

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 Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

Wheelabrator Saugus, Inc.

is authorized to discharge from a facility located at

**Wheelabrator Saugus, Inc.
100 Salem Turnpike
Saugus, MA 01906**

to the receiving water named the Saugus River, a class SB water, in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein.

This permit shall become effective on the date of signature if no comments are received during public notice. If comments are received during public notice, this permit will become effective on the first day of the calendar month following sixty (60) days after the date of signature.

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

This permit supersedes the permit issued on September 30, 1991.

This permit consists of 11 pages in Part I including effluent limitations, monitoring requirements, and 25 pages in Part II including General Conditions and Definitions.

Signed this day of , 2009

Stephen S. Perkins, Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

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

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge non-contact cooling water (NCCW) from outfall serial number 001 . Such discharges shall be limited and monitored by the permittee as specified below:				
<u>EFFLUENT CHARACTERISTIC</u>		<u>EFFLUENT LIMITS</u>		<u>MONITORING REQUIREMENTS</u>
<u>PARAMETER</u>	<u>AVERAGE MONTHLY</u>	<u>MAXIMUM DAILY</u>	<u>MEASUREMENT FREQUENCY</u>	<u>SAMPLE¹ TYPE</u>
Flow, October 1 through May 31	43.2 MGD	43.2 MGD	Continuous	Recorder ^{2,3}
Flow, June 1 through September 30	See footnote 3	See footnote 3	Continuous	Recorder ^{2,3}
pH Range ⁴	6.5 – 8.5 standard units (s.u.)		1/Week	Grab
Temperature, Effluent	Report °F ^{5,6}	90 °F ^{5,6}	Continuous	Recorder
Intake Temperature	Report °F ^{5,6}	Report °F ^{5,6}	Continuous	Recorder
Facility Temperature Rise (delta T):	Report °F ^{5,6}	22 °F ^{5,6}	Continuous	Recorder

Footnotes are listed on Page 3.

Footnotes:

1. Effluent sampling shall be conducted between the point after the NCCW exits the condenser and prior to discharge to Outfall 001, the outfall diffuser. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP. All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136.
2. For flow, report the maximum and minimum daily rates and total flow for each operating date. Attach this data to each Discharge Monitoring Report (DMR) form. Effluent flow may be measured or estimated through the use of pump capacity curves consistent with the pumps used at the site. For the period of June 1 to September 30, also attach a table showing the hourly average intake temperature for each clock hour (for example, 1:00 PM to 2:00 PM). For the period of October 1 through May 31, the permittee shall operate at lower flows to the extent practicable.
3. For the period of June 1 through September 30, the monthly average and daily maximum flow limits are based on the highest hourly average intake temperature for the day by clock hour as shown below. For the monthly average flow value, report the average of all the daily flow values on each DMR and for the daily maximum flow value report the highest daily flow of the month on each DMR. See Part C.3 below for further detail regarding this requirement. For each month, report the total number of calendar days that each particular flow limit was in effect. If a particular flow limit was not in effect for a particular month, enter the no data indicator code “9”. The flow limits are as follows:

Highest Daily Hourly Average Intake Temperature:	Under 65 °F	65-70 °F	Over 70 °F
Daily Flow Limit:	43.2 MGD	50 MGD	60 MGD

4. Required for State Certification. The pH of the effluent shall not be less than 6.5 nor greater than 8.5 standard units and not more than 0.2 units outside of the natural background range. The pH shall be monitored at least once per week.
5. Effluent temperature and temperature rise (delta T) shall be measured as hourly averages, for every clock hour as defined in footnote 2, with readings taken at least every fifteen (15) minutes. The delta T is the difference between the effluent temperature and intake temperature. The maximum hourly average effluent temperature and delta T values for a particular day shall be reported as the maximum daily values. The average monthly value for both parameters will be the average of all hourly averages for each month. For the period of June 1 to September 30, the hourly average values for effluent temperature and delta T shall be tabulated for each month and attached to the corresponding DMR.
6. The intake and effluent temperatures shall be recorded by instruments or computers. The intake temperature shall be measured after the water is withdrawn through the cooling water intake structure (CWIS) and prior to entering the condenser and the effluent temperature shall be taken after the condenser and prior to discharge to Outfall 001, the outfall diffuser.

