RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

September 23, 2014

CERTIFIED MAIL

Mr. James L. Kelly
Site Manager
P.J. Keating Company
875 Phenix Ave.
Cranston, RI 02921

RE: Final RIPDES Permit, P.J. Keating Cranston, RI Facility
RIPDES No. RI0023761

Dear Mr. Kelly:

Enclosed is your final Rhode Island Pollutant Discharge Elimination System (RIPDES) Permit issued pursuant to the referenced application. State regulations, promulgated under Chapter 46-12 of the Rhode Island General Laws of 1956, as amended, require this permit to become effective on the date specified in the permit.

Also enclosed is information relative to hearing requests and stays of RIPDES Permits.

We appreciate your cooperation throughout the development of this permit. Should you have any questions concerning this permit, feel free to contact Samuel Kaplan of the State Permits Staff at (401) 222-4700, extension 7046.

Sincerely,

Joseph B. Haberek, P.E.
Principal Sanitary Engineer

JBH:sk

Enclosures

cc: Kendra S. Nawrocki, PJ Keating
ecc: Eric Beck, P.E., DEM
Annie McFarland, DEM

RESPONSE TO COMMENTS

NO SIGNIFICANT COMMENTS WERE RECEIVED ON THE DRAFT PERMIT FOR THIS FACILITY; THEREFORE, NO RESPONSE WAS PREPARED.

HEARING REQUESTS

If you wish to contest any of the provisions of this permit, you may request a formal hearing within thirty (30) days of receipt of this letter. The request should be submitted to the Administrative Adjudication Division at the following address:

Bonnie Stewart, Clerk
Department of Environmental Management
Office of Administrative Adjudication
One Capitol Hill
Second Floor
Providence, RI 02903

Any request for a formal hearing must conform to the requirements of Rule 49 of the State Regulations.

STAYS OF RIPDES PERMITS

Should the Department receive and grant a request for a formal hearing, this permit will not be effective pending final Departmental action, unless an order authorizing operation is obtained from the Administrative Hearing Officer, in accordance with the provisions of Rule 50.

Should the Department receive and grant a request for a formal hearing, the contested conditions of the permit will not automatically be stayed. However, the permittee, in accordance with Rule 50, may request a temporary stay for the duration of adjudicatory hearing proceedings. Requests for stays of permit conditions should be submitted to the Office of Water Resources at the following address:

Angelo S. Liberti, P.E.
Chief of surface Water Protection
Office of Water Resources
235 Promenade Street
Providence, Rhode Island 02908

All uncontested conditions of the permit will be effective and enforceable in accordance with the provisions of Rule 49.

AUTHORIZATION TO DISCHARGE UNDER THE
RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of Chapter 46-12 of the Rhode Island General Laws, as amended,

P. J. Keating Company
998 Reservoir Road
Lunenburg, MA 01462

is authorized to discharge from a facility located at

P.J. Keating Cranston Facility
875 Phenix Avenue
Cranston, RI 02921

to receiving waters named

an unnamed tributary flowing into Furnace Hill Brook

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

This permit shall become effective on October 1, 2014.

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

This permit supersedes the permit issued on June 4, 2009.

This permit consists of 17 pages in Part I including effluent limitations, monitoring requirements, etc. and 10 pages in Part II including General Conditions.

Signed this 23rd day of September, 2014

Angelo S. Liberti, P.E., Chief of Surface Water Protection
Office of Water Resources
Rhode Island Department of Environmental Management
Providence, Rhode Island

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number(s) 001 (Outfall connecting pond #3 and quarry pump to an unnamed stream flowing into Furnace Hill Brook).

   Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity - lbs./day		Concentration - specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow	--- MGD	--- MGD				1/Quarter	Estimate[1]
TSS			25 mg/l		45 mg/l	1/Quarter	Grab[2]
pH			(6.5 S.U.)		(9.0 S.U.)	1/Quarter	Grab[2]
Oil and Grease			--- mg/l		15 mg/l	1/Quarter	Grab[2]
Sulfates			--- mg/l			1/Quarter	Grab[2]
Total Phosphorus			--- mg/l[3]		--- mg/l[3]	1/Quarter	Grab[2]
Nitrate + Nitrite			--- mg/l[3]		--- mg/l[3]	1/Quarter	Grab[2]
Total Iron			--- mg/l[3]		--- mg/l[3]	1/Quarter	Grab[2]

--- Signifies a parameter which must be monitored and data must be reported; no limit has been established at this time.

[1]Based on pump rates and pump run times. Average monthly flow should be reported on a quarterly basis as follows: sum the daily flows to outfall 001 and divide by the number of days in the quarter.

[2]The "Grab" value shall be obtained using a grab sample, consisting of an individual sample of at least 100 mL, collected during the first thirty (30) minutes of a discharge. Samples must be obtained from a discharge of which is the result of a representative storm event that occurs at least seventy-two (72) hours after the previously measurable storm event. A representative storm event should be within 50% of the average Rhode Island storm event, 0.7 inches in depth and 12 hours in duration, and shall be a minimum of 0.1 inches per twenty-four (24) hours in magnitude. If it is not practicable to collect the sample during the first 30 minutes, sample must be collected during the first hour of discharge and describe why a grab sample during the first 30 minutes was impracticable.

[3]See Part I.A.6 of the permit.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning on the effective date and lasting through permit expiration, the permittee is authorized to discharge from outfall serial number(s) 002 (stormwater runoff from the eastern portion of the site connecting to Furnace Hill Brook, may also include overflow from pond #4 to Furnace Hill Brook during storms with greater intensity than a 10 year, 24 hour storm):

   Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations					Monitoring Requirement	
	Quantity - lbs./day		Concentration - specify units				
	Average Monthly	Maximum Daily	Average Monthly *(Minimum)	Average Weekly *(Average)	Maximum Daily *(Maximum)	Measurement Frequency	Sample Type
Flow	--- MGD	--- MGD				1/Quarter	Estimate
TSS			25 mg/l		45 mg/l	1/Quarter	Grab[2]
pH			(6.5 S.U.)		(9.0 S.U.)	1/Quarter	Grab[2]
Sulfates			--- mg/l			1/Quarter	Grab[2]
Total Phosphorus			--- mg/l[1]		--- mg/l[1]	1/Quarter	Grab[2]
Nitrate + Nitrite			--- mg/l[1]		--- mg/l[1]	1/Quarter	Grab[2]
Total Iron			--- mg/l[1]		--- mg/l[1]	1/Quarter	Grab[2]

[1]See Part I.A.6 of the permit.

"[2]The "Grab" value shall be obtained using a grab sample, consisting of an individual sample of at least 100 mL, collected during the first thirty (30) minutes of a discharge. Samples must be obtained from a discharge of which is the result of a representative storm event that occurs at least seventy-two (72) hours after the previously measurable storm event. A representative storm event should be within 50% of the average Rhode Island storm event, 0.7 inches in depth and 12 hours in duration, and shall be a minimum of 0.1 inches per twenty-four (24) hours in magnitude. If it is not practicable to collect the sample during the first 30 minutes, sample must be collected during the first hour of discharge and describe why a grab sample during the first 30 minutes was impracticable.

3. a. The discharge shall not cause visible discoloration of the receiving waters.

   b. The effluent shall contain neither a visible oil sheen, foam, nor floating solids at any time.

4. The permittee shall conduct instream turbidity sampling of the streams at two locations: the first location (location 1) is in the unnamed stream flowing into the Furnace Hill Brook immediately upstream of Outfall 001; the second location (location 2) is in the unnamed stream flowing into Furnace Hill Brook immediately downstream of Outfall 002. Instream sampling will consist of turbidity monitoring, at the above-mentioned locations once per quarter when effluent is being discharged. Turbidity sampling shall be undertaken by an independent laboratory hired by the permittee and the results reported in the Annual Comprehensive Site Evaluation Report (Part I.B.5.c.(10)). Turbidity shall be based upon Nephelometric Turbidity Units (NTU's).

5. 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-dinitro-phenol; 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. s122.21(g)(7); or

      (4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.

   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. s122.21(g)(7); or

      (4) Any other notification level established by the Director in accordance with 40 C.F.R. s122.44(f) and Rhode Island Regulations.

   c. That they have begun or expect to begin to use or manufacture as an

intermediate or final product or by-product any toxic pollutant which was not reported in the permit application.

6. The permittee shall compare all sampling results to the following benchmark monitoring concentrations. The benchmark concentrations are intended to be generic pollutant levels that, under nearly all scenarios, are protective of water quality standards and are only to be used to evaluate the overall effectiveness of the SWPPP (Storm Water Pollution Prevention Plan – see part I.B). Benchmark Monitoring concentrations may be subject to change by permit modification to be consistent with future revisions to EPA and/ or State benchmarks:

Parameter	Benchmark Concentration (mg/l)
Nitrate + Nitrite Nitrogen	0.68
Total Phosphorus	2.0
Total Iron	1.0

Any quarterly exceedances of the benchmark concentrations shall trigger a reevaluation of the implementation of the existing Storm Water Pollution Prevention Plan (SWPPP) and facility operations to determine if there are possible problems with non-structural BMPs or maintenance that can be corrected. The SWPPP shall be promptly revised in response to these reevaluations and in no case later than thirty (30) calendar days following the receipt of monitoring results that exceed the benchmark concentrations. A report of the permittee's comparison of monitoring results with the benchmark concentrations shall be submitted with each DMR. If the permittee exceeds any of the benchmark concentrations during the monitoring period the report shall include a detailed description of the possible causes of the exceedances or of any significant increases in parameter concentrations, the dates and scopes of inspections, a summary of monitoring results and visual inspections, and any modifications made to the SWPPP to reduce the pollutant levels.

On a yearly basis, the permittee shall calculate the annual average of all sampling data for each pollutant for the previous calendar year (January 1 – December 31). If the annual average exceeds the applicable benchmark concentration, then the permittee shall perform a detailed review of all storm water controls, BMPs, SOP's, and maintenance schedules contained in the SWPPP and shall make reasonable amendments to reduce the pollutant levels in the discharge. These amendments shall be submitted to the Department of Environmental Management - Office of Water Resources with the annual Comprehensive Site Evaluation Report required under Part I.B.5.c.(10). If the amendments will include changes to structural controls, the report must include a schedule for the implementation of the proposed structural modifications. Proposed changes to structural storm water controls must be approved by the DEM prior to implementation. Upon DEM approval of the structural changes, the permittee shall implement them in accordance with the approved schedule.

