

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"), and the Massachusetts Clean Water Act, as amended, (M.G.L. Chap. 21, §§ 26-53)

**USGen New England, Inc.  
7500 Old Georgetown Road  
Bethesda, MD 20814**

is authorized to discharge from the facility located at

**USGen New England, Inc.  
Brayton Point Station  
One Brayton Point Road  
Somerset, MA 02726**

to receiving water named

**Mount Hope Bay (Mount Hope Bay Basin, MA61)**

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

This permit shall become effective (60) sixty days from the date of issuance.

This permit and the authorization to discharge expire at midnight, five (5) years from the effective date.

This permit supercedes the permit issued on June 16, 1993.

This permit consists of 33 pages in Part I including effluent limitations, monitoring requirements, and state permit conditions, 1 page in Attachment A, 18 pages in Attachment B, 5 pages in Attachment C, and 35 pages in Part II including General Conditions and Definitions.

Signed this    day of                    , 2003

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Linda M. Murphy, Director  
Office of Ecosystem Protection  
Environmental Protection Agency  
Boston, MA

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Director  
Division of Watershed Management  
Department of Environmental Protection  
Commonwealth of Massachusetts  
Boston, MA

PART I

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

1. The term "Regional Administrator" means the Regional Administrator of Region I of the U. S. Environmental Protection Agency (EPA) and the term "Commissioner" means the Commissioner of the Massachusetts Department of Environmental Protection (DEP) or their designees.
2. Spectrus CT1300 may be used as a biocide subject to conditions specified below:
  - a. Spectrus CT1300 may only be used in the Service Water System.
  - b. Spectrus CT1300 shall not be applied more than 6 times per year to any service water system. Each treatment shall not last longer than 18 hours.
  - c. The dose rate of Spectrus CT1300 shall not exceed 8 ppm. The effluent concentration of CT1300 shall not exceed 0.2 ppm, as specified in Part I.A.4 of this permit.
  - d. There shall be no chlorination of the Service Water System when Spectrus CT1300 is in use.
3. Sodium hypochlorite, Halogen hydantoin (chlorine) and/or Spectrus CT1300 may be used as a biocide. No other biocide shall be used without explicit approval from the Regional Administrator and the Commissioner.

A. Effluent Limitations, Conditions, and Monitoring Requirements (Continued)

4. During the period beginning the Effective Date and lasting through expiration, the permittee is authorized to discharge process water from **outfall serial number 001**, Discharge Canal.
  - a. Such discharge shall be limited, monitored and reported by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow Rate (million gallons per day) Effluent	40	42	Continuous	Recorder <sup>1</sup>
Flow Rate (million gallons per day) Influent <sup>2</sup>	Report	Report	Continuous	Recorder <sup>1</sup>
Temperature Rise, $\Delta T$ , ( $^{\circ}F$ ) <sup>3</sup>	Report	22	Hourly	Calculation <sup>3</sup>
Temperature, Maximum ( $^{\circ}F$ ) <sup>4</sup>	Report	95	Continuous	Recorder
Heat Load, Trillion BTU	Report	----	Monthly	Calculation <sup>5</sup>
Total Residual Oxidant, (TRO) <sup>6</sup> mg/l	0.0375	0.065	Daily <sup>6</sup>	Grab <sup>6</sup>
pH, s.u.		6.5 - 8.5 <sup>7</sup>	Daily	Grab
Whole Effluent Toxicity <sup>8</sup>	Report	Report	Quarterly	24-Hour Composite
Spectrus CT1300, ppm <sup>9</sup>	---	0.20	When in Use	Grab <sup>9</sup>
Copper, mg/l	0.0184	0.0289	Daily	Grab

<sup>1</sup>The flow rate may be recorded using flow meters or estimated from pump capacity curves. This flow rate is the total blowdown from any cooling tower(s) used at the facility plus flow from the wastewater treatment facility. During periods of once-through cooling, the permittee may increase the flow rate to a flow rate of 56 million gallons per hour. The permittee may not increase to this flow rate for more than 122 hours per year. The permittee shall report any increased flow rate and the reason for any such increase(s) in a letter to EPA and MA DEP with the monthly Discharge Monitoring Report (DMR) for any month in which an increased flow rate occurs.

<sup>2</sup>The influent flow shall be the total flow of the intake water used for cooling from intakes 1, 2, 3, or 4.

<sup>3</sup>Temperature Rise ( $\Delta T$ ), is the difference between the discharge temperature (Discharge Canal) and the intake temperature. The intake and discharge temperatures shall be continuously measured and recorded by instruments or computers (thermistors) which record a minimum of 12 times per hour.

The discharge temperature shall be monitored in the center of the discharge canal before the venturi.

The intake temperatures shall be monitored at each intake structure (1, 2, 3, 4). Intakes 1, 2, and 3 are only expected to be used when once-through cooling is being conducted.

The Temperature Rise shall be calculated as an hourly average, based on the hourly average intake temperature and the hourly average discharge temperature measured during the same hour. The hourly average intake temperature shall be calculated as a flow weighted hourly average using the hourly average intake temperatures and the hourly average flow rates from the corresponding intakes.

<sup>4</sup>The hourly average discharge temperature shall not exceed 95 °F. The hourly average discharge temperature shall be monitored and recorded as described in footnote 3.

<sup>5</sup>For periods of once-through cooling, the Heat Load shall be calculated on a daily basis using the following equation:

$$Q = C_p m (\Delta T)$$

Where Q = Heat Load, BTU/Day  
C<sub>p</sub> = Heat Capacity (Specific Heat) of pure water  
= 1.0 BTU/pound°F

$m$  = mass of water  
= flow rate x specific gravity of pure water  
= flow rate, million gallons day (MGD) x 8.344 pounds/gallon  
 $\Delta T$  = discharge - intake temperature, °F

The monthly heat load shall be calculated by adding the daily heat load calculated for any once-through cooling (if any) plus the sum of the daily heat loads from outfalls 003A, 003B, and 003C for that month (see sections 5.a, 6.a, and 7.a for information on calculation the heat loads for outfalls 003A, 003B, and 003C).

