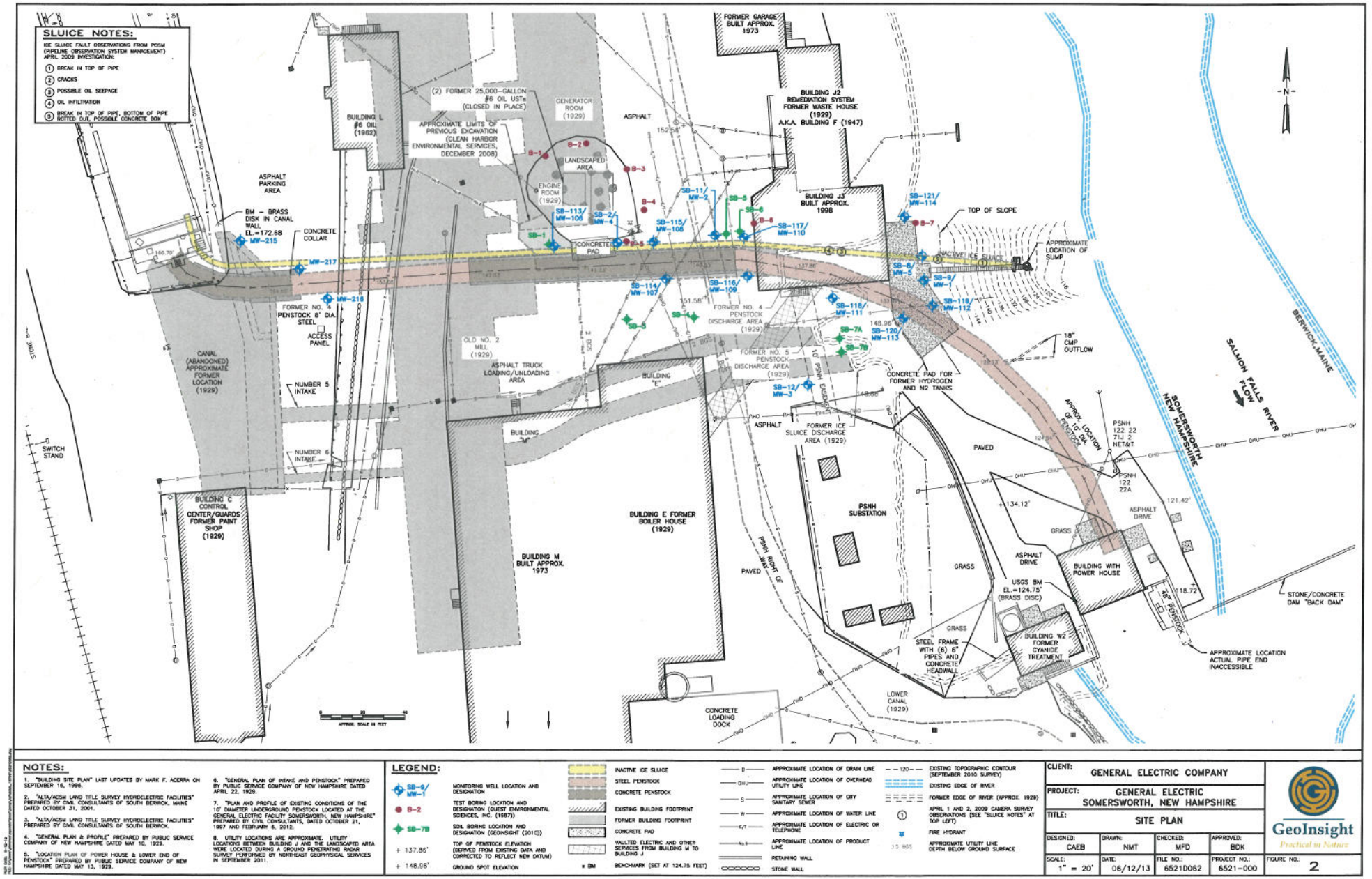
OUTFALL 005 Calculation:

$$\triangle T_{river} = \frac{3.7 \times 10^6 \text{ lbs/day} \times 1.0 \text{ Btu/lb}}{154.3 \times 10^6 \text{ lbs/day} \times 1.0 \text{ Btu/lb}} \times 10.987°F$$

$$\triangle T_{river} = 0.26 °F$$

This calculation applies parameters representing a worst case scenario. In this scenario the Salmon Falls River is flowing at the river's 7Q10 flow (the lowest seven days flow for the past ten years), the river's background temperature (79°F), supplied by NHDES, plus the slight increase in temperature from the Outfall 015 discharge (0.013°F) and GE's Outfall 005 NCCW effluent discharge temperature at its proposed permit limit of 90°F. As calculated, GE's NCCW effluent discharge would raise the Salmon Falls River temperature downstream of Outfall 005 by 0.26° F.