7. There shall be no direct or indirect discharge of asphalt concrete process wastewater pollutants (e.g. effluent from the asphalt baghouse) to receiving water.

8. This permit serves as the State's Water Quality Certificate for the discharges described herein.

9. The discharge of effluent from pond 3 shall be minimized as much as possible.

10. This permit does not authorize the discharge of concrete truck bottle wash water to surface waters.

11. The washing of truck engine compartments and undercarriages is prohibited.

12. The direct or indirect discharge of detergents to surface waters is prohibited.

13. The facility shall maintain a written log of the day, time, duration, and volume of all discharges from pond 3 via outfall 001 and shall submit such information for each quarter in cover letters accompanying Discharge Monitoring Reports (DMR's).

B. STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS

1. Within thirty (30) days from the date of issuance of this permit, P.J. Keating shall submit a revised Storm Water Pollution Prevention Plan (referred to herein as the "SWPPP" or the "Plan") that addresses all of the requirements of this permit, including but not limited to the requirements from Part I.B.5.d-f. This SWPPP shall be subject to DEM review and approval, in accordance with Part I.B.3.

2. The Plan shall be signed by the permittee in accordance with RIPDES Rule 12 and retained on-site.

3. If the Plan is reviewed by the Director, he or she may notify the permittee at any time that the Plan does not meet one or more of the minimum requirements of this part. After such notification from the Director, the permittee shall make changes to the Plan and shall submit to the Director a written certification that the requested changes have been made. Unless otherwise provided by the Director, the permittee shall have thirty (30) days after such notification to make the necessary changes.

4. The permittee shall promptly, and in no case later than thirty (30) calendar days, amend the Plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the State; a release of reportable quantities of hazardous substances and oil; or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges (based upon exceedances of effluent limitations in Part I.A., exceedances of benchmark concentrations in Part I.A.6, or the results of inspections required in Part I.B.5.c of this permit). Changes must be noted and then submitted to this department. Amendments to the Plan may be reviewed by DEM in the same manner as Part I.B.3. of this permit.

5. The SWPPP shall include, at a minimum, the following items:

   a. Description of Potential Pollutant Sources. The Plan must provide a description of potential sources which may be reasonably expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. It must identify all activities and significant materials, which may potentially be significant pollutant sources. The Plan shall include:

      (1) A site map indicating: a delineation of the drainage area of outfalls 001 and 002, each existing structural control measure to reduce pollutants in storm water runoff, locations where significant materials are exposed to

storm water, locations where significant leaks or spills have occurred, a delineation of all impervious surfaces, all surface water bodies, all separate storm sewers, and the locations of the following activities where such areas are exposed to storm water: fueling stations, vehicle and equipment maintenance and/or cleaning areas, material handling areas, material storage areas, process areas, and waste disposal areas;

(2) A topographic map extending one-quarter of a mile beyond the property boundaries of the facility;

(3) An estimate of the overall runoff coefficient for the site, determined by an acceptable method, such as, but not limited to, area weighting;

(4) A narrative description of significant materials that have been treated, stored, or disposed of in a manner to allow exposure to storm water between the time of three (3) years prior to the issuance of this permit to the present; method of on-site storage or disposal; materials management practices employed to minimize contact of these materials with storm water runoff between the time of three (3) years prior to the issuance of this permit and the present; materials loading and access areas; the location and description of existing structural and non-structural control measures to reduce pollutants in storm water runoff; and description of any treatment the storm water receives;

(5) A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at the facility three (3) years prior to the effective date of this permit to the present;

(6) A list of any pollutants limited in effluent guidelines to which a facility is subject under 40 CFR Subchapter N, any pollutants listed on a RIPDES permit to discharge process water, and any information required under RIPDES Rule 11.02(a)(14)(iii)-(v) or 40 CFR 122.21(g)(iii)-(v);

(7) For each area of the facility that generates storm water discharges associated with industrial activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an estimate of the types of pollutants, which are likely to be present in storm water associated with industrial activity;

(8) A summary of existing sampling data describing pollutants in storm water discharges from the facility; and

b. Storm Water Management Controls. The permittee must develop a description of storm water management controls appropriate for the facility and implement such controls. The appropriateness for implementing controls listed in the Plan must reflect identified potential sources of pollutants at the facility. The description of storm water management controls must address the following minimum components, including a schedule for implementing such controls:

(1) *Pollution Prevention Team.* The Plan must identify a specific individual(s), by name or title, within the facility organization as members of a team that are responsible for developing the Plan and assisting the plant manager in its implementation, maintenance, and revision. The Plan must clearly

identify the responsibilities of each team member. The activities and responsibilities of the team must address all aspects of facility's Plan.

(2) *Risk Identification and Assessment/Material Inventory.* The Plan must assess the potential of various sources which contribute pollutants to storm water discharge associated with the industrial activity. The Plan must include an inventory of the types of materials handled. Each of the following must be evaluated for the reasonable potential for contributing pollutants to runoff: loading and unloading operations, outdoor manufacturing or processing activities, significant dust or particulate generating processes, and on-site waste disposal practices. Factors to consider include the toxicity of chemicals; quantity of chemicals used, produced, or discharged; the likelihood of contact with storm water, and the history of significant leaks or spills of toxic or hazardous pollutants.

(3) *Preventative Maintenance.* A preventative maintenance program must involve inspection and maintenance of storm water management devices (i.e., oil/water separators, catch basins) as well as inspecting and testing plant equipment and systems to uncover conditions that could cause breakdown or failures resulting in discharges of pollutants to surface waters.

(4) *Good Housekeeping.* Good housekeeping requires the maintenance of a clean, orderly facility. The permittee must keep all exposed areas of the facility in a clean, orderly manner where such exposed areas could contribute pollutants to storm water discharges. Common problem areas include: around trash containers, storage areas and loading docks. Measures must also include: a schedule for regular pickup and disposal of garbage and waste materials; routine inspections for leaks and conditions of drums, tanks and containers.

(5) *Spill Prevention and Response Procedure:* The permittee must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur. At a minimum the permittee must implement a) procedures for plainly labeling containers (e.g., "Used Oil", "Spent Solvents", "Fertilizers and Pesticides", etc.) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur; b) preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling; c) procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause, detect, or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available. If possible, one of these individuals should be a member of the stormwater Pollution Prevention Team (see Part I.B.5.b.1); and d) procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies. Where a leak, spill, or other release containing a hazardous substance or oil requires the activation of the facility's response plan, the permittee must notify the DEM and take appropriate action to stop or minimize a release of Hazardous Material posing an Imminent Hazard and/or any on-going spill of Hazardous Material at the time of discovery. Local requirements may necessitate reporting of spills

or discharges to local emergency response, public health, or drinking water supply agencies. Contact information must be in locations that are readily accessible and available. Measures for cleaning up hazardous material spills or leaks must be consistent with applicable RCRA regulations at 40 CFR Part 264 and 40 CFR Part 265.

(6) *Management of Runoff.* The permittee must describe the traditional stormwater management practices (permanent structural BMPs other than those which control the generation or source(s) of pollutants that currently exist or that are planned for the facility). These types of BMPs typically are used to divert, infiltrate, reuse, or otherwise reduce pollutants in storm water discharges from the site. All BMPs that the permittee determines are reasonable and appropriate, or are required by a State or local authority; must be implemented and maintained. Factors to consider when the permittee is selecting appropriate BMPs should include: 1) the industrial materials and activities that are exposed to storm water, and the associated pollutant potential of those materials and activities; and 2) the beneficial and potential detrimental effects on surface water quality, ground water quality, receiving water base flow (dry weather stream flow), and physical integrity of receiving waters.

Structural measures should be placed on upland soils, avoiding wetlands and floodplains, if possible. Structural BMPs may require a separate permit undersection 404 of the CWA before installation begins.

(7) *Sediment and Erosion Prevention.* The Plan must identify areas which; due to topography, activities, or other factors; have a high potential for significant soil erosion and identify measures to limit erosion.

(8) *Structural Practices.* A description of structural BMPs to divert flows from exposed soils, filter runoff, store flows, or otherwise limit runoff from coming into contact with exposed, unvegetated areas of the site and to prevent sediments and/or other pollutants from leaving the site. Such practices may include: staked hay bales, silt fence, earthen dikes, drainage swales, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rip-rap outlet protection, sediment traps and sediment basins.

(9) *Employee Training:* The permittee must describe the storm water employee training program for the facility. The description should include the topics covered, such as spill response, good housekeeping and material management practices, and must identify periodic dates (e.g., every 6 months during the months of July and January) for such training. The permittee must provide employee training for all employees that work in areas where industrial materials or activities are exposed to storm water, and for employees that are responsible for implementing activities identified in the SWPPP (e.g., inspectors, maintenance people). The employee training should inform them of the components and goals of the SWPPP.

(10) *Visual Inspections.* Qualified plant personnel must be identified to inspect designated equipment and plant areas. Material handling areas must be inspected for evidence of, or the potential for, pollutants entering the drainage system. A tracking or follow up procedure must be used to

ensure that the appropriate action has been taken in response to the inspection. Records of inspections must be maintained on site for at least five (5) years.

(11) *Recordkeeping and Internal Reporting Procedures.* Incidents such as spills, or other discharges, along with other information describing the quality and quantity of storm water discharges must be included in the records. All inspections and maintenance activities must be documented and maintained on site for at least five (5) years.

(12) *Minimizing Exposure:* Where practicable, industrial materials and activities should be protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, or runoff.

(13) *Other Controls:* Off-site Vehicle Tracking of Sediments. Each site shall have graveled access entrance and exit drives and parking areas to reduce the tracking of sediment onto public or private roads.

c. Site Inspection.

(1) Visual inspections of sediment basins (i.e. ponds 1-4) monitoring of sediment basin turbidity must be conducted immediately (within 24 hours) after all rainstorms which produce more than 1" of rainfall, or a minimum of weekly. During periods of continuous rain and/or melting, erosion control measures shall be inspected daily.