<sup>6</sup>The TRO concentration shall not exceed 0.065 mg/l as an “instantaneous maximum concentration” at the point of discharge into Mount Hope Bay. Samples shall be collected daily when chlorine is in use. See subparagraph “d” below for additional TRO requirements.

<sup>7</sup>The pH shall not be less than 6.5 standard units nor greater than 8.5 standard units or shall not be more than 0.2 standard units from the naturally occurring range.

<sup>8</sup>See Part I.A.19 of this permit for WET testing requirements (include testing when Spectrus CT1300 is in use).

<sup>9</sup>See Part I.A.2 of this permit for Spectrus CT1300 use requirements. The grab sample shall be taken after Spectrus CT1300 has been applied in the service water system for at least 4 hours. Only one grab sample per use of Spectrus CT1300 is required. The permittee shall use GE Benz’s AP412 Methyl Orange Method to determine the outlet concentration.

- b. The annual heat load to Mount Hope Bay shall not exceed 1.7 Trillion BTUs. The facility shall sum the monthly heat loads (January - December DMRs) for the previous year, and shall report this value to EPA and the MA DEP in the following January DMR.
- c. The combined intake shall not exceed 56.2 Million Gallons per Day (MGD). However, in the event that the facility switches to once-through cooling, the permittee is allowed to increase the intake of cooling water by a maximum of 6847 Million Gallons per Year (122 hours of once-through cooling per year based on a maximum flow of 1347 MGD). The permittee shall submit a letter to EPA which identifies the date(s), time(s), duration, and reason(s) once-through cooling was used. The letter shall include the total once-through cooling flow used to date (for the calendar year).

- d. Once-through cooling is **prohibited** during the winter flounder spawning season (February 1 - May 31).
- e. Total Residual Oxidants shall be measured using the Amperometric Method, See 40 CFR Part 136, Table 1B.

For this permit, the Minimum Level (ML) for TRO has been defined as 0.02 mg/l and that value may be reduced as more sensitive test methods are approved by the EPA and the State. For compliance purposes, 0.02 mg/l shall be the enforceable limit. For any value below the ML of 0.02, the permittee shall use zero in the calculation of the monthly average TRO value.

- f. During operation of Brayton Point Station, the permittee shall conduct biological/environmental studies as specified by the Regional Administrator and/or the Commissioner. The purpose of any such studies shall be to evaluate the effects of Brayton Point Station's discharge on the balanced, indigenous population of shellfish, fish and wildlife in and on Mount Hope Bay.
- g. This NPDES permit may be modified to contain additional or different thermal limitations if the above studies and/or other available information indicates such modifications are necessary to assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on the receiving waters.

5. During the period beginning on initiation of discharge, and lasting through expiration, the permittee is authorized to discharge from **outfall serial number 003A**: Cooling Tower Blowdown from Units 1 and 2.
- a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	Ave. Daily	Max. Daily	Ave. Monthly	Measurement Frequency	Sample Type
Flow (million gallons per day)	---	8.64	8.64	Daily	Recorder <sup>1</sup>
Temperature <sup>2</sup>	Report	---	---	Continuous	Recorder
Heat Load, BTU			Report	Monthly	Calculation <sup>3</sup>
Free Available Chlorine (FAC),mg/l	0.2 <sup>4</sup>	0.5 <sup>4</sup>	---	Daily	Grab
126 priority pollutants	---	0 <sup>5</sup>	0 <sup>5</sup>	Yearly	Grab or Calculation <sup>5</sup>
Chromium, mg/l	---	0.2 <sup>5</sup>	0.2 <sup>5</sup>	Daily	Grab
Zinc, mg/l	---	1.0 <sup>5</sup>	1.0 <sup>5</sup>	Daily	Grab

<sup>1</sup>The flow rate may be recorded using flow meters or estimated from pump capacity curves. This flow rate is the blowdown from cooling tower(s) used with generating units 1 and 2 at the facility.

<sup>2</sup> The discharge temperature will be recorded by instruments or computers (thermistors). The average daily temperature shall be calculated as the 24-hour average of the hourly average (per calendar day) based upon at least twelve readings per hour (12 times per hour). The average daily temperature value will then be reported in the monthly DMRs.

<sup>3</sup>The heat load shall be calculated on a daily basis using the following equation:

$$Q = C_p m (\Delta T)$$

Where Q = Heat Load, BTU/Day

C<sub>p</sub> = Heat Capacity (Specific Heat) of pure water  
= 1.0 BTU/pound°F

m = mass of water

= blowdown flow rate (MGD) x specific gravity of pure water

$$\begin{aligned} &= \text{blowdown flow rate (MGD)} \times 8.344 \text{ pounds/gallon} \\ \Delta T &= \text{discharge temperature at 003A} - \text{intake temperature, } ^\circ\text{F} \end{aligned}$$

The intake temperature will be recorded by instruments or computers (thermistors). The average daily intake temperature shall be calculated as the 24-hour average (per calendar day) of the hourly average based upon at least twelve readings per hour (12 times per hour).

The monthly heat load shall be calculated by adding each day's heat load for that month.

<sup>4</sup>The FAC concentration from outfall 003A, Cooling Tower Blowdown, shall not exceed an instantaneous maximum concentration of 0.5 mg/l and an average concentration of 0.2 mg/l. Chlorine may not be discharged from the cooling tower for more than two hours in any one day. Samples shall be taken when chlorine is in use.

<sup>5</sup>No detectable amounts from chemicals added for cooling tower maintenance (except for chromium and zinc). At the permitting authority's discretion, compliance with this limitation may be determined by engineering calculations (mass balance) which demonstrate that the regulated pollutants are not detectable in the final discharge by analytical methods in 40 CFR Part 136. This method of compliance may also be applied to chromium and zinc, since they are also priority pollutants.