Attachment E - GE Map of Monitoring Well Locations



NOTES:

1. "BUILDING SITE PLAN" LAST UPDATES BY MARK F. ACERRA ON SEPTEMBER 16, 1998.
2. "ALTA/ACSM LAND TITLE SURVEY HYDROELECTRIC FACILITIES" PREPARED BY CIVIL CONSULTANTS OF SOUTH BERWICK, MAINE DATED OCTOBER 31, 2001.
3. "ALTA/ACSM LAND TITLE SURVEY HYDROELECTRIC FACILITIES" PREPARED BY CIVIL CONSULTANTS OF SOUTH BERWICK.
4. "GENERAL PLAN & PROFILE" PREPARED BY PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE DATED MAY 10, 1929.
5. "LOCATION PLAN OF POWER HOUSE & LOWER END OF PENSTOCK" PREPARED BY PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE DATED MAY 13, 1929.
6. "GENERAL PLAN OF INTAKE AND PENSTOCK" PREPARED BY PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE DATED APRIL 23, 1929.
7. "PLAN AND PROFILE OF EXISTING CONDITIONS OF THE 10' DIAMETER UNDERGROUND PENSTOCK LOCATED AT THE GENERAL ELECTRIC FACILITY SOMERSWORTH, NEW HAMPSHIRE" PREPARED BY CIVIL CONSULTANTS, DATED OCTOBER 21, 1997 AND FEBRUARY 6, 2012.
8. UTILITY LOCATIONS ARE APPROXIMATE. UTILITY LOCATIONS BETWEEN BUILDING J AND THE LANDSCAPED AREA WERE LOCATED DURING A GROUND PENETRATING RADAR SURVEY PERFORMED BY NORTHEAST GEOPHYSICAL SERVICES IN SEPTEMBER 2011.

LEGEND:

- SB-9/MW-1 — MONITORING WELL LOCATION AND DESIGNATION
- B-2 — TEST BORING LOCATION AND DESIGNATION (QUEST ENVIRONMENTAL SCIENCES, INC. (1987))
- SB-7B — SOIL BORING LOCATION AND DESIGNATION (GEOINSIGHT (2010))
- + 137.86' — TOP OF PENSTOCK ELEVATION (DERIVED FROM EXISTING DATA AND CORRECTED TO REFLECT NEW DATUM)
- + 148.96' — GROUND SPOT ELEVATION
- INACTIVE ICE SLUICE
- STEEL PENSTOCK
- CONCRETE PENSTOCK
- EXISTING BUILDING FOOTPRINT
- FORMER BUILDING FOOTPRINT
- CONCRETE PAD
- VAULTED ELECTRIC AND OTHER SERVICES FROM BUILDING M TO BUILDING J
- BM — BENCHMARK (SET AT 124.75 FEET)
- D — APPROXIMATE LOCATION OF DRAIN LINE
- OHU — APPROXIMATE LOCATION OF OVERHEAD UTILITY LINE
- S — APPROXIMATE LOCATION OF CITY SANITARY SEWER
- W — APPROXIMATE LOCATION OF WATER LINE
- E/T — APPROXIMATE LOCATION OF ELECTRIC OR TELEPHONE
- PL — APPROXIMATE LOCATION OF PRODUCT LINE
- RETAINING WALL
- STONE WALL
- 120 — EXISTING TOPOGRAPHIC CONTOUR (SEPTEMBER 2010 SURVEY)
- EXISTING EDGE OF RIVER
- FORMER EDGE OF RIVER (APPROX. 1929)
- 1 — APRIL 1 AND 2, 2009 CAMERA SURVEY OBSERVATIONS (SEE "SLUICE NOTES" AT TOP LEFT)
- FIRE HYDRANT
- 3.5 BGS — APPROXIMATE UTILITY LINE DEPTH BELOW GROUND SURFACE

CLIENT:	GENERAL ELECTRIC COMPANY
PROJECT:	GENERAL ELECTRIC SOMERSWORTH, NEW HAMPSHIRE
TITLE:	SITE PLAN

DESIGNED:	DRAWN:	CHECKED:	APPROVED:
CAEB	NMT	MFD	BDK
SCALE: 1" = 20'	DATE: 06/12/13	FILE NO.: 65210062	PROJECT NO.: 6521-000