(2) The following inspection must be conducted on at least a semi-annual basis: sediment accumulation in all silt ponds must be measured every six (6) months and/or whenever there is a failure of sediment controls. Sediment accumulation must be removed when the sediment depth in the basin reaches 2/3 of the available storage area.

(3) An annual site inspection must be conducted by appropriate personnel named in the SWPPP to verify that the description of potential pollutant sources required under Part I.B.5.b.2 is accurate, that the drainage map has been updated or otherwise modified to reflect current conditions, and controls to reduce pollutants in storm water discharges associated with industrial activity identified in the Plan are being implemented and are adequate. A tracking or follow up procedure must be used to ensure that the appropriate action has been taken in response to the inspection. Records documenting significant observations made during the site inspection must be retained as part of the SWPPP for a minimum of five (5) years.

(4) Inspect any straw/hay bale barriers weekly to ensure that the integrity of the barriers have not been breached and to check sediment accumulation. Sediment must be removed from behind the barriers when its accumulation reaches 1/2 the height of the barriers.

(5) Inspect riprap after each major storm event, for the first year after the placement of the riprap, to ensure that stone has not been dislodged and that scouring of the support material has not occurred. If the first year inspections verify the integrity of the riprap placement, inspection frequency can be reduced to annually.

(6) Inspect earthen berms and sediment traps weekly to ensure that the structural integrity of the berms/traps has not been damaged.

(7) Inspect stockpiles of topsoil and earthen materials weekly to ensure that the slopes are no greater than thirty percent (30%), are seeded and stabilized, and are completely encircled by staked hay bales or silt fence.

(8) Inspect outfalls and discharge locations weekly for evidence of a release of sediment or other pollutants to ensure that their structural integrity has not been breached.

(9) Inspect locations where vehicles entrance and exit the site weekly for sediment that has been tracked off site. If there is evidence that sediment has been tracked off site, the permittee shall sweep the paved surfaces and determine if the controls require improvement.

(10) Comprehensive site evaluation: An annual comprehensive site evaluation report must be prepared which summarizes the results of the site inspections, required under Part I.B.5.c, and the turbidity monitoring, required under Part I.A.6. This report must include the names of the personnel who conducted the inspections, any major or recurring observations noted in the inspections, any maintenance preformed on the erosion and sedimentation control measures, a summary of the results of all sediment soundings, and a tabulated summary of all turbidity monitoring. The Annual Comprehensive Site Evaluation report must be submitted to the Department of Environmental Management by January 15 of the following year.

d. Additional Technology – Based Effluent Limits for the Concrete Plant Activities

(1) *Good Housekeeping Measures.* With good housekeeping, prevent or minimize the discharge of spilled cement, aggregate (including sand or gravel), kiln dust, fly ash, settled dust, or other significant material in stormwater from paved portions of the site that are exposed to stormwater. Sweep regularly or use other equivalent measures to minimize the presence of these materials. Indicate in the SWPPP the frequency of sweeping or equivalent measures. Determine the frequency based on the amount of industrial activity occurring in the area and the frequency of precipitation, but it must be performed at least once a week if cement, aggregate, kiln dust, fly ash, or settled dust are being handled or processed. The permittee must also prevent the exposure of fine granular solids (cement, fly ash, kiln dust, etc.) to stormwater, where practicable, by storing these materials in enclosed silos, hoppers, or buildings, or under other covering.

e. Technology-Based Effluent Limits for Clearing, Grading, and Excavation Activities

(1) *Management Practices for Clearing, Grading, and Excavation Activities.*

(a) *Selecting and installing control measures.* For all areas affected by clearing, grading, and excavation activities, the permittee must select, design, install, and implement control measures that meet applicable effluent limits.

(b) *Good Housekeeping.* Litter, debris, and chemicals must be prevented from becoming a pollutant source in stormwater discharges.

(c) *Retention and Detention of Stormwater Runoff.* For drainage locations serving more than one acre, sediment basins and/or temporary sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the development area unless a sediment basin providing storage for a calculated volume of runoff from a 2-year, 24-hour storm or 3,600 cubic feet of storage per acre drained is provided.

(2) *Inspection of Clearing, Grading, and Excavation Activities.*

(a) *Inspection Frequency.* Inspections must be conducted either at least once every 7 calendar days or at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. Inspection frequency may be reduced to at least once every month if the entire site is temporarily stabilized, if runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or the ground is frozen), or construction is occurring during seasonal arid periods in arid areas and semi-arid areas.

(b) *Location of Inspections.* Inspections must include all areas of the site disturbed by clearing, grading, and/or excavation activities and areas used for storage of materials that are exposed to precipitation. Sedimentation and erosion control measures implemented must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to waters of the United States, where accessible. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for evidence of significant off-site sediment tracking.

(c) *Inspection Reports.* For each inspection required above, the permittee must complete an inspection report.

f. Additional Technology-Based Effluent Limits

(1) *Employee Training.* Conduct employee training at least annually.

(2) *Stormwater Controls.* Apart from the control measures the permittee implements to meet the effluent limits, where necessary to minimize pollutant discharges, implement the following control measures at the site. The potential pollutants identified in the SWPPP shall determine the priority and appropriateness of the control measures selected.

(a) *Stormwater Diversions.* Diverting stormwater away from potential pollutant sources. Following are some control measure options: interceptor or diversion controls (e.g., dikes, swales, curbs, or berms); pipe slope drains; subsurface drains; conveyance systems (e.g.,channels or gutters, open-top box culverts, and waterbars; rolling dips and road sloping; roadway surface water deflector and culverts); or their equivalents.

(b) *Capping:* When capping is necessary to minimize pollutant discharges in stormwater, identify the source being capped and the material used to construct the cap.

(c) *Treatment:* If treatment of stormwater (e.g., chemical or physical systems, oil and water separators, artificial wetlands) is necessary to protect water quality, describe the type and location of treatment used.

g. Consistency with Other Plans. Storm water management controls may reflect requirements for Spill Prevention Control and Counter-measure (SPCC) plans under Section 311 of the CWA or Best Management Practices (BMP) Programs otherwise required by a RIPDES permit and may incorporate any part of such plans into the SWPPP by reference.

C. DETECTION LIMITS

The permittee shall assure that all wastewater testing required by this permit, is performed in conformance with the method detection limits listed below (the EPA method is noted for reference, other EPA approved methods found in 40 CFR Part 136 may be utilized). All sludge testing required by this permit shall be in conformance with the method detection limits found in 40 CFR 503.8. In accordance with 40 CFR Part 136, EPA approved analysis techniques, quality assurance procedures and quality control procedures shall be followed for all reports required to be submitted under the RIPDES program. These procedures are described in "Methods for the Determination of Metals in Environmental Samples" (EPA/600/4-91/010) and "Methods for Chemical Analysis of Water and Wastes" (EPA/600/4-79/020).

The report entitled "Methods for the Determination of Metals in Environmental Samples" includes a test which must be performed in order to determine if matrix interferences are present, and a series of tests to enable reporting of sample results when interferences are identified. Each step of the series of tests becomes increasingly complex, concluding with the complete Method of Standard Additions analysis. The analysis need not continue once a result which meets the applicable quality control requirements has been obtained. Documentation of all steps conducted to identify and account for matrix interferences shall be submitted along with the monitoring reports.

If, after conducting the complete Method of Standard Additions analysis, the laboratory is unable to determine a valid result, the laboratory shall report "could not be analyzed". Documentation supporting this claim shall be submitted along with the monitoring report. If valid analytical results are repeatedly unobtainable, DEM may require that the permittee determine a method detection limit (MDL) for their effluent or sludge as outlined in 40 CFR Part 136, Appendix B.

Therefore, all sample results shall be reported as: an actual value, "could not be analyzed", less than the reagent water MDL, or less than an effluent or sludge specific MDL. The effluent or sludge specific MDL must be calculated using the methods outlined in 40 CFR Part 136, Appendix B.
Samples which have been diluted to ensure that the sample concentration will be within the linear

dynamic range shall not be diluted to the extent that the analyte is not detected. If this should occur the analysis shall be repeated using a lower degree of dilution.

When calculating sample averages for reporting on discharge monitoring reports (DMRs):

1. "could not be analyzed" data shall be excluded, and shall not be considered as failure to comply with the permit sampling requirements;

2. results reported as less than the MDL shall be reported as zeros in accordance with the DMR instructions.

LIST OF TOXIC POLLUTANTS

The following list of toxic pollutants has been designated pursuant to Section 307(a)(1) of the Clean Water Act. The Method Detection Limits (MDLs) represent the required Rhode Island MDLs.

Volatiles - EPA Method 624		MDL ug/l (ppb)
1V	acrolein	10.0
2V	acrylonitrile	5.0
3V	benzene	1.0
5V	bromoform	1.0
6V	carbon tetrachloride	1.0
7V	chlorobenzene	1.0
8V	chlorodibromomethane	1.0
9V	chloroethane	1.0
10V	2-chloroethylvinyl ether	5.0
11V	chloroform	1.0
12V	dichlorobromomethane	1.0
14V	1,1-dichloroethane	1.0
15V	1,2-dichloroethane	1.0
16V	1,1-dichloroethylene	1.0
17V	1,2-dichloropropane	1.0
18V	1,3-dichloropropylene	1.0
19V	ethylbenzene	1.0
20V	methyl bromide	1.0
21V	methyl chloride	1.0
22V	methylene chloride	1.0
23V	1,1,2,2-tetrachloroethane	1.0
24V	tetrachloroethylene	1.0
25V	toluene	1.0
26V	1,2-trans-dichloroethylene	1.0
27V	1,1,1-trichloroethane	1.0
28V	1,1,2-trichloroethane	1.0
29V	trichloroethylene	1.0
31V	vinyl chloride	1.0

Acid Compounds - EPA Method 625		MDL ug/l (ppb)
1A	2-chlorophenol	1.0
2A	2,4-dichlorophenol	1.0
3A	2,4-dimethylphenol	1.0
4A	4,6-dinitro-o-cresol	1.0
5A	2,4-dinitrophenol	2.0
6A	2-nitrophenol	1.0
7A	4-nitrophenol	1.0
8A	p-chloro-m-cresol	2.0
9A	pentachlorophenol	1.0
10A	phenol	1.0
11A	2,4,6-trichlorophenol	1.0