- b. The samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to mixing with any other stream.
- c. FAC shall be measured using the Amperometric Method, See 40 CFR Part 136, Table 1B.

6. During the period beginning on initiation of discharge, and lasting through expiration, the permittee is authorized to discharge from **outfall serial number 003B**: Cooling Tower Blowdown from Unit 3.
- a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	Ave. Daily	Max. Daily	Ave. Monthly	Measurement Frequency	Sample Type
Flow (million gallons per day)	---	14.4	14.4	Daily	Recorder <sup>1</sup>
Temperature <sup>2</sup>	Report	---	---	Continuous	Recorder
Heat Load, BTU			Report	Monthly	Calculation <sup>3</sup>
Free Available Chlorine (FAC),mg/l	0.2 <sup>4</sup>	0.5 <sup>4</sup>	---	Daily	Grab
126 priority pollutants	---	0 <sup>5</sup>	0 <sup>5</sup>	Yearly	Grab or Calculation <sup>5</sup>
Chromium, mg/l	---	0.2 <sup>5</sup>	0.2 <sup>5</sup>	Daily	Grab
Zinc, mg/l	---	1.0 <sup>5</sup>	1.0 <sup>5</sup>	Daily	Grab

<sup>1</sup>The flow rate may be recorded using flow meters or estimated from pump capacity curves. This flow rate is the blowdown from cooling tower(s) used with generating unit 3 at the facility.

<sup>2</sup> The discharge temperature will be recorded by instruments or computers (thermistors). The average daily temperature shall be calculated as the 24-hour average (per calendar day) of the hourly average based upon at least twelve readings per hour (12 times per hour). The average daily temperature value will then be reported in the monthly DMRs.

<sup>3</sup>The heat load shall be calculated on a daily basis using the following equation:

$$Q = C_p m (\Delta T)$$

Where Q = Heat Load, BTU/Day  
C<sub>p</sub> = Heat Capacity (Specific Heat) of pure water

$$\begin{aligned} &= 1.0 \text{ BTU/pound}^\circ\text{F} \\ m &= \text{mass of water} \\ &= \text{blowdown flow rate (MGD)} \times \text{specific gravity of pure water} \\ &= \text{blowdown flow rate (MGD)} \times 8.344 \text{ pounds/gallon} \\ \Delta T &= \text{discharge temperature at 003B} - \text{intake temperature, } ^\circ\text{F} \end{aligned}$$

The intake temperature will be recorded by instruments or computers (thermistors). The average daily intake temperature shall be calculated as the 24-hour average (per calendar day) of the hourly average based upon at least twelve readings per hour (12 times per hour).

The monthly heat load shall be calculated by adding each day's heat load for that month.

<sup>4</sup>The FAC concentration from outfall 003B, Cooling Tower Blowdown, shall not exceed an instantaneous maximum concentration of 0.5 mg/l and an average concentration of 0.2 mg/l. Chlorine may not be discharged from the cooling tower for more than two hours in any one day. Samples shall be taken when chlorine is in use.

<sup>5</sup>No detectable amounts from chemicals added for cooling tower maintenance (except for chromium and zinc). At the permitting authority's discretion, compliance with this limitation may be determined by engineering calculations (mass balance) which demonstrate that the regulated pollutants are not detectable in the final discharge by analytical methods in 40 CFR Part 136. This method of compliance may also be applied to chromium and zinc, since they are also priority pollutants.

- b. The samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to mixing with any other stream.
- c. FAC shall be measured using the Amperometric Method, See 40 CFR Part 136, Table 1B.

7. During the period beginning on initiation of discharge, and lasting through expiration, the permittee is authorized to discharge from **outfall serial number 003C**: Cooling Tower Blowdown from Unit 4.
- a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	Ave. Daily	Max. Daily	Ave. Monthly	Measurement Frequency	Sample Type
Flow (million gallons per day)	---	14.4	14.4	Daily	Recorder <sup>1</sup>
Temperature <sup>2</sup>	Report	---	---	Continuous	Recorder
Heat Load, BTU			Report	Monthly	Calculation <sup>3</sup>
Free Available Chlorine (FAC),mg/l	0.2 <sup>4</sup>	0.5 <sup>4</sup>	---	Daily	Grab
126 priority pollutants	---	0 <sup>5</sup>	0 <sup>5</sup>	Yearly	Grab or Calculation <sup>5</sup>
Chromium, mg/l	---	0.2 <sup>5</sup>	0.2 <sup>5</sup>	Daily	Grab
Zinc, mg/l	---	1.0 <sup>5</sup>	1.0 <sup>5</sup>	Daily	Grab

<sup>1</sup>The flow rate may be recorded using flow meters or estimated from pump capacity curves. This flow rate is the blowdown from cooling tower(s) used with generating unit 4 at the facility.

<sup>2</sup> The discharge temperature will be recorded by instruments or computers (thermistors). The average daily temperature shall be calculated as the 24-hour average (per calendar day) of the hourly average based upon at least twelve readings per hour (12 times per hour). The average daily temperature value will then be reported in the monthly DMRs.

<sup>3</sup>The heat load shall be calculated on a daily basis using the following equation:

$$Q = C_p m (\Delta T)$$

Where Q = Heat Load, BTU/Day  
C<sub>p</sub> = Heat Capacity (Specific Heat) of pure water

$$\begin{aligned} &= 1.0 \text{ BTU/pound}^\circ\text{F} \\ m &= \text{mass of water} \\ &= \text{blowdown flow rate (MGD)} \times \text{specific gravity of pure water} \\ &= \text{blowdown flow rate (MGD)} \times 8.344 \text{ pounds/gallon} \\ \Delta T &= \text{discharge temperature at 003C} - \text{intake temperature, } ^\circ\text{F} \end{aligned}$$

The intake temperature will be recorded by instruments or computers (thermistors). The average daily intake temperature shall be calculated as the 24-hour average (per calendar day) of the hourly average based upon at least twelve readings per hour (12 times per hour).