GeoInsight — Practical in Nature

FIGURE NO.: 2

Attachment F - GE Summary of Groundwater Analytical Results

Well ID	Sample Date	Volatile Organic Compounds (VOCs)												Polycyclic Aromatic Hydrocarbons (PAHs)												
		Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	Isopropylbenzene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	4-isopropyltoluene	n-Propylbenzene	n-Butylbenzene	Trichloroethene (TCE)	2-methylnaphthalene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Naphthalene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Ideno(1,2,3-cd)pyrene	Benzo(g,h,i)perylene	Phenanthrene	Pyrene
NHDES AGQS		**5**	**1,000**	**700**	**10,000**	**20**	**800**	**330**	**330**	**260**	**260**	**260**	**5**	**280**	**0.10**	**0.2**	**0.1**	**0.5**	**20**	**5**	**0.1**	**280**	**280**	**0.1**	**210**	**210**	**210**
MW-1	05/23/11	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND (6.4)	ND	ND (6.4)	ND (6.4)
	07/01/11	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	**3.7**	**4.3**	**4.6**	**1.6**	ND (5)	3.5	**0.56**	7.3	ND (5)	**2**	ND	ND (5)	5.2
MW-2	05/23/11	**5.1**	ND (1)	24	20.3	**110**	7.9	130	16	18	20	17	2.3	120	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND	55	ND (50)
	07/01/11	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	15	**6.6**	**4.8**	**3.4**	**0.69**	ND (5)	**11**	**1.2**	ND (5)	ND (5)	**0.64**	ND	14	10
	02/24/12	ND (2)	ND (2)	5	2	**26**	ND (2)	28	ND (2)	ND (2)	4	ND (2)	ND (2)	ND (21)	**23**	**20**	ND (21)	ND (21)	**28**	**48**	ND (21)	ND (21)	ND (21)	ND (21)	ND	59	41
	11/26/12	ND (2)	ND (2)	2	ND (2)	6	ND (2)	8	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	2.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	11/25/13	ND (2)	ND (2)	4	5	10	ND (2)	16	ND (2)	ND (2)	2	ND (2)	ND (2)	ND (0.5)	ND (0.5)	ND (0.2)	ND (0.5)	ND (0.5)	1.9	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-5	05/23/11	ND (1)	ND (1)	ND (1)	ND (1)	2.3	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND	ND (5)	ND (5)
	07/01/11	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	**7.6**	**8.8**	**9.8**	**2.6**	ND (5)	**7.8**	**1.3**	16	ND (5)	**4.2**	ND	11	11
	02/24/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	**1.7**	**1.6**	**2.3**	**1.1**	ND (0.5)	**1.8**	ND (0.5)	2.8	ND (0.5)	ND (0.5)	ND	1.7	2.9
	11/25/13	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	ND (0.5)	ND (0.2)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-106	02/24/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (5.2)	**11**	**13**	**13**	**7.3**	ND (5.2)	**17**	ND (5.2)	15	ND (5.2)	ND (5.2)	ND	11	20
	11/26/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	11/25/13	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	ND (0.5)	ND (0.2)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-107	02/24/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	**1.5**	**1.7**	**1.8**	**1.9**	ND (0.5)	1.9	ND (0.5)	3	ND (0.5)	**0.8**	ND	1.5	3.1
MW-108	02/24/12	ND (2)	ND (2)	5	17	**37**	ND (2)	24	4	ND (2)	3	ND (2)	ND (2)	64	**16**	**14**	**10**	ND (5)	**23**	**31**	ND (5)	7.4	9.6	ND (5)	ND	38	27
	11/26/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	3	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	0.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-109	02/24/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	ND (0.5)	**0.3**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND	ND (0.5)	0.5
MW-110	02/24/12	**6**	4	17	68	**96**	3	58	8	ND (2)	8	ND (2)	ND (2)	130	**13**	**12**	**8.8**	ND (5)	**58**	**26**	ND (5)	ND (5)	11	ND (5)	ND	37	22
MW-111	02/24/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	ND (0.5)	**0.5**	ND (0.5)	ND (0.5)	ND (0.5)	0.6	ND (0.5)	0.8	ND (0.5)	ND (0.5)	ND	0.7	0.8
MW-112	02/24/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	4	0.7	**11**	**10**	**12**	**9.8**	1	**11**	**1.9**	22	1.6	**4.1**	4.1	16	21
	11/26/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	**1.7**	**1.6**	**1.9**	**1.1**	ND (0.5)	1.7	ND (0.5)	2.9	ND (0.5)	**0.9**	1.2	2	2.6
	11/25/13	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	ND (0.5)	ND (0.2)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-113	02/24/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	**0.7**	**0.7**	**0.8**	0.5	ND (0.5)	0.9	ND (0.5)	1.2	ND (0.5)	ND (0.5)	ND	0.7	1.3
MW-114	02/24/12	ND (2)	ND (2)	ND (2)	ND (2)	ND (5)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (0.5)	ND (0.5)	**0.3**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.6	ND (0.5)	ND (0.5)	ND	0.5	0.6

NOTES:

1. Concentrations reported in micrograms per liter (ug/L).
2. NHDES AGQS - New Hampshire Department of Environmental Services Ambient Groundwater Quality Standard as presented in Env-Or 600.
3. ND (x) = constituent was not detected at the laboratory practical quantitation limit noted in parentheses.
4. NA = not analyzed; J = estimated concentration; NS = not sampled.
5. **Bold** font indicates the constituent was detected above the NHDES AGQS.
6. The water sample collected from well MW-1 for PAHs was collected on June 1, 2011 (not May 23, 2011).
7. Acenaphthylene was detected at a concentration of 0.6 ug/L in well MW-107 on February 24, 2012.
8. Acenaphthene was detected at a concentration of 7.4 ug/L in well MW-108 on February 24, 2012.
9. Acenaphthene was detected at a concentration of 8.6 ug/L in well MW-110 on February 24, 2012.
10. On February 24, 2012, acenaphthylene, acenaphthene, dibenzofuran, anthracene, and benzo(g,h,i)perylene were detected at concentrations of 0.6 ug/L, 1.7 ug/L, 1 ug/L, and 3.6 ug/L in well MW-112.
11. PAH samples were field-filtered; except during the 2011 monitoring events and the February 2012 event.

Response to Public Comments

Introduction

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the Draft National Pollutant Discharge Elimination System ("NPDES") Permit, No. NH0023558. The responses to comments explain and support the EPA determinations that form the basis of the Final Permit. From May 30, 2014, through June 28, 2014, the United States Environmental Protection Agency ("EPA") and the New Hampshire Department of Environmental Services, Water Division ("NHDES-WD") (together, the "Agencies") solicited public comments on the Draft NPDES Permit, No. NH0023558, developed pursuant to a permit application from General Electric Company, for the reissuance of an NPDES permit to discharge non-contact cooling water from two outfalls (Number 005 and 015) to the Salmon Falls River in Somersworth, New Hampshire.

Changes Made in the Final Permit

After a review of the comments received, EPA has made a final decision to issue this permit authorizing these discharges. The Final Permit is substantially identical to the Draft Permit that was available for public comment.