Pesticides - EPA Method 608		MDL ug/l (ppb)
1P	aldrin	0.059
2P	alpha-BHC	0.058
3P	beta-BHC	0.043
4P	gamma-BHC	0.048
5P	delta-BHC	0.034
6P	chlordane	0.211
7P	4,4'-DDT	0.251
8P	4,4'-DDE	0.049
9P	4,4'-DDD	0.139
10P	dieldrin	0.082
11P	alpha-endosulfan	0.031
12P	beta-endosulfan	0.036
13P	endosulfan sulfate	0.109
14P	endrin	0.050
15P	endrin aldehyde	0.062
16P	heptachlor	0.029
17P	heptachlor epoxide	0.040

Pesticides - EPA Method 608		MDL ug/l (ppb)
18P	PCB-1242	0.289
19P	PCB-1254	0.298
20P	PCB-1221	0.723
21P	PCB-1232	0.387
22P	PCB-1248	0.283
23P	PCB-1260	0.222
24P	PCB-1016	0.494
25P	toxaphene	1.670

Base/Neutral - EPA Method 625		MDL ug/l (ppb)
1B	acenaphthene *	1.0
2B	acenaphthylene *	1.0
3B	anthracene *	1.0
4B	benzidine	4.0
5B	benzo(a)anthracene *	2.0
6B	benzo(a)pyrene *	2.0
7B	3,4-benzofluoranthene *	1.0
8B	benzo(ghi)perylene *	2.0
9B	benzo(k)fluoranthene *	2.0
10B	bis(2-chloroethoxy)methane	2.0
11B	bis(2-chloroethyl)ether	1.0
12B	bis(2-chloroisopropyl)ether	1.0
13B	bis(2-ethylhexyl)phthalate	1.0
14B	4-bromophenyl phenyl ether	1.0
15B	butylbenzyl phthalate	1.0
16B	2-chloronaphthalene	1.0
17B	4-chlorophenyl phenyl ether	1.0
18B	chrysene *	1.0
19B	dibenzo (a,h)anthracene *	2.0
20B	1,2-dichlorobenzene	1.0
21B	1,3-dichlorobenzene	1.0
22B	1,4-dichlorobenzene	1.0
23B	3,3'-dichlorobenzidine	2.0
24B	diethyl phthalate	1.0
25B	dimethyl phthalate	1.0
26B	di-n-butyl phthalate	1.0
27B	2,4-dinitrotoluene	2.0
28B	2,6-dinitrotoluene	2.0
29B	di-n-octyl phthalate	1.0
30B	1,2-diphenylhydrazine (as azobenzene)	1.0
31B	fluoranthene *	1.0
32B	fluorene *	1.0
33B	hexachlorobenzene	1.0
34B	hexachlorobutadiene	1.0
35B	hexachlorocyclopentadiene	2.0
36B	hexachloroethane	1.0
37B	indeno(1,2,3-cd)pyrene *	2.0
38B	isophorone	1.0
39B	naphthalene *	1.0
40B	nitrobenzene	1.0
41B	N-nitrosodimethylamine	1.0
42B	N-nitrosodi-n-propylamine	1.0
43B	N-nitrosodiphenylamine	1.0
44B	phenanthrene *	1.0
45B	pyrene *	1.0
46B	1,2,4-trichlorobenzene	1.0

OTHER TOXIC POLLUTANTS

	MDL ug/l (ppb)
Antimony, Total	3.0 - EPA Method 204.2[1]
Arsenic, Total	1.0 - EPA Method 206.2[1]
Beryllium, Total	0.2 - EPA Method 210.2[1]
Cadmium, Total	0.1 - EPA Method 213.2[1]
Chromium, Total	1.0 - EPA Method 218.2[1]
Chromium, Hexavalent***	20.0 - Standard Methods 16th Ed., 312.B
Copper, Total	1.0 - EPA Method 220.2[1]
Lead, Total	1.0 - EPA Method 239.2[1]
Mercury, Total	0.2 - EPA Method 245.1[1]
Nickel, Total	1.0 - EPA Method 249.2[1]
Selenium, Total	2.0 - EPA Method 270.2[1]
Silver, Total	0.5 - EPA Method 200.9[1]
Thallium, Total	1.0 - EPA Method 279.2[1]
Zinc, Total	5.0 - EPA Method 289.1[1]
Asbestos	**
Cyanide, Total	10.0 - EPA Method 335.3
Phenols, Total***	50.0 - EPA Method 420.2
TCDD	**
MTBE (Methyl Tert Butyl Ether)	1.0 - EPA Method 524.2

* Polynuclear Aromatic Hydrocarbons
** No Rhode Island Department of Environmental Management (RIDEM) MDL
*** Not a priority pollutant as designated in the 1997 Water Quality Regulations (Table 5)

NOTE:

All MDLs have been established in accordance with the definition of "Detection Limits" in the RIDEM Water Quality Regulations for Water Pollution Control. Unless otherwise noted the MDLs have been determined in reagent water by the Rhode Island Department of Health, Division of Laboratories. The MDL for a given analyte may vary with the type of sample. MDLs which are determined in reagent water may be lower than those determined in wastewater due to fewer matrix interferences. Wastewater is variable in composition and may therefore contain substances (interferents) that could affect MDLs for some analytes of interest. Variability in instrument performance can also lead to inconsistencies in determinations of MDLs.

[1]Method detection limits for these metals analyses were determined by the USEPA. They are not contrived values and should be obtainable with any satisfactory atomic absorption spectrophotometer. To insure valid data the analyst must analyze for matrix interference effects and if detected treat accordingly using either successive dilution matrix modification or method of Standard Additions (Methods for Chemical Analysis of Water and Wastes EPA-600/4-79/020).

To help verify the absence of matrix or chemical interference the analyst is required to complete specific quality control procedures. For the metals analyses listed above the analyst must withdraw from the sample two equal aliquots; to one aliquot add a known amount of analyte, and then dilute both to the same volume and analyze. The unspiked aliquot multiplied by the dilution factor should be compared to the original. Agreement of the results within 10% indicates the absence of interference. Comparison of the actual signal from the spiked aliquot to the expected response from the analyte in an aqueous standard should help confirm the finding from the dilution analysis. (Methods for Chemical Analysis of Water and Wastes EPA-600/4-79/020).

For Methods 624 and 625 the laboratory must on an ongoing basis, spike at least 5% of the samples from each sample site being monitored. For laboratories analyzing 1 to 20 samples per month, at least one spiked sample per month is required. The spike should be at the discharge permit limit or 1 to 5 times higher than the background concentration determined in Section 8.3.2, whichever concentration would be larger. (40 CFR Part 136 Appendix B Method 624 and 625 subparts 8.3.1 and 8.3.11).

D. MONITORING AND REPORTING

1. Monitoring

   All monitoring required by this permit shall be done in accordance with sampling and analytical testing procedures specified in Federal Regulations (40 CFR Part 136).

2. Reporting

   Monitoring results obtained during the previous calendar quarter shall be summarized and reported on Discharge Monitoring Report (DMR) Forms, postmarked no later than the 15th day of the month following the completed reporting period. Quarterly reporting shall be as follows:

Quarter Testing to be Performed	Report Due No Later Than
January 1 – March 31	April 15
April 1 – June 30	July 15
July 1 – September 30	October 15
October 1 - December 31	January 15

Signed copies of these, and all other reports required herein, shall be submitted to:

Annie McFarland
Computer Operator
RIPDES Program
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 PROMENADE STREET
PROVIDENCE, RHODE ISLAND 02908-5767

STATEMENT OF BASIS

RHODE ISLAND POLLUTANT DISCHARGE ELIMINATION SYSTEM (RIPDES) PERMIT TO DISCHARGE TO WATERS OF THE STATE

RIPDES PERMIT NO.: **RI0023761**

NAME AND ADDRESS OF APPLICANT:

P. J. Keating Company
998 Reservoir Road
Lunenburg, MA 01462

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

P.J. Keating Cranston Facility
875 Phenix Avenue
Cranston, RI 02921

RECEIVING WATER: **an unnamed tributary flowing into Furnace Hill Brook (Waterbody ID #: RI0006017R-01)**

CLASSIFICATION: **B**

I. Proposed Action, Type of Facility, and Discharge Location

The above named applicant has applied to the Rhode Island Department of Environmental Management (DEM) for reissuance of its RIPDES Permit to discharge into the designated receiving water. The facility is engaged in the mining of stone from an on-site quarry, and in the production of crushed stone, gravel, sand, concrete, and asphalt.

II. Limitations and Conditions

The effluent limitations and the monitoring requirements may be found in Part I of the permit. A quantitative description of the discharge in terms of significant effluent parameters based on discharge monitoring report (DMR) data for the last four and half years is shown in Appendix A.

III. Permit Basis and Explanation of Effluent Limitation Derivation

Facility Description

The site, which is owned by the P.J. Keating Company of Lunenburg, Massachusetts, is located at 875 Phenix Avenue, Cranston, Rhode Island on roughly 130 acres just west of Phenix Avenue and south of Interstate 295 in the city of Cranston. The facility supplies crushed stone, ready-mix concrete, bituminous concrete, and construction sand and gravel. There are two outfalls, outfall 001 and outfall 002. Process diagrams for outfalls 001 and 002 are shown in Appendices B and C.

A site plan for the facility is included in Appendix D. The following is a description of the discharges from the outfalls:

Outfall 001

There are five (5) ponds at the facility, numbered 1A, 1B, 2, 3, and 4. Water is pumped from pond #3 to the stone wash plant. The effluent stream from the stone wash rack flows into ponds 1A and 1B which overflow to pond 2, which then overflows back into pond 3. Concrete Plant storm water flows into Pond 4, which is pumped during large storm events into Pond 3. (During smaller storm events, Pond 4 infiltrates and does not have a discharge). Pond 3 also receives overland stormwater flow from the quarry. Quarry dewatering water can be directed into pond 3 to maintain the water level or directed to outfall 001 directly if Pond 3 is full. Excess water from Pond 3 is discharged to outfall 001 by the use of a pump. A gate valve is used to control the direction of pumped water. Based on modeling performed by P.J. Keating, pond 3 will not overflow during a 10 year, 24 hour storm event. Therefore, based on the 10-year, 24-hour storm, outfall 001 will only contain stormwater from the quarry. Outfall 001 is pumped into an unnamed stream that eventually flows into Furnace Hill Brook.