The monthly heat load shall be calculated by adding each day's heat load for that month.

<sup>4</sup>The FAC concentration from outfall 003C, Cooling Tower Blowdown, shall not exceed an instantaneous maximum concentration of 0.5 mg/l and an average concentration of 0.2 mg/l. Chlorine may not be discharged from the cooling tower for more than two hours in any one day. Samples shall be taken when chlorine is in use.

<sup>5</sup>No detectable amounts from chemicals added for cooling tower maintenance (except for chromium and zinc). At the permitting authority's discretion, compliance with this limitation may be determined by engineering calculations (mass balance) which demonstrate that the regulated pollutants are not detectable in the final discharge by analytical methods in 40 CFR Part 136. This method of compliance may also be applied to chromium and zinc, since they are also priority pollutants.

- b. The samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to mixing with any other stream.
- c. FAC shall be measured using the Amperometric Method, See 40 CFR Part 136, Table 1B.

8. During the period beginning on the effective date of the permit and lasting through expiration or the initiation of discharge from any air pollution control equipment, the permittee is authorized to discharge from **outfall serial number 004A**: the combined treated waste stream of metal cleaning wastes and low volume waste streams. Effluent samples shall be taken after the last point of treatment. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow Rate (million gallons per day)	2	4	Continuous	Recorder
Total Suspended Solids (mg/l)	30	100	Daily <sup>1</sup> Weekly <sup>2</sup>	24 hour composite
Oil and Grease (mg/l)	15	15	Daily <sup>1</sup> Weekly <sup>2</sup>	Grab
Total Iron (mg/l)	1.0 <sup>3</sup>	1.0 <sup>3</sup>	Daily <sup>1</sup>	24 hour composite
Vanadium (mg/l)	Report	Report	Weekly <sup>2</sup>	Grab

<sup>1</sup>Daily samples shall be taken any day in which metal cleaning wastes (MCW) are entering the wastewater treatment plant and include any day that MCW are discharged, accounting for mixing and/or residence time in the treatment plant. Metal Cleaning Waste means wastewater resulting from cleaning with or without chemical compounds.

<sup>2</sup>Weekly samples shall be taken when metal cleaning wastes are not entering or being discharged from outfall 004A (normal operations).

<sup>3</sup>The limit at which compliance/noncompliance determinations will be based is the Minimum Level (ML). The ML for iron is 0.01 mg/l. These ML values may be reduced by permit modification as more sensitive test methods are approved by the EPA and the State.

9. During the period beginning on the date of discharge from any air pollution control equipment through expiration, the permittee is authorized to discharge from **outfall serial number 004B**: the combined treated waste stream of metal cleaning wastes and low volume waste streams. Effluent samples shall be taken after the last point of treatment.
- a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type
Flow Rate (million gallons per day)	2	4	Continuous	Recorder
Total Suspended Solids (mg/l)	30	100	Daily <sup>1</sup> Weekly <sup>2</sup>	24 hour composite
Oil and Grease (mg/l)	15	15	Daily <sup>1</sup> Weekly <sup>2</sup>	Grab
Total Iron (pounds/day)	1.0 <sup>3</sup>	1.0 <sup>3</sup>	Daily <sup>1</sup> Weekly <sup>2</sup>	24 hour composite
Vanadium, mg/l	-----	Report	Weekly <sup>2</sup>	Grab
126 Priority Pollutants	-----	Report	1/Quarter	Grab
Nitrate as N, mg/l	-----	Report	1/Quarter	Grab
Aluminum, mg/l	-----	Report	1/Quarter	Grab
Cobalt, mg/l	-----	Report	1/Quarter	Grab
Manganese, mg/l	-----	Report	1/Quarter	Grab
Ammonia as N, mg/l	-----	Report	1/Quarter	Grab

<sup>1</sup>Daily samples shall be taken any day in which metal cleaning wastes (MCW) are entering the wastewater treatment plant and include any day that MCW are discharged, accounting for mixing and/or residence time in the treatment plant. Metal Cleaning Waste means wastewater resulting from cleaning with or without chemical compounds.

<sup>2</sup>Weekly samples shall be taken when metal cleaning wastes are not entering or being discharged from outfall 004B (normal operations).

<sup>3</sup>The limit at which compliance/noncompliance determinations will be based is the Minimum Level (ML). The ML for iron is 0.01 mg/l. These ML values may be reduced by permit modification as more sensitive test methods are approved by the EPA and the State.

- b. The permittee shall submit a letter to EPA and MA DEP informing the agencies of the expected date of commencement of discharge from any air pollution control equipment. The letter shall be submitted at least sixty days in advance of the expected date of air pollution control equipment discharge to the WWTF.

10. During the period beginning on the effective date of the permit and lasting through expiration, the permittee is authorized to discharge from **outfall serial number 005**: non-thermal backwash
- a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Ave. Monthly	Max. Daily	Measurement Frequency	Sample Type
Flow (million gallons per hour)	----	Report	When in Use	Recorder <sup>1</sup>

<sup>1</sup>The flow rate may be recorded using flow meters or estimated from pump capacity curves.

- b. There shall be no discharge of floating solids, oil sheen or visible foam other than in trace amounts.
- c. The permittee shall report the number of hours outfall 005 (non-thermal backwash) is used per year. The number of hours that the backwash is used shall be applied to the facility's 122 hours of once-through cooling allowance.