Although EPA's decision-making process has benefitted from the comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however, make minor changes in response to some comments. The analyses underlying these changes is explained in the responses to individual comments that follow and is reflected in the Final Permit. EPA also made minor clerical edits to the Final Permit for clarification purposes. Since the Fact Sheet is a final document, no changes were made to the Fact Sheet. Instead, Fact Sheet comments were noted and responses to them are included in this document.

Copies of the Final Permit may be obtained from the EPA New England website http://www.epa.gov/region1/npdes/newhampshire.html or by writing or calling EPA's NPDES Industrial Permits Branch (OEP 06-4), Office of Ecosystem Protection, 5 Post Office Square, Suite 100, Boston, MA 02109-3912; Telephone: (617) 918-1054.

The following is a list of changes that have been made from the Draft Permit to the Final Permit. The details and justification for the changes are presented under the specific comment discussion presented later in the document.

1. Footnote Number 2 has been changed from:

> Once through helper cooling towers shall be used when the discharge temperature at Outfall 005 exceeds 83°F.

to

Once through helper cooling towers shall be used, at a minimum, when the discharge temperature at Outfall 005 exceeds 88ºF.

2. The wording of Footnote Number 6 has been changed from:

> Calendar year quarterly monitoring for total residual chlorine is only required when the facility is using chlorinated water as the **primary or supplemental** source water for NCCW.

to

> Calendar year quarterly monitoring for total residual chlorine is only required when the facility is using chlorinated water as the source water for NCCW.

3. Since the facility cannot dilute municipal source water with river water at the intake, the municipal water flow limit for Outfall 005 has been removed from Part I A.1. of the Final Permit.

4. Footnote Number 7:

> The maximum permitted limit of the rate of chlorinated municipal water that shall be used in order to meet the TRC maximum daily limit.

which is associated with the deleted municipal water flow limit above (#3), has also been removed from the Final Permit. Subsequent footnotes have been renumbered in the Final Permit.

5. A new Footnote Number 11 has been inserted into the Final Permit as follows:

> After the completion of three years of monitoring for the selected volatile organic compounds, polycyclic aromatic hydrocarbons, and metals, the permittee may submit a report to EPA and NHDES-WD, which summarizes and analyzes the results of the monitoring and recommends modifications to the sampling plan.

6. The CWIS monitoring program has been changed from “at least three times per week” in the Draft Permit to “at least once per week” in the Final Permit, as reflected in the revised Part I.D.2.b. of the Final Permit.

7. The following language has been added to Part I.D.2.d. of the Final Permit:

> Impingement monitoring shall not be conducted when adverse weather conditions cause the effort to be unsafe or hazardous. Also, monitoring shall not be conducted when ice formation on the surface of the intake canal or other conditions preclude a reasonable view of the submerged CWIS. The specific

reason for the missed monitoring event must be documented and included in the monitoring log.

Responses To Specific Comments

The following addresses four comments submitted by GeoInsight, Inc. (GeoInsight) at the request of the permittee, General Electric Company, General Electric Somersworth Facility (GE) in a letter dated June 27, 2014.

Comment 1

Discharge Temperature (Identified as Comment 1.1.1 in the GeoInsight Comment Letter)

The proposed discharge temperature limit of 90 degrees Fahrenheit (ºF) on page 2 of the Draft NPDES Permit is acceptable; however, Footnote Number 2 on Page 4 of the Draft NPDES Permit is objectionable. The requirement to operate cooling towers when the discharge temperature at Outfall Serial Number 005 (Outfall 005) exceeds 83ºF defeats the intent of applying for a site-specific NPDES Permit. GE installed the cooling towers as an additional level of assurance that the temperature discharge limit could be met. The requested discharge temperature change to 90ºF, together with the cooling tower, was intended to be duplicative. GE cannot ensure that the cooling tower will be operational at all times, due to potential mechanical issues and planned maintenance activities. GE proposes to change Footnote Number 2 to the following:

> Footnote Number 2
> Once through helper cooling towers shall be used when the discharge temperature at Outfall 005 exceeds 88ºF, except in the event that mechanical issues prevent the operation of the cooling towers for a period of up to 24 hours. During this 24-hour period, a discharge temperature of up to 90ºF is allowed without the towers in operation.

Response to Comment 1

The response to this comment has been divided into two parts. Part A deals with the discharge temperature that triggers the use of the once through cooling tower at the facility. Part B deals with mechanical issues preventing the operation of the once through cooling tower technology.

Response to Comment 1, Part A

EPA Region I, New England (EPA) does not agree with GeoInsight's statement:

> The requirement to operate cooling towers when the discharge temperature at Outfall Serial Number 005 (Outfall 005) exceeds 83ºF defeats the intent of [the permittee] applying for a site-specific NPDES Permit.

It is not accurate to state that EPA's proposed requirement to operate cooling towers at a certain discharge temperature defeats the intent of applying for a site-specific NPDES Permit in this case. The permittee was directed to apply for an individual permit because it was no longer eligible for the Non-Contact Cooling Water General Permit (NCCW GP) for two main reasons. First, EPA reviewed data submitted by the permittee that documented the discharge temperature at Outfall 005 to be greater than the 83ºF limit specified in the NCCW GP (July 2010; 84.5ºF, Fact Sheet Attachment B). The potential for future discharge temperatures above 83ºF rendered the facility ineligible for continued coverage under the NCCW GP and required the permittee to apply for an individual NPDES permit. Second, information submitted by the permittee (e-mail from Melissa A. Cole, GeoInsight to John Nagle, EPA, dated January 27, 2014) confirmed that stormwater and groundwater mix with NCCW before being discharged at Outfall 005. An outfall with this discharge profile may not be deemed eligible for coverage under the NCCW GP.