Outfall 002

Outfall 002 receives stormwater runoff and dust control runoff from the eastern portion of the site, including stormwater runoff from the vehicle maintenance / fuel area and stormwater from recycle material which flows into catch basins which discharge into a swale that flows to outfall 002.

Receiving Water and Dilution

Outfalls 001 and 002 discharge to an unnamed tributary flowing into Furnace Hill Brook in the segment defined as water body ID number RI0006017R-01. This segment is located in western Cranston and is classified as a Class B water body according to the RI Water Quality Regulations. Class B waters are designated for fish and wildlife habitat and primary and secondary contact recreational activities. They shall be suitable for compatible industrial processes and cooling, hydropower, aquacultural uses, navigation, and irrigation and other agricultural uses. These waters shall have good aesthetic value. Also, this segment is listed as a cold water fishery designation. Furnace Hill Brook is not listed as impaired in the DEM's Final 2012 303(d) List of Impaired Waters. During the permit development process, RIDEM evaluated the need for water quality-based permit limits. Streamflow data for the Furnace Hill Brook was gathered from the United States Geological Survey (USGS) for the years 1965 through 1974, which were the only years for which streamflow data was available. Daily streamflow data was analyzed using the DFLOW software package to yield the following streamflow parameters: 7Q10, seasonal 7Q10, and harmonic flow. The 7Q10 flow is the lowest 7-day average flow that occurs (on average) once every 10 years. Seasonal 7Q10 flows represent the 7Q10 flows for the months of June through October and for the months of November through April. Harmonic flow is used to evaluate human health impacts. The following streamflow values were found using DFLOW:

- 7Q10 flow: 0 CFS (cubic feet per second)
- Summer 7Q10 flow (May-October): 0 CFS
- Winter 7Q10 flow (November-April): 0 CFS
- Harmonic flow: 0.520 CFS

These flows are used to determine dilution factors which are used to generate water quality-based permit limits. Given that the 7Q10 streamflow values are 0, dilution factors calculated as a result of 7Q10 values are 1.

The facility's design flow of 2.672 MGD was calculated by adding the maximum daily flow rate for

outfalls 001 and 002. Outfall 001 discharges consist of discharges from the stone wash plant,wash plant, water truck, and stone plant dust control. Outfall 002 discharges consist of discharges from the water truck and stone plant dust control. The design flow of 2.672 MGD does not include stormwater flows.

Permit Basis and Explanation of Limits

DEM's primary authority over this permit comes from the Environmental Protection Agency's (EPA's) delegation of the RIPDES Program, in September 1984, under the Federal Clean Water Act. The requirements set forth in this permit are from the State's Water Quality Regulations and the State's Regulations for the Rhode Island Pollutant Discharge Elimination System, both filed pursuant to Chapter 46-12 of the Rhode Island General Laws, as amended. Chapter 46-12 of the General Laws of Rhode Island, as amended, prohibits the discharge of pollutants to waters of the State of Rhode Island without a RIPDES permit. The RIPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting.

RIDEM is required to consider (a) technology-based requirements, (b) water quality-based requirements, and (c) best professional judgment (BPJ). These requirements are described in the following two sections of the statement of basis.

Stormwater and Process Water Separation

The RIPDES Program typically gives facilities which discharge into Waters of the State coverage under an individual RIPDES permit or coverage under the RIPDES Multi-Sector General Permit (MSGP) for Stormwater. Individual permits are generally developed by developing dilution factors relating process water flows to streamflow and generating water quality-based limits for toxic pollutants based on the Rhode Island Water Quality Regulations in addition to implementing technology based limits based on federal effluent limitation guidelines (ELG's) and permit limitations based on BPJ. Permittees given coverage under the MSGP for stormwater are held to benchmarks. The exceedance of benchmark parameters would mandate that a permittee revisit their stormwater pollution prevention plan (SWPPP). The MSGP can't be used to cover discharges of process wastewaters.

The P.J. Keating facility has both stormwater and intermittent discharges of process water effluent, therefore, an individual permit was developed which incorporated both limitations and benchmarks for certain parameters. The 2009 permit development process, which involved several revisions, consisted primarily of an effort to realize the following four goals:

1. eliminate the discharge of process water discharges
2. separate stormwater flow and process water flow as much as possible
3. minimize the impact of stormwater discharges through the development and implementation of a SWPPP
4. minimize the magnitude and impact of the discharge of effluent containing process water

During the permit development process, P.J. Keating took the following steps to address the above four goals:

1. *Eliminate the discharge of process water discharges:* P.J. Keating's initial submission of a permit application in March of 2006 included documentation of the discharge of a process water stream from an on-site asphalt baghouse. DEM determined that this discharge is prohibited under federal effluent guidelines, and communicated that prohibition to P.J. Keating. P.J. Keating has since eliminated the asphalt baghouse discharge so that the permitting process could proceed. This permit does not authorize discharges from the asphalt baghouse.

2. *Separate stormwater flow and process water flow as much as possible:* P.J. Keating's March 2006 permit application described how truck wash water from the concrete facility would flow into the quarry, where it could eventually be discharged off the site. DEM required P.J. Keating to work to eliminate this discharge to the quarry. In addition, a June 2006 site inspection by DEM to the facility revealed that pond 4 would sometimes overflow to outfall 002. So P.J. Keating installed a pump that is capable of pumping water from pond 4 to pond 3 such that pond 4 does not overflow to outfall 002.
3. *Minimize the impact of stormwater discharges through the development and implementation of a SWPPP:* A prior draft of the 2009 permit, which was mailed to P.J. Keating in June of 2007 contained detailed SWPPP requirements. In response to these requirements, P.J. Keating developed a SWPPP. The SWPPP contains documentation of practices that P.J. Keating must abide by to minimize the impact of stormwater leaving the site.
4. *Minimize the magnitude and impact of the discharge of effluent containing process water:* P.J. Keating developed a model of the stormwater at the site which calculated that the facility would not need to discharge effluent containing process water during a 10 year 24 hour storm. Standard operating procedures (SOP's) and best management practices (BMP's) were developed for pond 3's discharge which aim to minimize pollution from pond 3 when pond 3 discharges. SOP's included the field testing of pond 3 water for pH, Oil and Grease, and turbidity prior to discharge, with prohibitions for the discharge of effluent when limitations for parameters are exceeded, and with testing results being recorded in the SWPPP. DEM required P.J. Keating to implement the following two BMP's on a permanent basis:
    a. the installation of a silt curtain prior to the pump house in pond 3
    b. the installation of a silt curtain in pond 4 prior to discharge of pond 4 water to pond 3

It should also be noted that the area to the west of pond 4 was regraded so as to redirect process water flowing by sheet flow into pond 4. This internal waste stream flows through a coarse stone check dam.

P.J. Keating has modified its facility such that its discharge only consists of stormwater in storms less than or equal in severity to a 10 year 24 hour storm. Process water may be discharged from outfall 001, but this will only occur during storms greater than the 10 year 24 hour storm, so it is anticipated that discharges of process water from pond 3 will be infrequent, and those that take place will be done in accordance with the established pond 3 SOP's.

Given that P.J. Keating took the above steps, in 2009 the DEM issued an individual permit which integrated features of individual permit coverage and MSGP permit coverage, based on the assumption that stormwater and process water discharges have been separated as much as possible. Essentially, outfall 002 was treated as a stormwater-only outfall, whereas outfall 001 was treated as a combined stormwater/process water outfall, with the stormwater component of the outfall 001 discharge consisting mostly of stormwater that is pumped from the quarry. The following sections of the statement of basis discuss the consideration of limitations based on technology, water quality, and best professional judgment.

Technology-Based Requirements

pH:

The Effluent Guidelines for the Mineral Mining and Processing Point Source Category located at 40 CFR Part 436 establish limitations for pH for effluent discharged in conjunction with mine dewatering associated with sand and gravel production as 6.0-9.0 standard units. However,

Rhode Island water quality criteria are more stringent, so limitations for outfall 001 and 002 are based on the Rhode Island water quality criteria (6.5-9.0).

The effluent guidelines for the asphalt concrete subcategory located at 40 CFR Part 443.25 prohibit the discharge of asphalt concrete process water. Therefore, this permit does not authorize the discharge of asphalt plant baghouse wastewater since it meets the definition of "process wastewater" and is a prohibited discharge under 40 CFR Part 443.25. This prohibition is made in Part I.A.8. of the permit.

Additional Technology-Based Requirements

The technology-based conditions listed in Part I.B.5.d-f. of the permit are based on and consistent with the 2013 RIPDES Multi-Sector General Permit for Industrial Stormwater. The technology-based limits included in this section of the permit consist of control measures or structural or installed devices to prevent or reduce pollution of stormwater. The permittee is required to select, design, install, and implement site-specific control measures to meet these technology-based limits.

Water Quality-Based Requirements

During the permitting process, P.J. Keating performed several rounds of water quality sampling from both outfalls.

Based on the calculated dilution factors and the freshwater aquatic life and non-class A human health criteria from the Rhode Island Water Quality Regulations, allowable discharge concentrations were established using 80% allocation when no background data was available and 90% allocation when background data was available. 100% allocation of total residual chlorine (TRC) was used due to the fact that Chlorine is not expected to be found in ambient water and it is a non-conservative pollutant. Background data for Cadmium, Copper, Lead, Mercury, and Ammonia was obtained from DEM's water quality database using data from the Random Sampling Design Project taken in the Furnace Hill Brook and tributaries on August 10, 2000. Data for Ammonia was gathered by DEM in 2012.

In accordance with 40 CFR Part 122.4(d)(1)(iii), it is only necessary to establish limitations for those pollutants in the discharge which have the reasonable potential to cause or contribute to the exceedance of the in-stream criteria. In order to evaluate the need for permit limitations, prospective permit limits were compared to water quality data taken from outfalls 001 and 002 in conjunction with the November 26, 2013 permit reapplication. The permit reapplication indicated that there were no parameters found in the effluent at levels above detection which would be subject to water quality-based limits.