11. During the period beginning on the effective date of the permit and lasting through expiration, the permittee is authorized to discharge from **outfall serial number 017: Intake Screen Wash** for Units 1,2, and 3.
- a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Ave. Monthly	Max. Hourly	Measurement Frequency	Sample Type
Flow (million gallons per hour)	----	.22	When in Use	Estimate

- b. There shall be no discharge of floating solids, oil sheen or visible foam other than in trace amounts.
- c. The traveling screens at Units 1,2, and 3 shall operate continuously whenever the intake is in use, unless the screens are inoperable due to repair/maintenance requirements.
- d. The intake screen wash shall not operate more than 122 hours per year when the facility switches to once-through cooling. The permittee is allowed limited operation of the screen wash for maintenance and testing purposes. The permittee shall report the number of hours and flow that the screen wash is used with the monthly DMR. The permittee shall distinguish between the times the screen wash is operated for once-through cooling and for maintenance and testing.

12. During the period beginning on the effective date of the permit and lasting through expiration, the permittee is authorized to discharge from **outfall serial number 020**: Unit 4 Intake Screen Wash and Fish Bypass Return.
- a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Ave. Monthly	Max. Daily	Measurement Frequency	Sample Type
Flow (million gallons per day)	18.2	18.2	Daily	Estimate

- b. There shall be no discharge of floating solids, oil sheen or visible foam in other than trace amounts.
- c. The traveling screens at Unit 4 shall operate three times per day (every eight hours) whenever the intake is in use, unless the screens are inoperable due to repair/maintenance requirements. The traveling screens may be operated more frequently if the permittee determines more frequent operation is necessary to adequately clean debris from the screens.
13. The chemicals listed in Attachment A are approved, with limits, for water discharge.
14. The discharges shall not jeopardize any Massachusetts Class SB or SA use of Mount Hope Bay and shall not violate applicable water quality standards or degrade the aquatic habitat quality.
15. All live fish, shellfish, and other aquatic organisms collected or trapped on the intake screens shall be returned to their natural habitat. All other material shall be removed from the intake screens and disposed of in accordance with all existing Federal, State, and/or Local laws and regulations that apply to waste disposal. Such material shall not be returned to the receiving waters.

16. Any change in the location, design or capacity of the present structures shall be approved by the Regional Administrator and the Commissioner.

The present design shall be reviewed for conformity to regulations pursuant to Section 316(b) of the Clean Water Act (the Act) when such are promulgated.

17. This permit shall be modified, revoked or reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b) (2), and 207(a) (2) of the Act, if the effluent standard or limitation so issued or approved:
- a. contains different conditions or is otherwise more stringent than any effluent limitation in this permit; or
  - b. controls any pollutant not limited by this permit.

If the permit is modified or reissued, it shall be revised to reflect all requirements of the Act applicable at the time of reissuance.

18. There shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid. The permittee shall dispose of all known PCB equipment, articles, and wastes in accordance with 40 CFR 761. The permittee shall certify that this disposal has been accomplished.
19. The permittee is required to report the results of chronic (and modified acute) WET tests using Inland Silverside (Menidia beryllina), acute WET tests using Mysid Shrimp (Mysidopsis bahia) and chronic Sea Urchin (Arbacia punctulata) WET tests on a quarterly basis. A 24-Hour composite sample is the required "sample type" for WET testing. If after eight consecutive sampling periods (two years), no test shows a  $LC_{50} < 100\%$  and a C-NOEC  $< 20\%$ , the permittee may request a reduction in toxicity testing to twice per year. The permittee shall use the procedures and protocols contained in Attachment B to this permit when conducting the WET testing.
- a. The toxicity tests shall be performed at times when various chemicals and waste tanks are discharged at the facility. The permittee shall document and submit to EPA the various scenarios under which the toxicity test has been performed. The permittee shall conduct quarterly toxicity testing as outlined below:

**Quarter #1 WET Testing (January - March)**

<b>Day 1</b>	<b>Day 3</b>	<b>Day 5</b>
<b>(Acute and sample #1 for chronic)</b>	<b>(sample #2 for chronic)</b>	<b>(sample #3 for chronic)</b>
Discharge of metal cleaning waste	Normal Operation	Normal Operation
Discharge of Spectrus CT1300	Cooling Tower Blowdown <sup>1</sup>	Cooling Tower Blowdown <sup>1</sup>
Cooling Tower Blowdown <sup>1</sup>		
Application of foam control agent		

**Quarter #2 WET Testing (April - June)**

<b>Day 1</b>	<b>Day 3</b>	<b>Day 5</b>
<b>(Acute and sample #1 for chronic)</b>	<b>(sample #2 for chronic)</b>	<b>(sample #3 for chronic)</b>
Discharge of metal cleaning waste	Normal Operation	Normal Operation
Discharge of Spectrus CT1300	Cooling Tower Blowdown <sup>1</sup>	Cooling Tower Blowdown <sup>1</sup>
Cooling Tower Blowdown <sup>1</sup>		
Application of foam control agent		

**Quarter #3 WET Testing (July - September)**

<b>Day 1</b>	<b>Day 3</b>	<b>Day 5</b>
<b>(Acute and sample #1 for chronic)</b>	<b>(sample #2 for chronic)</b>	<b>(sample #3 for chronic)</b>
Discharge of metal cleaning waste	Normal Operation	Normal Operation
Discharge of Spectrus CT1300	Cooling Tower Blowdown <sup>1</sup>	Cooling Tower Blowdown <sup>1</sup>
Cooling Tower Blowdown <sup>1</sup>		
Application of foam control agent		

**Quarter #4 WET Testing (October - December)**

<b>Day 1</b>	<b>Day 3</b>	<b>Day 5</b>
<b>(Acute and sample #1 for chronic)</b>	<b>(sample #2 for chronic)</b>	<b>(sample #3 for chronic)</b>
Discharge of metal cleaning waste	Normal Operation	Normal Operation
Discharge of Spectrus CT1300	Cooling Tower Blowdown <sup>1</sup>	Cooling Tower Blowdown <sup>1</sup>
Cooling Tower Blowdown <sup>1</sup>		
Application of foam control agent		

<sup>1</sup>Cooling tower blowdown will be sampled beginning the first quarter after any cooling tower(s) become operational.