EPA does not view the cooling towers as an "additional level" of assurance to meet water quality standards. EPA has determined that the permitted temperature limit at Outfall 005 is a technology-based temperature limit through the use of the once-through cooling tower system technology (Fact Sheet Section 4). While this technology is ultimately required to meet the permitted limit of 90ºF, EPA encourages the permittee to begin using the technology when the end of pipe discharge temperature first reaches 83ºF. This conservative approach will further reduce stress on aquatic species in the Salmon Falls River during elevated ambient river temperatures in the summer months.

While EPA encourages a trigger of 83ºF at Outfall 005 for cooling tower use, we agree with the permittee's comment that the clear requirement in the permit is to use the cooling tower technology to ensure that the discharge temperature does not exceed 90ºF. EPA has revised the temperature aspect of Footnote Number 2 based on the permittee's comment.

Footnote Number 2 has been changed from:

> Once through helper cooling towers shall be used when the discharge temperature at Outfall 005 exceeds 83°F.

to

> Once through helper cooling towers shall be used, at a minimum, when the discharge temperature at Outfall 005 exceeds 88ºF.

Response to Comment 1, Part B

In Part B of Comment 1, the permittee raises the issue of a mechanical malfunction that may prevent the operation of the cooling towers and result in a permit violation. The permittee suggests language in Footnote Number 2 to address this occurrence. EPA has determined that this suggested language is not necessary, as NPDES PART II. (Standard Conditions) B. (Operation and Maintenance of Pollution Controls) 5. (Upset) covers mechanical malfunction.

Therefore, the Footnote Number 2 language suggested by the permittee:

> …except in the event that mechanical issues prevent the operation of the cooling towers for a period of up to 24 hours. During this 24-hour period, a discharge temperature of up to 90ºF is allowed without the towers in operation.

is not necessary and has not been included by EPA in Footnote Number 2.

Comment 2

Residual Chlorine and Municipal Water Flow Limitation (Identified as Comment 1.1.2 in the GeoInsight Comment Letter)

A discharge limit for total residual chlorine (TRC) from Outfall 005 of 1.0 milligrams per liter (mg/L) is proposed on Page 2 of the Draft NPDES Permit. However, because GE uses the municipal water supply for non-contact cooling water (NCCW) only when there are mechanical issues (i.e., pump failure) or scheduled maintenance events, when municipal water is used, it comprises 100 percent of the NCCW discharge. Therefore, GE does not have the ability to alter TRC concentrations when municipal water is used. A TRC discharge limit of at least 1.2 mg/L is requested to allow for the discharge of undiluted municipal water. The proposed change is below the acute maximum daily limit for TRC of 1.46 mg/L calculated by the USEPA and presented on Page 13 of Fact Sheet Number NH0023558 (the Fact Sheet). The last paragraph on Page 13 of the Fact Sheet states:

> "However, Section 101(a)(3) of the Act, and New Hampshire standards at Env-Wq 1703.21(a) prohibit the discharge of toxic pollutants in toxic amounts. In order to reduce the potential for the formation of chlorinated compounds and to be protective of the States' narrative standards, EPA-Region 1 has, historically, established a maximum Total Residual Chlorine (TRC) limitation of 1.0 mg/L for both the average monthly and the maximum daily limitations. In this situation, the 1.0 mg/L limit for the maximum daily effluent limit is more stringent than the 1.46 mg/L limit that would be allowed based on available dilution and the NH Standards for acute aquatic-life criteria of 0.019 mg/L. Hence, the TRC daily maximum limit of 1.0 mg/L is proposed for the Draft Permit as a grab sample to

be monitored once per quarter when municipal water is discharged at Outfall 005."

We [the permittee] request that the above narrative be changed to the following:

"However, Section 101(a)(3) of the Act, and New Hampshire standards at Env-Wq 1703.21(a) prohibit the discharge of toxic pollutants in toxic amounts. In order to reduce the potential for the formation of chlorinated compounds and to be protective of the States' narrative standards, EPA-Region 1 has, historically, established a maximum Total Residual Chlorine (TRC) limitation of 1.0 mg/L for both the average monthly and the maximum daily limitations. In this situation, the 1.0 mg/L limit for the maximum daily effluent limit is more stringent than the 1.46 mg/L limit that would be allowed based on available dilution and the NH Standards for acute aquatic-life criteria of 0.019 mg/L. However, the TRC daily maximum limit of 1.2 mg/L is proposed for the Draft Permit as a grab sample to be monitored once per quarter when municipal water is discharged at Outfall 005. In order to reduce the potential for the formation of chlorinated compounds and to be protective of the States' narrative standards, a municipal water discharge duration of not more than 48 hours within any given week is proposed."