For toxicity-based ammonia limitations, the 2010 Water Quality Regulations include Ammonia criteria, which are dependent on both pH and temperature. In the absence of site-specific data on the receiving water, the DEM evaluated USGS data for all freshwater rivers in the state for the 1999 water year to determine an appropriate assumption for the temperature. This evaluation resulted in the conservative assumptions of winter and summer water temperatures of 15°C and 26°C, respectively. Site-specific pH data was available from water quality sampling performed by DEM, and a 90th percentile value pH of 7.61 was calculated and was used to calculate Ammonia criteria. Early life stages of brook trout, a salmonid, are present in the Furnace Hill Brook. Therefore, Ammonia criteria for early life stages present were used to evaluate potential permit limits for Ammonia. The pH of 7.61 and summer temperature were used to determine the acute, with salmonids present, and chronic criteria for Total Ammonia Nitrogen of 11.225 mg N/L and 1.881 mg N/L, respectively. The pH and winter temperature were used to determine the acute and chronic criteria for Total Ammonia Nitrogen of 11.225 mg N/L and 3.757 mg N/L, respectively.

A comparison of the amount of Ammonia detected against the potential permit limitations for Ammonia indicated that there was no reasonable potential for the exceedances of potential Ammonia limits, therefore permit limitations were not established for Ammonia. The June 30, 2006 permit reapplication indicated that Arsenic, Lead, Benzene, Toluene, Benzoperylene, and Naphthalene were believed present in the effluent. However, water quality samples listed on the November 26, 2013 permit application indicated that these parameters were below detection. Therefore, water quality based limits were not required for these pollutants since they did not have "reasonable potential."

Water quality calculations used to develop this permit and an identification of reasonable potential can be found in Appendix E.

pH:

As previously mentioned, Water Quality-based limitations for pH were taken from the Rhode Island Water Quality Regulations. These pH limitations, which require the pH of the receiving water to be between 6.5 S.U. and 9.0 S.U. Therefore, the water quality-based pH limits were established as the final pH limits in the permit for outfall 001 and outfall 002.

Best Professional Judgment

Flow:

No limitations were placed on average monthly flow or maximum daily flow for either outfall, in order to permit stormwater flow, which is variable. Flow monitoring is called for for both outfalls.

Sulfates:

Sulfates are found in both effluent streams, so monitoring of Sulfates is called for in the permit, as it is inherent in Ready-mix product formulations. Since there are no technology based guidelines listed in either the Mineral Mining or Cement Manufacturing Point Source Category, the proposed monthly average Total Sulfate monitoring requirements for Outfalls 001 and 002 is based on BPJ.

Oil and Grease:

The Rhode Island Water Quality Regulations prohibit the discharge of visible oil and grease into receiving water. Oil and Grease effluent limitations are based on Best Professional Judgment (BPJ). The 15 mg/l daily maximum Oil and Grease limit is equivalent to the new source performance standard that the Environmental Protection Agency (EPA) has established for most industrial groups. This standard represents the level of control achievable by the best available demonstrated control technology, process, operating method, or other alternative for the removal of oil and grease. This limit is also consistent with the American Petroleum Institute (API) oil/water separator guidelines and is consistent with the limits that DEM typically assigns to discharges of storm water and is treated through an oil/water separator. This limit has been assigned to Outfall 001 since it has the potential to receive process wastewater and stormwater from the asphalt area.

Phosphorus:

The Rhode Island Water Quality Regulations only contain total phosphorus numeric water quality criteria for lakes, ponds, kettle holes, reservoirs, and any tributaries at the point where they enter such bodies of water but do not contain total phosphorus numerical criteria for flowing water bodies. The freshwater narrative criteria for nutrients is found in Table 1.8.D(2), which states that nutrients shall not be present "in such concentration that would impair any usages specifically

assigned to said Class, or cause undesirable or nuisance aquatic species associated with cultural eutrophication". The Water Quality Standards also require that "Phosphates shall be removed from existing discharges to the extent that such removal is or may become technically and reasonably feasible." However, EPA has produced several guidance documents, which contain recommended total phosphorus criteria for flowing water bodies. The 1986 Quality Criteria of Water ("the Gold Book") recommends in-stream phosphorus concentrations of 0.1 mg/l for any stream not discharging directly to lakes or impoundments.

During the permit reissuance process for the Wastewater Treatment Facilities located on the Pawtuxet River, the DEM evaluated the nutrient levels in the Meshanticut Brook. This evaluation did not identify the Meshanticut Brook as being a significant source of Phosphorus to the Pawtuxet River, nor did the Meshanticut Brook show evidence of excessive algal growth. Therefore, the DEM has decided to implement a benchmark for Total Phosphorus for outfalls 001 and 002 rather than a water quality-based limit, for the following reasons: The frequency of a discharge of pond 3 water from outfall 001 will take place less frequently than the 10 year 24 hour storm, so the episodic discharges of process water from outfall 001 are said to be minimal; water quality sampling of both outfalls performed by the facility and reported in its permit application submitted on November 26, 2013 indicated that Phosphorus levels were below 2.0 mg/l; and the unnamed stream is not a major contributor to the Pawtuxet River. For these reasons, the DEM has decided to maintain a benchmark of 2.0 mg/l for Total Phosphorus (taken from the Multi-Sector Stormwater General Permit).

Total Suspended Solids:

The Rhode Island Multi-Sector Stormwater General Permit established effluent limitations for average monthly total suspended solids of 25 mg/L and for maximum daily suspended solids of 45 mg/L for Mine Dewatering Discharges. Therefore, these limitations were written into the permit for outfall 001 and 002. These TSS limits are more stringent than the 100 mg/L TSS benchmark from the Multi-Sector Stormwater General Permit. Therefore, there is no need to apply a TSS benchmark in this permit.

Turbidity:

Although no turbidity limits were given for either outfall, in-stream turbidity monitoring was written into the permit in section I.A.5 of the permit.

Nitrate + Nitrite:

Benchmarks for Nitrate + Nitrite Nitrogen of 0.68 mg/l are incorporated into monitoring for outfalls 001 and 002 based on the MSGP which calls out such benchmarks for the Sand and Gravel Mining Activities. These pollutants are believed present due to the presence of Nitrogen-containing compounds as a result of rock blasting performed at that facility.

Iron:

Benchmarks for Total Iron of 1.0 mg/L are incorporated into monitoring for outfalls 001 and 002 based on the MSGP which calls out such benchmarks for the Concrete and Gypsum Product Manufacturing subcategory.

These benchmark limits are not directly correlated to water quality standards, rather the benchmark limit is a generic pollutant level that has been developed to be protective of water quality under nearly all scenarios. Exceedances of the benchmark values shall trigger a review of the facility's SWPPP by the permittee and reasonable modification as necessary. A report of the

permittee's ability to comply with the benchmark concentrations shall be submitted to the DEM annually with the Comprehensive Site Evaluation Report required under Part I.B.5.c.(10) of the permit. Additional information about benchmarks can be found in section I.A.6 of this permit.

Antidegredation/Antibacksliding:

Since all of the limitations and conditions in the permit reduce the quantity of pollutants discharged, when compared to historic levels, the DEM has determined that the permit is consistent with the State's antidegredation and antibacksliding requirements.

IV. DEM Contact

Additional information concerning the permit may be obtained between the hours of 8:30 a.m. and 4:00 p.m., Monday through Friday, excluding holidays, from:

Samuel Kaplan, P.E.
Senior Engineer
RIPDES Program
Office of Water Resources
Department of Environmental Management
235 Promenade Street
Providence, Rhode Island 02908
Telephone: (401) 222-6820, ext: 7046

8/1/14
Date

Joseph B. Haberek, P.E.
Principal Sanitary Engineer
RIPDES Permitting Section
Office of Water Resources
Department of Environmental Management

Appendix A – Historical Discharge Data

Data is from September of 2009 to December of 2013.

DESCRIPTION OF DISCHARGE: Outfall connecting pond #3 and quarry pump to an unnamed stream flowing into Furnace Hill Brook
DISCHARGE: 001

PARAMETER	AVERAGE	MAXIMUM
pH	7.12	7.95

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE OF SELECTED POLLUTANTS:

PARAMETER	AVERAGE	MAXIMUM
Flow (gal/day)	218,200	859,410
TSS (mg/L)	6.9231	6.8571
Oil and Grease (mg/L)	2.0714	2.0714
Sulfates (mg/L)	235.0429	
Total Phosphorus (mg/L)	0.0193	0.0193
Nitrate + Nitrite (mg/L)	3.9671	3.9671

DESCRIPTION OF DISCHARGE: Stormwater runoff from the eastern portion of the site connecting to Furnace Hill Brook, may also include overflow from pond #4 to Furnace Hill Brook during storms with greater intensity than a 10 year, 24 hour storm
DISCHARGE: 002