- b. A variance from the above WET testing schedule may be allowed upon written approval by EPA with concurrence from MA DEP. The permittee shall submit a written request for a variance to EPA and the MA DEP at least 60 days prior to that quarter's scheduled test. The request shall include, at a minimum, the operational reasons why such a variance is required.
20. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Commissioner as soon as they know or have reason to believe (40 CFR §122.42):
- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent 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 ug/l);
    - (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-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 the Commissioner in

accordance with 40 C.F.R. §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 ug/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); or
    4. Any other notification level established by the Commissioner 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.
21. There shall be no discharge of floating solids, oil sheen, or visible foam in other than trace amounts.
  22. The use of Betz Foam-Trol 301 may be used in Unit No. 3 and 4 condenser outlet water box at a concentration of 0.08 mg/l during periods of heavy foam conditions. Foamtrol AF3551 may also be used to control foam in the discharge canal. Foamtrol AF3551 may be applied at a concentration not to exceed 0.08 mg/l.
  23. During maintenance dredging operations of the Brayton Point Station docking facility, ferrous sulfate may be injected into a condenser continuously for 24-hours on the first application and for 1-hour each succeeding day at a concentration of 1 mg/l iron as the ferrous ion to prevent corrosion to the condenser tubing.
  24. Discharge Canal Net Requirements.
    - a. The terminal end of the discharge canal shall be blocked by a net with a stretched mesh size not greater than 2 ½ inches to keep fish out of the canal.

- b. The permittee shall count, identify, and estimate the size (total length in inches) of any dead fish collected in the nets every week and report this information quarterly to the Regional Administrator and the Commissioner. The reports shall also contain an estimate on the number, size and species of fish sighted upstream and downstream of the net. If the reports indicate to the Regional Administrator and the Commissioner that the net fish barrier is ineffective, this permit may be modified to require an alternative fish barrier and an implementation schedule for its installation.
  - c. To ensure maximum survival of the fish entering the discharge canal, the Regional Administrator and the Commissioner, may direct the permittee to alter the canal net conditions: (1) by changing the design of net installed; (2) by changing the net mesh size; (3) by modifying the existing net; or (4) by removing the net on either a short term (experimental or seasonal) basis or on a permanent basis.
  - d. The cod end of the net may be opened during maintenance and cleaning activities and, upon approval from Massachusetts Division of Marine Fisheries (DMF), during periods of high discharge temperatures.
  - e. The permittee will maintain a second barrier net for immediate replacement of an installed barrier net in the canal should the installed net become badly damaged.
  - f. The installed net shall be inspected every week from March 1st to December 1st each year and repaired as required.
25. Fish Mortality Provisions:
- a. Initial Notification and Response
    - 1. If the permittee observes: (a) 50 or more dead fish of single species from the following list: striped bass or bluefish or winter flounder or tautog or white perch; or (b) 100 of any other single species of fish (not named above) within any 24 hour period, the permittee will provide telephone notification to the Massachusetts Division of Marine Fisheries (DMF) and EPA, Office of Ecosystem Protection, within 4 hours of the observation. If dead fish are observed during weekend, holiday or evening periods, the permittee will notify the DMF and EPA on the next business day.

2. On observation of fish mortalities sufficient to require notification, the permittee shall immediately initiate a separate hourly record showing: (1) the Discharge 001 temperature; (2) the dissolved oxygen levels at both the Taunton River and Lee River Intake Structures and at venturi; and (3) the number of dead fish observed by species.
3. On observation of fish mortalities sufficient to require notification, the permittee shall suspend all unit chlorination operations, and if the discharge temperature is greater than 90 °F, the permittee will reduce the discharge temperature to 90 °F within two hours.
4. If at the end of the 24 hour period from the initial observation fish mortalities do not exceed the levels set out in Paragraph b.1 below, the permittee will cease special monitoring and return to normal station operation (including unit chlorination).

b. Notification and Response in the Event of a Fish Kill

1. If the permittee observes, or the cumulative number of dead fish observed within any 24 hour period including a 24 hour period following the initial observation exceeds: (a) 100 fish of any of the following species: striped bass, bluefish or winter flounder; or (b) 200 of any other single species of fish not named above, the permittee shall provide prompt telephone notification (within 4 hours) to the Massachusetts Division of Marine Fisheries, the Massachusetts Department of Environmental Protection Regional Office in Lakeville, and the U.S. Environmental Protection Agency, Office of Ecosystem Protection, that a "Fish Kill" has occurred.
2. On observation of a Fish Kill, the permittee shall immediately initiate a separate hourly record showing (1) the Discharge 001 temperature; (2) the dissolved oxygen levels at both the Taunton River and Lee River Intake Structures and at the venturi; and (3) the number of dead fish observed by species. This record shall be maintained until advised by the DMF or EPA to change to another monitoring program or discontinue the special monitoring effort.

3. On observation of a Fish Kill, the permittee shall immediately terminate all unit chlorination operations, and if the discharge temperature is greater than 90°F, take steps to reduce the discharge temperature to 90°F within two hours. Neither chlorination or discharge at temperatures above 90°F will be resumed until approval has been received from the Regional Administrator and the Commissioner.
  - c. In the event of a Fish Kill in the discharge canal or in the thermal plume requiring telephone notification, the permittee will begin removing all dead fish from the canal, receiving waters, and/or from the affected beaches within four hours after the fish mortalities have been observed. The dead fish shall be enumerated in accordance with paragraph d below.
  - d. The dead fish shall be sampled and weighed as follows:
    1. All dead fish shall be enumerated and recorded by species.
    2. All dead fish shall be weighed to the nearest gram and measured to the nearest millimeter total length.
    3. Scale samples shall be collected for the DMF for analysis from a representative sample of 25% of each fish species killed up to a maximum of 25 total fish specimens from each species: striped bass, bluefish, winter flounder, tautog, white perch, alewife/blueback herring, and menhaden. The scale samples shall be collected from the acceptable body locations for each individual species (as directed by the DMF). Sampled fish shall be appropriately preserved for future pathological examinations as may be directed by the DMF.
  - e. The permittee shall make a written report on any reported fish mortalities, within 10 business days to DMF, EPA Office of Ecosystem Protection, and MA DEP.
26. Biological and Hydrological Monitoring
- a. The permittee shall conduct the following programs of sampling and analysis each year:
    1. Hydrological Data
      - i. The permittee shall profile salinity, pH, and dissolved oxygen at the six sampling stations shown in

Figure 1 in Attachment C at 5-foot vertical intervals except for Stations A and D where the samples will be taken 2 feet below the surface. The sampling frequency shall be: monthly from October through February, and approximately every 4 days from March through September when Mount Hope Bay ichthyoplankton samples are taken.