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge traveling screen wash water from outfall serial number 002 . Such discharges shall be monitored by the permittee as specified below:				
<u>EFFLUENT CHARACTERISTIC</u>		<u>EFFLUENT LIMITS</u>		<u>MONITORING REQUIREMENTS</u>
<u>PARAMETER</u>	<u>AVERAGE MONTHLY</u>	<u>MAXIMUM DAILY</u>	<u>MEASUREMENT FREQUENCY</u>	<u>SAMPLE TYPE</u>
Flow	Report MGD	Report MGD	Continuous	Estimate
pH	Report s.u.	Report s.u.	1/Month	Grab

PART I.A. Conditions that apply to all outfalls

3. The discharges shall not cause a violation of the water quality standards of the receiving waters.
4. The discharges shall not cause objectionable discoloration of the receiving waters.
5. The effluents shall contain neither a visible oil sheen, foam, nor floating solids at any time.
6. The results of sampling for any parameter above its required frequency must also be reported.
7. Any material collected on the intake trash racks and the traveling screens, with the exception of aquatic life, shall not be returned to the receiving waters, to the extent practicable.
8. Toxics Control
 - a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.
 - b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.
9. Numerical Effluent Limitations for Toxicants

EPA or MassDEP may use the results of the chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate

information or data, to develop numerical effluent limitations for any pollutants, including but not limited, to those pollutants listed in Appendix D of 40 CFR Part 122.

10. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director 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 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 Director 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 Director 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.

11. Unusual Impingement Events

- a. The permittee shall visually inspect the traveling screens of the CWIS every eight (8) hours for dead and live fish when circulating pumps are in operation. If the permittee observes on the traveling screens, or estimates based on time-line observations, 25 or more dead fish within any eight (8) hour period, the permittee shall:

- b. Report such occurrence to the Regional Administrator and the Commissioner within 24 hours by telephone as required by Part II of this permit. A written confirmation report is to be provided within five (5) business days. The oral and written reports shall include the following information:

- i. An enumeration and recording of all dead fish by species. Report the species, size ranges (maximum and minimum length), and approximate number of organisms involved in the incident. In addition, a representative sample of 25% of fish specimens from each species, up to a maximum of 50 total fish specimens, shall be measured to the nearest centimeter total length.
 - ii. The date and time of occurrence.
 - iii. The operational mode of the specific system that may have caused the occurrence.
 - iv. The determination or opinion of the permittee as to the reason the incident occurred.
 - v. The remedial action that the permittee recommends to reduce or eliminate this type of incident in the future.
12. This permit may be modified, or revoked and reissued, on the basis of new information in accordance with 40 CFR §122.62.

B. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfalls listed in Parts I A.1 and I.A.2 of this permit. Discharges of wastewater from any other point sources are not authorized by this permit and shall be reported in accordance with Section D.1.e. (1) of the General Requirements (Part II) of this permit (twenty-four hour reporting).

C. COOLING WATER INTAKE STRUCTURE REQUIREMENTS TO MINIMIZE ADVERSE IMPACTS FROM IMPINGEMENT AND ENTRAINMENT

The design, location, construction, and capacity of the permittee's CWIS shall reflect the best technology available (BTA) for minimizing the adverse environmental impacts from the entrainment and impingement of fish eggs and larvae, as well as impingement of adult and juvenile fish, due to the CWIS. In order to satisfy this BTA standard, the permittee shall comply with the following:

1. All live fish and other aquatic organisms collected or trapped on the traveling screens shall be returned to the subtidal waters of the Saugus River without injury. All other material, except natural debris (e.g. twigs and leaves), shall be removed from the traveling screens to the extent practicable and disposed of in accordance with all existing federal, state, and local waste disposal laws and regulations. Removed material shall not be returned to the receiving waters. In addition:
 - a. The permittee shall modify the existing fish return system for this CWIS as necessary to ensure that fish and other organisms can safely be returned to the river at all stages of tide and flow. This system shall ensure that debris is not returned to the river to the extent practicable, and is prevented from traveling in

the same return trough as aquatic organisms. The system shall be modified to replace any existing sharp turns or angles and eliminate vertical drops at all tide stages. The end of the fish return pipe shall be extended a sufficient distance into the river to ensure that the discharge flows directly into subtidal waters of the river at all stages of tide and flow and at a distance and location which minimizes exposure to thermal stress, re-entrainment and re-impingement.

2. The permittee shall curtail intake flows to a level commensurate with the permitted effluent flow of 43.2 MGD or less for the period of October 1 through May 31. The permittee shall utilize and maintain the variable speed drive to curtail intake flows to the extent practicable. During this time period, for the first year the permit is effective, the permittee shall assess the feasibility of operating down to a discharge rate of 38.9 MGD. The permittee shall report its findings no later than with its May DMR submittal for the year the feasibility assessment takes place. The permittee shall implement measures to curtail flows to the extent practicable for the remaining term of the permit.
3. During the period of June 1 through September 30, the permittee shall limit the effluent flow as shown in Footnote 3 on Page 3 of this Permit. These flow limits will be based on the highest hourly average intake temperature for each calendar day. The permittee shall utilize and maintain the variable speed drive to curtail intake flows to the extent practicable.
4. The permittee shall schedule the annual maintenance shutdown for its steam turbine during the period of April 1 to May 31, to the extent practicable. During the maintenance shutdown period, the permittee shall not intake any water from the Saugus River. If the permittee is not able to conduct this maintenance shutdown during the required period, it shall provide an explanation for this in the cover letter accompanying the May DMR submittal.
5. The permittee shall rotate the traveling screens for 15 minutes every 30 minutes when any one of the intake pumps is operating in order to minimize the amount of time that organisms are impinged on the screens.
6. Any change in the location, design, or capacity of the CWIS must be approved in advance and in writing by the EPA and MassDEP.

D. BIOLOGICAL MONITORING PROGRAM

1. During the operation of the Wheelabrator CWIS, the permittee shall conduct biological monitoring using the methods described below. The permittee shall begin monitoring within ninety (90) days after the effective date of the permit. If this date falls within a certain month when monitoring is required, the permittee shall begin such monitoring at the start of the following month.
2. Ichthyoplankton (fish eggs and larvae): Occurrence and Abundance of Species Entrained
 - a. Entrainment monitoring shall be conducted weekly during the months of March through August, and twice per month during September through February. Three

entrainment samples shall be collected each sampling week and shall target three separate periods of the diurnal cycle (for example, once on Monday morning at 8:00 am, once on Wednesday afternoon at 2:00 pm, and once on Friday night at 8:00 pm) for this CWIS. One of the cooling water circulating pumps must be operated continuously during the sample period.