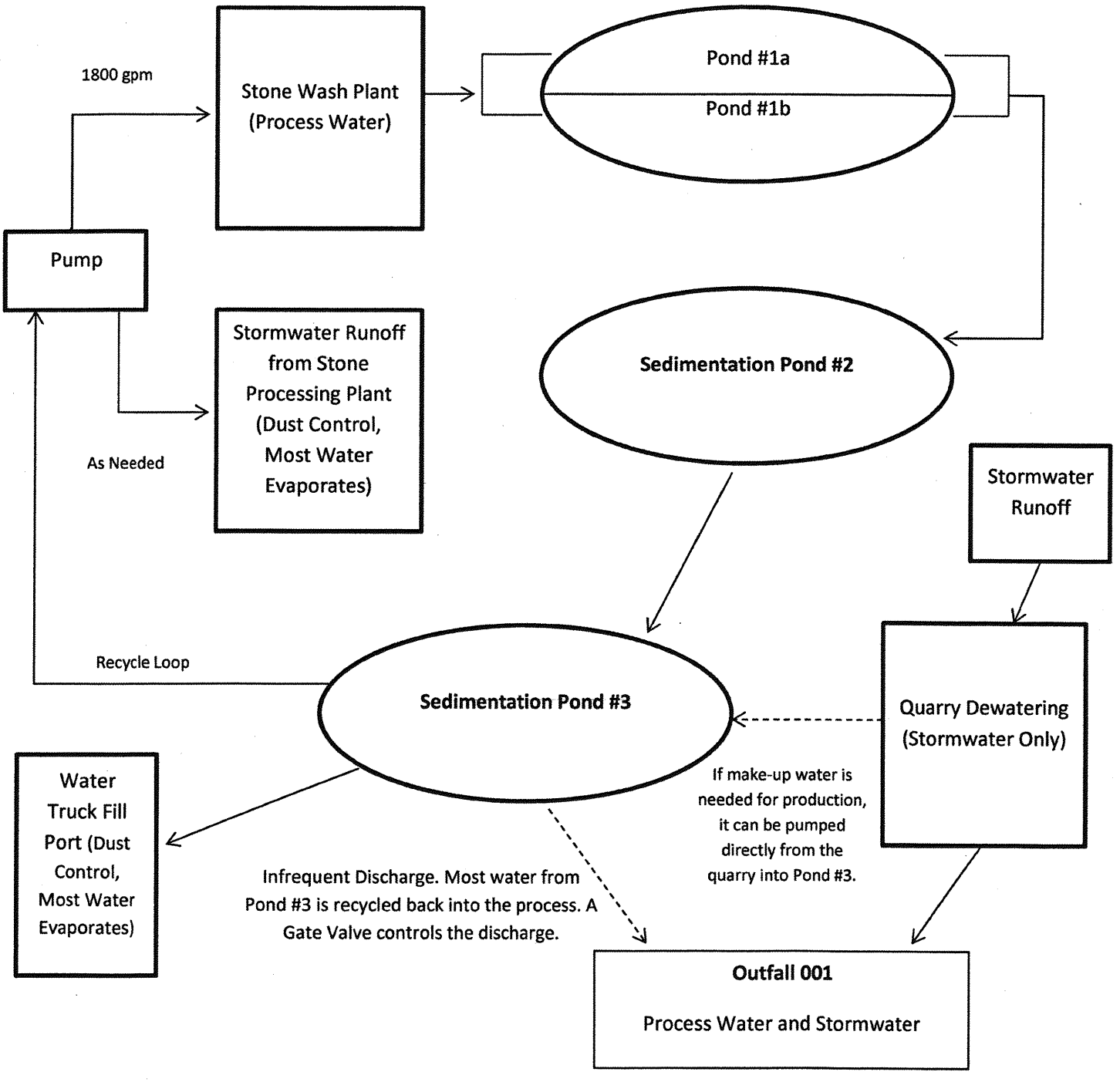
AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE OF SELECTED POLLUTANTS:

PARAMETER	AVERAGE	MAXIMUM
Flow (gal/day)	78,750	598,750
Nitrate + Nitrite	2.01 mg/L	2.01 mg/L
TSS (mg/L)	14.33	16.54
Sulfates (mg/L)	199.12	
Total Phosphorus	0.0592 mg/L	0.0592 mg/L

Appendix B: Process Diagram for Outfall 001

See next page

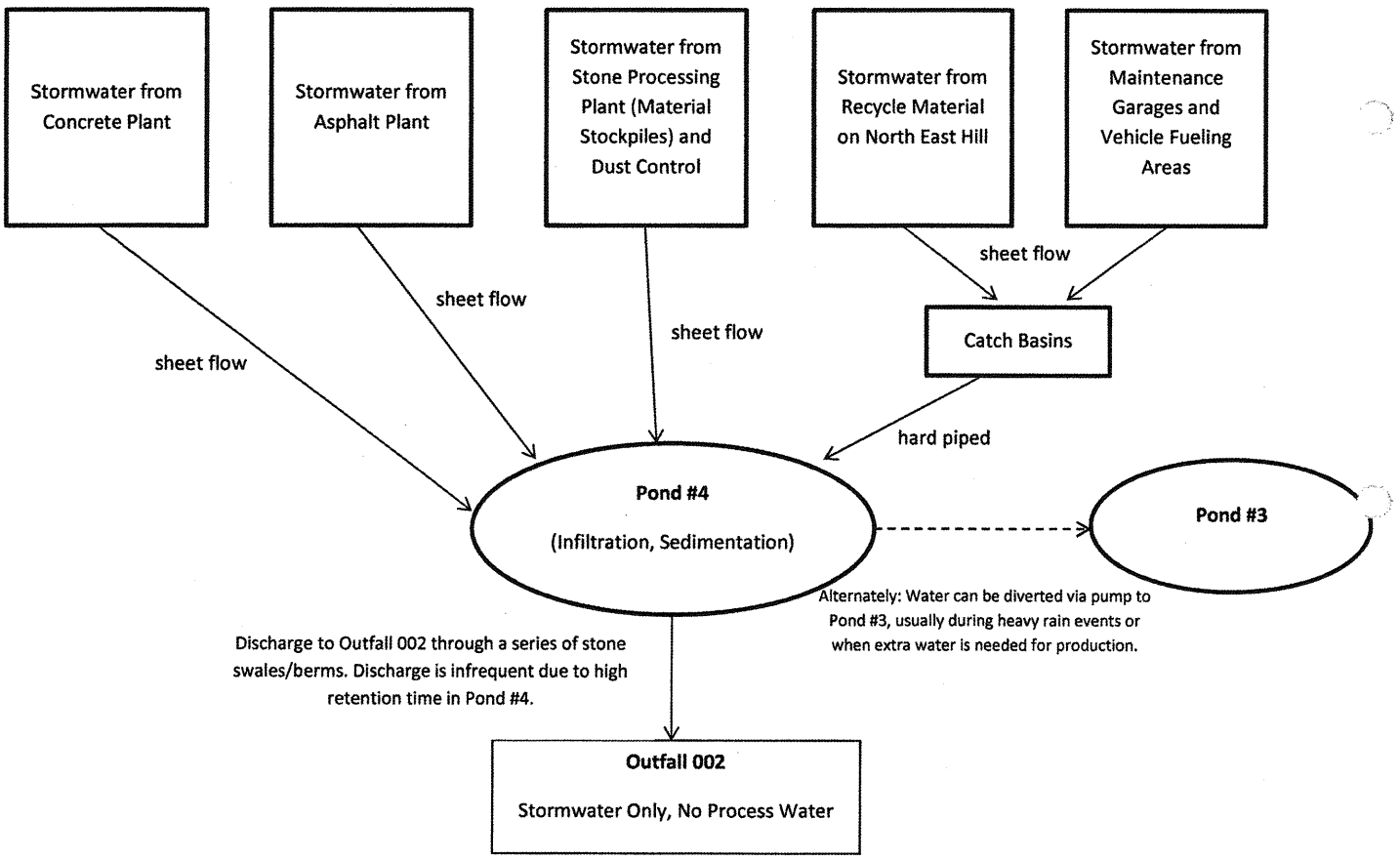
Figure 3: Line Diagram for Outfall 001



Appendix C: Process Diagram for Outfall 002

See next page

Figure 4: Line Diagram for Outfall 002



Appendix D: Site Map

See next page

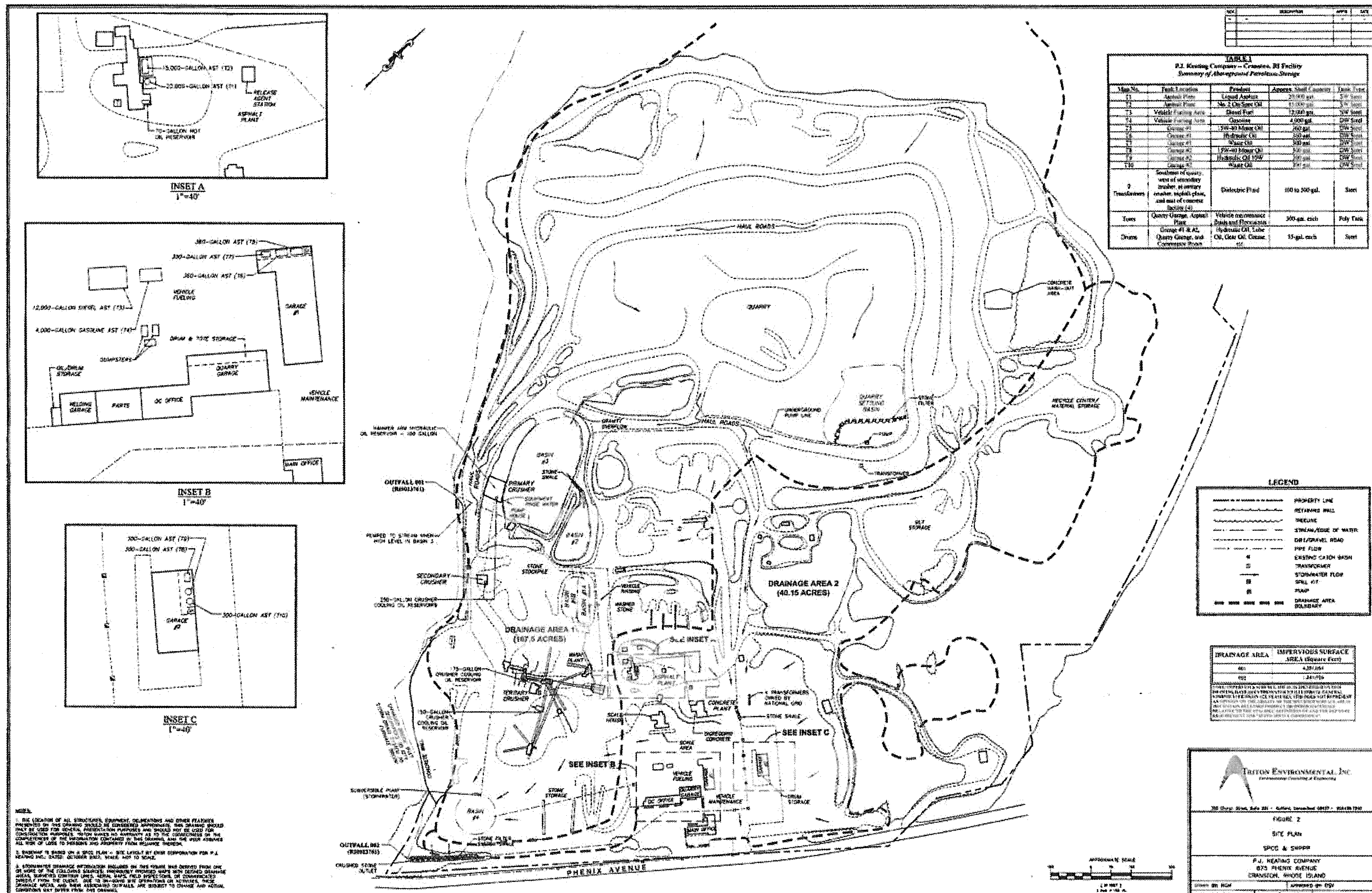


TABLE 1
P.J. Keating Company – Cranston, RI Facility
Summary of Aboveground Petroleum Storage