A municipal water flow limit of 0.05 million gallons per day (MGD) is proposed in the Draft NPDES Permit. We propose revising the municipal water flow rate to 0.216 MGD. Page 14 of the Fact Sheet presents the follow municipal water flow rate calculation:

A proposed limit for the rate of municipal water used to meet the freshwater acute criteria of 0.019 mg/L is calculated as follows:

$$\left[\frac{18.5 \text{ MGD}}{X \text{ MGD}} \times 0.9\right] = \frac{4 \text{ mg/l}}{0.019 \text{ mg/l}}$$

The rate of municipal water can be no more than X = 0.05 MGD.
The remaining water rate of 0.166 MGD must come from river water that contains no TRC.

As indicated above, the assumption that 0.166 MGD of river water can be used to make up the difference with municipal water to achieve 0.216 MGD is incorrect. In addition, solving for the equation above provides for an allowable municipal water flow rate of 0.08 MGD, not 0.05 MGD. It also appears that using the municipal water residual chlorine value of 4 mg/L is overly conservative and that using the proposed residual chlorine value herein of 1.2 mg/L should be used in the equation because it is still above measured residual chlorine levels in municipal water. Using this value, the equation would yield a flow rate of 0.264 MGD, thus supporting a municipal flow limit of 0.216 MGD. A limit to municipal water flow duration of 48 hours in any given week would be acceptable.

Response to Comment 2

The response to this comment has been divided into two parts. Part A deals with a requested change of the maximum daily discharge limit for total residual chlorine (TRC) at Outfall 005 from 1.0 mg/L to 1.2 mg/L. Part B deals with the permittee's request to meet a 1.0 mg/L TRC limit through the regulation of the municipal water flow, assuming the municipal water would be diluted at the intake with canal water containing no TRC.

Response to Comment 2, Part A

In Comment 2, the permittee stipulates that "… GE uses the municipal water supply for non-contact cooling water (NCCW) only when there are mechanical issues (i.e., pump failure) or scheduled maintenance events". However, in an e-mail from Melissa A. Cole, GeoInsight to John Nagle, EPA, dated January 22, 2014, GE requests the ability to use city water as a secondary source for NCCW during periods of low water level in the canal. EPA assumes that mechanical issues, scheduled maintenance events and low water events will all require the use of municipal water as it considers Comment 2, Part A. Low river flow in the Salmon Falls River, resulting in low water levels in the intake canal at GE, is not under the control of the permittee. Low flow river conditions could potentially last for an extended period of time, resulting in the use of chlorinated municipal water for an extended period of time. EPA must consider this possible scenario as it considers this comment.

EPA does not agree with the permittee's comment:

> It also appears that using the municipal water residual chlorine value of 4 mg/L is overly conservative and that using the proposed residual chlorine value herein of 1.2 mg/L should be used in the equation because it is still above measured residual chlorine levels in municipal water.

The permittee reported to EPA in the January 22, 2014 e-mail that:

> The city is allowed to discharge total residual chlorine at concentrations of up to 4 ppm (mg/l), with the most recent annual average of 0.67 ppm in Somersworth, NH for 2012.

When preforming the TRC calculations, EPA has determined that the use of an annual average TRC value is not an approach that will ensure that water quality standards are met. When performing calculations to determine whether a TRC limit is warranted in a permit, EPA typically uses the highest TRC level allowed in the source water to ensure that the "worst case" pollutant level is addressed. In this case, using a TRC concentration of 4.0 mg/L is the appropriate approach for this calculation, based on the information provided by the permittee. EPA does not agree that the use of the maximum allowed TRC concentration in the municipal water is overly conservative and without justification.

Further, the permittee provided no quantitative justification or rationale to support a substitute TRC concentration of 1.2 mg/l. Therefore, a municipal source water TRC level of 4.0 mg/l has been retained in the TRC permit limit calculations.

Using this TRC value and the 0.216 MGD flow value for undiluted municipal water, the following formula was applied to determine the level of TRC that could potentially be added to the receiving water, after mixing:

$$\frac{[18.5 \text{ MGD} \times 0.9]}{0.216 \text{ MGD}} = \frac{4 \text{ mg/l}}{X \text{ mg/l}}$$

Where: 7Q10 of the river =18.5 MGD
90% assimilative capacity reserve = 0.9
Maximum undiluted municipal water flow = 0.216 MGD
Resulting TRC concentration in the receiving water = X

X = 0.052 mg/l

Since a TRC value of 0.052 mg/l is above the recommended federal water quality freshwater acute criteria of 0.019 mg/l, then the facility's permit must contain a TRC discharge limit.

To determine the maximum TRC level in the effluent (Y) that will meet the freshwater acute criteria of 0.019 mg/l, the following calculation was used:

$$\frac{[18.5 \text{ MGD} \times 0.9]}{0.216 \text{ MGD}} = \frac{Y \text{ mg/l}}{0.019 \text{ mg/l}}$$

Y = 1.46 mg/l, as calculated in Section V.B.3. of the Fact Sheet.

EPA points out that the Final NPDES permits for Publicly Owned Treatment Works and industrial facilities in the state of New Hampshire contain TRC limits at or below 1.0 mg/l. These limits were established in order to comply with Section 101(a)(3) of the Act, and New Hampshire standards at Env-Wq 1703.21, (a), which prohibits the discharge of toxic pollutants in toxic amounts. As stated in the Fact Sheet (Section V.B.3.), in order to reduce the potential for the formation of chlorinated compounds and to be protective of the States' narrative standards, EPA-Region 1 has, historically, established a maximum Total Residual Chlorine (TRC) limitation of 1.0 mg/l for both the average monthly and the maximum daily limitations. In this situation, the 1.0 mg/L limit for the maximum daily effluent limit is more stringent than the 1.46 mg/L limit that would be allowed based on available dilution and the NH Standards for acute aquatic-life criteria of 0.019 mg/L.