- b. Entrainment samples shall be collected from the intake pipe prior to the condensers if feasible, or from a representative location within the intake structure.
 - c. Sampling shall be conducted using a 0.5-mm mesh, 60-cm diameter plankton net. Each sample shall represent approximately 100 cubic meters (m^3) of water. Filtration volume shall be recorded for each event and each sample shall represent approximately 100 m^3 of water. After each sample, the collection nets shall be washed down and the sample transferred from the net to a jar containing sufficient formalin to produce a 5 to 10% solution.
 - d. In the laboratory, all fish eggs and larvae shall be identified to the lowest distinguishable taxonomic category and counted.
 - e. Ichthyoplankton counts shall be converted to densities per 100 m^3 of water based on the flow through the sampling net and the data shall be presented in the annual Biological Monitoring Report (BMR) detailed in Part D.5 below. Estimates of total numbers of ichthyoplankton based on facility flow rates shall also be provided. Entrainment losses shall be converted from weekly estimates of density per unit volume, to monthly and annual loss estimates based on the permitted flow. In addition, loss estimates should be converted to adult equivalents for species for which regionally specific larval survival rates are available. (See “Case Study Analysis for the Proposed 316(b) Phase II Existing Facilities Rule” Chapter A7, EPA-821-R-02-002, February 2002.)
3. Finfish: Occurrence and Abundance of Species Impinged
- a. Impingement monitoring shall be conducted weekly during the months of March through October, and twice per month during November, December, January, and February. Each weekly sampling event shall consist of three four (4) hour collections that represent three separate periods of the diurnal cycle (for example, once on Monday morning at 8:00 am, once on Wednesday afternoon at 2:00 pm, and once on Friday night at 8:00 pm).
 - b. Sampling shall be conducted using 3/8-inch (9.5 mm) stainless steel baskets placed in the screenwash return sluiceways. Each collection shall cover a period of at least two hours following an initial cleansing screenwash and the exact time period shall be recorded. The trash racks shall also be cleaned during each sampling period and their contents examined for any fish, mammals, reptiles or invertebrates and the specific quantity and type of such organisms shall be recorded.

- c. All fish will be immediately examined for initial condition (live, dead, injured). A representative sample of 25% of each fish species, up to a maximum of 50 specimens per species, alive or injured at the time of collection shall be placed in a 20-gallon holding tank supplied with continuously running ambient seawater. Latent survival shall be determined after 48 hours, after which any live fish shall be safely returned to the subtidal waters of the Saugus River.
 - d. All fish shall be identified to the lowest distinguishable taxonomic category, counted, and measured (to the nearest mm total length) and the data shall be presented in the annual BMR. In the event of a large impingement event of a school of equivalently sized forage (non-commercial) fish, a subsample of 50 fish can be taken for length measurements. Twenty-four hour and monthly totals shall be extrapolated and reported. For the purposes of this permit, a large impingement event shall be defined as one which includes at least 100 fish during any of the four (4) hour collection periods noted above.
 - e. Annual impingement rates shall be extrapolated from the weekly sampling events.
4. This biological monitoring shall be conducted for the duration of this permit unless, following a request by the permittee, authorization to discontinue or modify portions of the sampling program is granted by the Regional Administrator and the Commissioner.
 5. A **Biological Monitoring Report (BMR)** shall be submitted annually by February 28th. Each BMR shall provide a summary of the previous calendar year's information in a narrative format. The report shall also include graphical representations where appropriate and explain all quality control procedures that were employed.
 - a. The annual BMR conclusions shall indicate the trends of the various parameters analyzed and identify any anomalies that appear in the annual historical data comparison. These differences shall be explained, if possible. The permittee shall make recommendations for any remediation considered necessary or for any programs to better understand such anomalies.
 - b. The annual BMR shall provide the status of the present monitoring programs, the expected effort in the following calendar year, and an alert to EPA and the State of any anomalies or patterns that may be evident in the data collection.
 - c. Report the period of the annual maintenance shutdown for the steam turbine.
 6. The permittee is required to submit a written explanation if any aspect of the biological monitoring program is not conducted. The report shall be submitted as part of the DMR for the month the sampling was not conducted. The explanation for not monitoring must include all specific sampling activities that did not take place, along with the justification for suspending the identified sampling. This information also must be included in the annual BMR.

E. MONITORING AND REPORTING

1. Reporting

Monitoring results obtained during each calendar month shall be summarized and reported on Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the following month.

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

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

The State Agency is:

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887

Signed and dated Discharge Monitoring Report Forms required by this permit shall also be submitted to the State at:

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

F. STATE PERMIT CONDITIONS

This discharge permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) 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 MassDEP pursuant to M.G.L. Chapter 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 an 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.