- ii. The six stations in Figure 1 in Attachment C are identified as follows: "I" (intake), "D" (bridge near discharge canal headwall), "A" (at the canal discharge venturi), "A'" (200 yards south of the venturi), "C" (mouth of the Lees River), and "F" (south of Spar Island).
- iii. The permittee shall monitor temperature at the surface and bottom at the locations identified in Figure 6. The temperature shall be monitored continuously.

## 2. Ichthyoplankton Data

- i. The permittee shall sample ichthyoplankton with paired, 60 cm bridleless "bongo" nets fitted with 0.505 mm mesh netting at the 5 stations indicated on Figure 2 in Attachment C, (Nos. 1, 4, 5, 9 and 10).
- ii. The permittee shall collect Mt. Hope Bay samples once in the month of February and approximately every four days from March through mid-May.
- iii. Task 1.(i) and Task 4, herein, will be coordinated so that the data may be compared and correlated.
- iv. The samples shall be analyzed for species type and abundance.
- v. Ichthyoplankton entrained by Units 1, 2, 3, and 4 will be enumerated separately in triplicate, once in February and every 4 days from March through mid-May using 0.505 mm mesh, 60 centimeter plankton nets.

3. Finfish Data

- i. The permittee shall sample the finfish populations once each month by means of an otter trawl along a series of six transects shown on Figure 3 in Attachment C, (Taunton River, Intake, Lee, Discharge, Cole, and Spar Island). The "Discharge Tow" shall be on the centerline of the plume at the time of the tow, if the bottom so permits.
- ii. The permittee shall sample shallow-water finfish populations by beach seine each month at the four locations shown on Figure 4 in Attachment C (Intake, Lee, Cole, and Spar Island) during the period from March through November. On two occasions in June, the permittee shall survey upper Mount Hope Bay for abundance of young-of-the-year winter flounder. Ten random locations within the location shaded on Figure 4 in Attachment C will be sampled in triplicate by beach seine on each occasion.
- iii. The permittee shall record the bottom, mid-depth and surface temperatures of the open water trawls (Figure 3 in Attachment C) and the surface temperature during seining operations (Figure 4 in Attachment C).
- iv. The permittee shall identify, count, and measure the finfish impinged on the intake screens for all Units 1, 2, and 3 during three cleaning periods per week. The three cleaning periods shall be representative of one 8-hour cleaning cycle for each of the three work shifts: day shift, afternoon shift, and night shift. The cleaning cycles need not be consecutive during any one 16 or 24 hour period.
- v. The permittee shall report all "unusual impingement events" at Brayton Point Station. An "unusual impingement event" is the impingement of a school of fish or a large number of a single species that exceeds historical normal impingement for the screens as developed through the statistical review of the historical data.

The unusual impingement events will be reported to the Massachusetts Division of Marine Fisheries, EPA's Office of Ecosystem Protection, and Massachusetts DEP or their

respective designees by telephone as soon as the permittee knows or has reason to believe

(not to exceed 4 hours) an unusual fish impingement event has occurred. The permittee shall make a written report on the fish impingement incident within 5 work days to MA DMF, EPA and MA DEP.

4. Benthic Invertebrate Data

The permittee shall collect quahogs annually from Stations A', F and M on Figure 5 in Attachment C in April, July, and October and shall analyze them for their heavy metal burden: cadmium, copper, iron, lead, mercury, nickel, vanadium and zinc.

- b. This Contingency Plan identifies actions that Brayton Point Station may undertake when improvements to the Biological Monitoring Program (BP) are necessary. The Contingency Plan authorizes the evaluation, annually at a minimum, of the BP and associated data, and, if necessary, requires recommendations for improvements in the BP and the development of a Management Plan (See Management Plan, below).

1. BP Evaluation

At a minimum, the BP is evaluated through the following:

- i. An annual review of the environmental/biological sampling and analysis plan and data;
- ii. The identification of change in the aquatic or biological system;
- iii. The determination of statistically significant change;
- iv. The determination of biological importance;
- v. The determination of the likelihood that Brayton Point Station contributed to the change;
- vi. A review and analysis of BP data variability and power analysis update;

vii. The identification of improved sampling and/or analysis technologies, including, but not limited to: statistical methods, sampling equipment, and modeling technologies.

2. BP Evaluation Schedule

The BP will undergo an annual review according to the following schedule:

i. **Sept. 1:** Permittee submits the results from the previous year's BP to the Permitting Authority.

ii. **Nov. 1:** Permitting Authority submits comments and questions to the Permittee.

iii. **Dec. 1:** Permittee schedules meeting to present data and review proposed BP for the following year.

iv. **Feb. 1:** Improvements reviewed and approved by the Permitting Authority.

v. **Mar. 1:** Permittee continues BP and implements improvements, if applicable.

3. Management Plan

The BP requires the Permittee to determine whether any adverse environmental impacts are occurring due to facility operations. If they are, then the Permittee shall, in a timely manner, develop and implement a Management Plan, approved by the Permitting Authority, to prevent such impacts. A report on these efforts shall be submitted to EPA, MA DEP, and MA DMF every thirty days until the issue has been resolved.

c. BP Improvements

This permit authorizes improvements, as approved by the Permitting Authority, to the BP when indicated by results and analysis of BP data (acceptable data from other sources may also be considered). Analysis of data from measured parameters such as temperature, delta T, and rates of impingement, and entrainment indicate the need for monitoring program enhancements or improvements.