GE has provided no information to justify to EPA that, in this case, the agencies' approach to reduce the potential for the formation of chlorinated compounds and the

agencies' objective of being consistent with the State's narrative standards is overly conservative.

Further, EPA does not agree that GE does not have the ability to alter TRC concentrations when municipal water is used in the scenarios listed above. Dechlorination technology is proven and available. Many municipal water facilities dechlorinate their discharge when the flushing of pipes or other maintenance directs municipal drinking water to a permitted NPDES discharge.

Therefore, the Total Residual Chlorine (TRC) maximum daily limit of 1.0 mg/L has been retained in the Final Permit.

Response to Comment 2, Part B

EPA agrees that the calculation of a proposed limit for the rate of municipal water used to meet the freshwater acute criteria of 0.019 mg/L, using the formula:

$$\left[\frac{18.5 \text{ MGD}}{\text{X MGD}} \times 0.9\right] = \frac{4 \text{ mg/l}}{0.019 \text{ mg/l}}$$

results in a rate of municipal water of 0.08 MGD, rather than 0.05 MGD.

As previously explained, the Fact Sheet is a final document and cannot be modified. Therefore, this response to comments document provides a means of correcting the calculation.

Also, EPA misinterpreted the GE request included in an e-mail from Melissa A. Cole, GeoInsight to John Nagle, EPA, dated January 22, 2014.

> **Outfall 005**
> **Supplemental City Water**
> **Bullet #5**
> GE is requesting that the EPA compute the maximum daily volume of water that would be allowed to be discharged through Outfall 005 in order to be below the state water quality standard for chlorine (i.e., 19 ppb per our phone discussion) after dilution with the river water. A chlorine concentration of at least 1 ppm should be assumed for the NCCW discharge.

EPA wrongly assumed that the permittee's description "after dilution with river water" referred to the dilution of municipal water with canal water at the intake in order to produce an end of pipe TRC level of 1.0 mg/L. Since EPA now understands that no canal water mixes with municipal water at the intake, this calculation is meaningless.

Based on this clarification, the municipal water flow limit derived from this calculation has been removed from the table in Part I A.1. of the Final Permit. Also, the wording of Footnote Number 6 has been changed from:

> Calendar year quarterly monitoring for total residual chlorine is only required when the facility is using chlorinated water as the **primary or supplemental** source water for NCCW.

to

> Calendar year quarterly monitoring for total residual chlorine is only required when the facility is using chlorinated water as the source water for NCCW.

The language in Footnote Number 7 of the Draft Permit has also been removed. Subsequent footnotes have been renumbered in the Final Permit.

Comment 3

Selected Pollutant Scan (Identified as Comment 1.1.3 in the GeoInsight Comment Letter)

The Draft NPDES Permit proposes testing for selected volatile organic compounds, polycyclic aromatic hydrocarbons, and metals on a quarterly basis. According to Footnote Number 10 on Page 4 of the proposed Draft NPDES Permit, sampling is proposed to occur during the weeks of March 15, April 15, July 15, and October 15 during "dry weather conditions." GE has the following objections to including the selected pollutant scan testing in the final NPDES Permit.

1. The facility stormwater is managed under the 2008 Multi-Sector General Permit (MSGP Tracking Number NHR05BO19) since March 2009. The MSGP is protective of stormwater discharges at the facility, as it would be for any facility meeting the MSGP requirements under Sector AC, Subsector AC.1. To regulate discharges not related to NCCW is duplicative and unnecessary.

2. The background information included in Section 5.0, Pages 15 through 17 of the Fact Sheet supports that there is minimal documented groundwater impacts at the facility and that impacts are limited to a well defined area that is unlikely to be hydraulically connected to Outfall 005.

3. The proposed requirement to collect samples during certain weeks of the year and under "dry weather conditions" is overly burdensome and will require GE to dedicate significant personnel hours to tracking and implementing this requirement. Selecting a qualifying sampling date to meet this proposed requirement is made more difficult by the proposed requirement in Footnote Number 8 on Page 10 of the proposed Draft NPDES Permit that requires sampling in January, April, July, and October during "wet weather conditions." The difficulty in tracking and implementing the requirements of Footnote Numbers 8 and 10 together, increases the potential for an unnecessary permit violation.

In the event that eliminating requirements of proposed Footnote Number 10 all together is not acceptable to the USEPA, we propose that the requirement be eliminated after the first year following the final NPDES Permit implementation, assuming that sample results indicate that river water quality will not be significantly adversely impacted by the tested constituents.

Response to Comment 3, Number 1

Stormwater that has not been characterized will be discharged at Outfall 005 of the individual NPDES permit for GE Somersworth. The requirements that pertain to stormwater are "monitor and report" requirements, so EPA will be able to gather data to confirm the expected make-up of the stormwater. EPA is not "regulating" the stormwater discharge with maximum limits. EPA has decided that it is necessary to retain the monitoring and reporting requirements related to stormwater in the Final Permit.

Response to Comment 3, Number 2

EPA has reviewed the background information included in Section 5.0, Pages 15 through 17 of the Fact Sheet and generally agrees that there are minimal documented groundwater impacts at the facility and that impacts are limited to a well-defined area that is unlikely to be hydraulically connected to Outfall 005. However, since no monitoring has been conducted at Outfall 005 to confirm this judgment, EPA has decided that it is reasonable to retain in the Final Permit the "monitor and report" provision for selected volatile organic compounds, polycyclic aromatic hydrocarbons, and metals at Outfall 005 on a quarterly basis.

Response to Comment 3, Number 3

EPA has required other permittees to collect samples during certain weeks of the year, under dry and wet weather conditions. EPA appreciates that the uncertainty associated with this type of "event based" sampling can be challenging. However, in order to obtain meaningful, representative samples for stormwater components (appropriate under wet weather conditions) and groundwater components (appropriate under dry weather conditions at the required monitoring frequency) at Outfall 005, EPA maintains that this sampling protocol is suitable. The sampling protocol has been retained in the Final Permit. Footnote Number 9 of the Final permit addresses the actions to be taken when a sample cannot be obtained during a specified sampling date.

Response to Comment 3, Elimination of Monitoring Requirement After One Year

EPA does not agree that the collection of only one year of data (four quarterly samples) is sufficient to characterize the discharge at Outfall 005 regarding selected volatile organic compounds, polycyclic aromatic hydrocarbons, and metals. However, EPA is willing to accept the collection of three years of data as a minimum appropriate data set needed to potentially characterize the discharge. EPA has changed the wording of Footnote Number 11 of the Final Permit as follows:

After the completion of three years of monitoring for the selected volatile organic compounds, polycyclic aromatic hydrocarbons, and metals, the permittee may submit a report to EPA and NHDES-WD, which summarizes and analyzes the results of the monitoring and recommends modifications to the sampling plan.

Comment 4

Special Conditions – Cooling Water Intake Structure
Impingement Monitoring Schedule (D.2.b.) (Identified as Comment 1.2.1 in the GeoInsight Comment Letter)

The proposed impingement monitoring schedule is presented in special condition D.2.b. on Page 9 of the proposed Draft NPDES Permit. GE requests that the required monitoring schedule be reduced to weekly and only when weather conditions are favorable.
Based upon observations made during historical impingement monitoring events, fish or organisms have not been observed to be impinged upon the Cooling Water Intake Structure (CWIS) by GE personnel. In addition, the relatively low calculated maximum CWIS through screen velocity (TSV) of 0.03 feet per second (fps), as discussed in Section D on Page 26 of the Fact Sheet, is greater than one order of magnitude below the USEPA TSV threshold of 0.5 fps, which USEPA identified as being protective to "minimize impingement of most species of adult and juvenile fish." Therefore, the proposed requirement to perform impingement monitoring three times per week appears excessive and unwarranted.
It should also be noted that cold weather conditions cause the canal to freeze over in the vicinity of the CWIS. This condition makes impingement observations impractical. In addition, such conditions may typically cause ice to form along the canal walkways that create slip/fall hazards. These conditions warrant the need for the proposed monitoring exception for weather conditions that make monitoring impractical and/or hazardous to GE personnel.

Response to Comment 4

The response to this comment has been divided into two parts. Part A deals with the requested change of impingement monitoring frequency from three times per week to once per week. Part B deals with a request to conduct impingement monitoring only when weather conditions are favorable.

Response to Comment 4, Part A

EPA regards surveillance at a CWIS to be a necessary activity to detect, document and in some cases respond in a timely manner to an impingement event of aquatic organisms. Periodic surveillance is especially important at GE Somersworth, which has an intake structure designed with a fixed submerged screen that does not rotate out of the water for clear inspection. Also, some impingement events at CWISs have been documented to be of limited duration while still involving a large number of fish. Monitoring the CWIS more than once a week can better detect these transient events. In addition, it has been

EPA's experience that, depending on the configuration of the site, operation and maintenance crews from the permitted facility are often performing other tasks in the vicinity of the CWIS, allowing more frequent surveillance monitoring to be conducted without an unreasonable burden to facility personnel. In the case of the GE Somersworth Site, the CWIS is located approximately 160 feet away from the main buildings of the facility, along a canal. EPA understands that in this site-specific case, operation and maintenance crews working at the facility may not be routinely in the immediate vicinity of the CWIS.

EPA acknowledges that during historical impingement monitoring events at the GE Somersworth facility, fish or other aquatic organisms were not observed to be impinged upon the CWIS by GE personnel. EPA further understands that the relatively low calculated maximum CWIS through screen velocity (TSV) of 0.03 feet per second (fps) is greater than one order of magnitude below the USEPA TSV threshold of 0.5 fps and is likely to provide a low potential for fish impingement. Also, as noted above, the CWIS is not readily accessible to personnel working in the facility. Based on these factors and the permittee's characterization of the monitoring program as "excessive", in this site-specific case, EPA has modified the CWIS monitoring program to once per week. EPA has revised Part I.D.2.b. of the Final Permit to reflect this change.

Response to Comment 4, Part B

EPA acknowledges that under certain weather conditions, it will be either unsafe or not practical to conduct the CWIS impingement monitoring. Therefore, EPA has added the following language to Part I.D.2.d. of the Final Permit:

> Impingement monitoring shall not be conducted when adverse weather conditions cause the effort to be unsafe or hazardous. Also, monitoring shall not be conducted when ice formation on the surface of the intake canal or other conditions preclude a reasonable view of the submerged CWIS. The specific reason for the missed monitoring event must be documented and included in the monitoring log.