The Permitting Authority will require a review, at least annually, of sampling data and protocols and an evaluation of the need for more frequent sampling. Additional sampling locations and any other justified analytical or biological program improvements may be authorized. Prior to authorization, the permittee must seek input from biologists from MA DMF, MA DEP, MA CZM, RI DEM, NMFS, and EPA. This review will be chaired by the EPA with input from MA DMF, MA DEP, MA CZM, RI DEM, NMFS, and other agencies or experts as appropriate.

Within 30 days of authorization of biological program improvements, the permittee shall update and resubmit the Biological and Water Quality Monitoring Program to include any such improvements.

Examples of BP improvements include, but are not limited to:

1. Additional sampling stations;
  2. Increased sampling frequency;
  3. Changes demonstrated to reduce data variability or increased analysis sensitivity;
  4. Changes demonstrated to increase the power to detect statistical significance;
  5. Collection of additional data demonstrated to more definitively determine Brayton Point Station impacts;
  6. Additional predictive models such as species-specific population, community, and/or trophic level risk.
- d. Results of biological and hydrological monitoring required in this section shall be summarized in a report and submitted on a semi-annual basis with an annual report summarizing the previous year's information and conclusions.
1. The annual report conclusions will indicate the trends of the various parameters analyzed and identify any anomalies that appear in the annual historical data comparison. These differences will be explained, if possible. The permittee will make recommendations for any remediation considered necessary or for any programs to better understand the anomaly.

2. The semi-annual or mid-year report will be a letter report providing the status of the present programs, the expected effort in the ensuing six months, and an alert to EPA and the State of any anomalies that may be evident in the first 6-months of data collection.
  - e. The permittee shall submit a yearly summary of the condenser cooling water biocide program as an integral part of the annual hydrological and biological report. The summary shall include the status of the biocide program in each unit: the chemicals being used, chemical consumption (daily/seasonal), equipment being used, TRO concentration in unit discharges and in Discharge 001, and environmental impacts noted. Annual program changes can be proposed (as with the biological and hydrological programs) concerning the biocide program: chemicals, equipment, procedures, sampling, analysis, etc.
27. The permittee shall obtain coverage for its stormwater discharge under EPA's Storm Water Multi-Sector General Permit for Industrial Activities.

## **B. MONITORING AND REPORTING**

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate discharge monitoring report (DMR) forms postmarked no later than the 15th day of the month following the effective date of the permit.

USGen New England, Inc., may assert a business confidentiality claim with respect to part or all of the information submitted to EPA in the manner described at 40 CFR Part 2.203(b). Information covered by such a claim will be disclosed by EPA only to the extent, and by means, of the procedures set forth in 40 CFR Part 2, Subpart B. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to USGen New England, Inc. Effluent information shall not be regarded as confidential.

Signed and dated originals of the DMRs, and all other reports required herein, shall be submitted to the EPA and the State at the following addresses:

U.S. Environmental Protection Agency  
Water Technical Unit (SEW)  
P.O. Box 8127  
Boston, Massachusetts 02114

The State Agency is:

Massachusetts Department of Environmental Protection  
Southern Regional Office - Bureau of Waste Prevention  
20 Riverside Drive  
Lakeville, Massachusetts 02347

In addition, copies of all Discharge Monitoring Reports shall be submitted to the following address:

Massachusetts Department of Environmental Protection  
Division of Watershed Management  
Surface Discharge Permit Program  
627 Main Street, 2<sup>nd</sup> Floor  
Worcester, Massachusetts 01608

### **C. STATE PERMIT CONDITIONS**

This discharge permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) under federal and state law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MA DEP pursuant to M.G.L. Chap. 21, §43.

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 this 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. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

### **D. REOPENER CLAUSE**

1. 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 any effluent limitation in the permit; or
  - b. Controls any pollutants not limited in the permit.
2. This permit may be modified to incorporate necessary limits for any of the 126 priority pollutants should the results of any monitoring as required in Part I.a.7 “126 Priority Pollutants” indicate potential violation(s) of the water-quality standards for any of these pollutants. Results of the 126 priority pollutant reporting will be considered “New Information” and the permit can be modified as provided in 40 CFR Section 122.62(a)(2).

## ATTACHMENT A

The chemicals used at the facility are shown as follows:

CHEMICAL NAME	AMOUNT, LBS/YEAR	PURPOSE
Ammonia Biflouride	9,800	Chemical Clean
Hydroxy acetic Acid	68,000	Chemical Clean Unit 3
Formic Acid	29,000	Chemical Clean Unit 3
Hydrochloric Acid	47,000	Chemical Clean
Ammonium Bicarbonate	3,200	Chemical Clean
Ammonium Carbonate	1,000	Chemical Clean
Ammonium Hydroxide, 28%	15,000	Steam Cycle
Ammonium Hydroxide, 28%	20,000	Chemical Clean
Sodium Hydroxide, 50%	400,000	Demineralizer Regeneration
Sodium Hydroxide, 50%	153,000	Chemical Neutralization
Sodium Hydroxide, 25%	50,000	Bottom Ash pH control
Sodium Hydroxide, 100%	200	Steam Cycle
Sodium Hypochlorite	100,000	Cooling Water Treatment
Disodium Phosphate	1,000	Steam Cycle
Trisodium Phosphate	1,000	Steam Cycle
Sulfuric Acid, 98%	300,000	Demineralizer Regeneration
Hydrazine, 28%	2,000	Steam Cycle
Hydrazine, 28%	4,900	Chemical Clean
Spectrus1300	0.16 mg/l	Biocide
Betz Foam-Trol 301	0.08 mg/l per minute	Foam Control
Foamtrol AF3551	0.08 mg/l per minute	Foam Control