Map No.	Tank Location	Product	Approx. Shell Capacity	Tank Type
T1	Asphalt Plant	Liquid Asphalt	20,000 gal.	SW Steel
T2	Asphalt Plant	No. 2 On-Spec Oil	15,000 gal.	SW Steel
T3	Vehicle Fueling Area	Diesel Fuel	12,000 gal.	SW Steel
T4	Vehicle Fueling Area	Gasoline	4,000 gal.	DW Steel
T5	Garage #1	5W-40 Motor Oil	360 gal.	DW Steel
T6	Garage #1	Hydraulic Oil	360 gal.	DW Steel
T7	Garage #1	Waste Oil	300 gal.	DW Steel
T8	Garage #2	15W-40 Motor Oil	300 gal.	DW Steel
T9	Garage #2	Hydraulic Oil 10W	300 gal.	DW Steel
T10	Garage #2	Waste Oil	300 gal.	DW Steel
9 Transformers	Southeast of quarry, west of secondary crusher, at tertiary crusher, asphalt plant, and east of concrete facility (4)	Dielectric Fluid	100 to 500 gal.	Steel
Totes	Quarry Garage, Asphalt Plant	Vehicle maintenance fluids and flocculants	300-gal. each	Poly Tank
Drums	Garage #1 & #2, Quarry Garage, and Compressor Room	Hydraulic Oil, Lube Oil, Gear Oil, Grease, etc.	55-gal. each	Steel

DRAINAGE AREA	IMPERVIOUS SURFACE AREA (Square Feet)
001	4,391,694
002	[illegible],341,916

Appendix E: Water Quality Calculations

See next page

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY SPECIFIC DATA INPUT SHEET

NOTE: LIMITS BASED ON RI WATER QUALITY CRITERIA DATED JULY 2006

FACILITY NAME: **PJ Keating**

RIPDES PERMIT #: **RI0023761**

	DISSOLVED BACKGROUND DATA (ug/L)	ACUTE METAL TRANSLATOR	CHRONIC METAL TRANSLATOR
ALUMINUM	**NA**	**NA**	**NA**
ARSENIC	**NA**	**1**	**1**
CADMIUM	**0.5**	**0.97009195**	**0.93509195**
CHROMIUM III	**NA**	**0.316**	**0.86**
CHROMIUM VI	**NA**	**0.982**	**0.962**
COPPER	**1.4**	**0.96**	**0.96**
LEAD	**0.5**	**0.881870522**	**0.881870522**
MERCURY	**0**	**0.85**	**0.85**
NICKEL	**NA**	**0.998**	**0.997**
SELENIUM	**NA**	**NA**	**NA**
SILVER	**NA**	**0.85**	**NA**
ZINC	**NA**	**0.978**	**0.986**
AMMONIA (as N)	**100**		

USE NA WHEN NO DATA IS AVAILABLE

NOTE 1: METAL TRANSLATORS FROM RI WATER QUALITY REGS.

pH =	**7.515** S.U.
HARDNESS =	**53.6** (mg/L as CaCO3)

FLOW DATA	
DESIGN FLOW =	**2.672** MGD
=	4.134 CFS
7Q10 FLOW =	**0.000** CFS
7Q10 (JUNE-OCT) =	**0.000** CFS
7Q10 (NOV-MAY) =	**0.000** CFS
HARMONIC MEAN FLOW =	**0.520** CFS
HARMONIC MEAN FLOW =	**0.520** CFS

DILUTION FACTORS	
ACUTE =	**1.000**
CHRONIC =	**1.000**
(MAY-OCT) =	**1.000**
(NOV-APR) =	**1.000**
HARMONIC MEAN FLOW =	**1.126**
HARMONIC MEAN FLOW =	**1.126**

FACILITY NAME: PJ Keating

RIPDES PERMIT #: RI0023761

Month	T, °C	Upper 90th% pH	Acute Criteria* mg/L as N	Chronic Criteria* mg/L as N
May	26	**7.61**	**11.225**	**1.881**
Jun	26	**7.61**	**11.225**	**1.881**
Jul	26	**7.61**	**11.225**	**1.881**
Aug	26	**7.61**	**11.225**	**1.881**
Sep	26	**7.61**	**11.225**	**1.881**
Oct	26	**7.61**	**11.225**	**1.881**
Nov	15	**7.61**	**11.225**	**3.757**
Dec	15	**7.61**	**11.225**	**3.757**
Jan	15	**7.61**	**11.225**	**3.757**
Feb	15	**7.61**	**11.225**	**3.757**
Mar	15	**7.61**	**11.225**	**3.757**
Apr	15	**7.61**	**11.225**	**3.757**

**NOTE: Criteria from Appendix B of the RI Water Quality Regs., July 2006.*

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: PJ Keating RIPDES PERMIT #: RI0023761

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:							
TOXIC METALS AND CYANIDE							
ANTIMONY	7440360		450	360	10	640	8
ARSENIC (limits are total recoverable)	7440382	NA	340	272	150	1.4	1.260864077
ASBESTOS	1332214			No Criteria			No Criteria
BERYLLIUM	7440417		7.5	6	0.17		0.136
CADMIUM (limits are total recoverable)	7440439	0.5	1.097767272	1.018450411	0.159425156		0.15344228
CHROMIUM III (limits are total recoverable)	16065831	NA	341.8854096	865.5326826	44.47226769		41.36955134
CHROMIUM VI (limits are total recoverable)	18540299	NA	16	13.03462322	11		9.147609148
COPPER (limits are total recoverable)	7440508	1.4	7.46774842	7.001014144	5.256217619		4.927704017
CYANIDE	57125		22	17.6	5.2	140	4.16
LEAD (limits are total recoverable)	7439921	0.5	32.55079947	33.2199782	1.268457924		1.294534858
MERCURY (limits are total recoverable)	7439976	0	1.4	1.482352941	0.77	0.15	0.178799002
NICKEL (limits are total recoverable)	7440020	NA	276.2727242	221.4611015	30.68537027	4600	24.6221627
SELENIUM (limits are total recoverable)	7782492	NA	20	16	5	4200	4
SILVER (limits are total recoverable)	7440224	NA	1.180272646	1.110844843	NA		No Criteria
THALLIUM	7440280		46	36.8	1	0.47	0.423290083
ZINC (limits are total recoverable)	7440666	NA	69.08384532	56.51030292	69.64894835	26000	56.51030292
VOLATILE ORGANIC COMPOUNDS							
ACROLEIN	107028		2.9	2.32	0.06	290	0.048
ACRYLONITRILE	107131		378	302.4	8.4	2.5	2.251542994
BENZENE	71432		265	212	5.9	510	4.72
BROMOFORM	75252		1465	1172	33	1400	26.4
CARBON TETRACHLORIDE	56235		1365	1092	30	16	14.40987516
CHLOROBENZENE	108907		795	636	18	1600	14.4
CHLORODIBROMOMETHANE	124481			No Criteria		130	117.0802357
CHLOROFORM	67663		1445	1156	32	4700	25.6
DICHLOROBROMOMETHANE	75274			No Criteria		170	153.1049236
1,2DICHLOROETHANE	107062		5900	4720	131	370	104.8
1,1DICHLOROETHYLENE	75354		580	464	13	7100	10.4
1,2DICHLOROPROPANE	78875		2625	2100	58	150	46.4
1,3DICHLOROPROPYLENE	542756			No Criteria		21	18.91296115
ETHYLBENZENE	100414		1600	1280	36	2100	28.8
BROMOMETHANE (methyl bromide)	74839			No Criteria		1500	1350.925796
CHLOROMETHANE (methyl chloride)	74873			No Criteria			No Criteria
METHYLENE CHLORIDE	75092		9650	7720	214	5900	171.2

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: PJ Keating RIPDES PERMIT #: RI0023761

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,1,2,2TETRACHLOROETHANE	79345		466	372.8	10	40	8
TETRACHLOROETHYLENE	127184		240	192	5.3	33	4.24
TOLUENE	108883		635	508	14	15000	11.2
1,2TRANSDICHLOROETHYLENE	156605			No Criteria		10000	9006.171976
1,1,1TRICHLOROETHANE	71556			No Criteria			No Criteria
1,1,2TRICHLOROETHANE	79005		900	720	20	160	16
TRICHLOROETHYLENE	79016		1950	1560	43	300	34.4
VINYL CHLORIDE	75014			No Criteria		2.4	2.161481274
ACID ORGANIC COMPOUNDS							
2CHLOROPHENOL	95578		129	103.2	2.9	150	2.32
2,4DICHLOROPHENOL	120832		101	80.8	2.2	290	1.76
2,4DIMETHYLPHENOL	105679		106	84.8	2.4	850	1.92
4,6DINITRO2METHYL PHENOL	534521			No Criteria		280	252.1728153
2,4DINITROPHENOL	51285		31	24.8	0.69	5300	0.552
4NITROPHENOL	88755			No Criteria			No Criteria
PENTACHLOROPHENOL	87865		0.058308088	0.04664647	0.044734312	30	0.035787449
PHENOL	108952		251	200.8	5.6	1700000	4.48
2,4,6TRICHLOROPHENOL	88062		16	12.8	0.36	24	0.288
BASE NEUTRAL COMPUNDS							
ACENAPHTHENE	83329		85	68	1.9	990	1.52
ANTHRACENE	120127			No Criteria		40000	36024.6879
BENZIDINE	92875			No Criteria		0.002	0.001801234
POLYCYCLIC AROMATIC HYDROCARBONS				No Criteria		0.18	0.162111096
BIS(2CHLOROETHYL)ETHER	111444			No Criteria		5.3	4.773271147
BIS(2CHLOROISOPROPYL)ETHER	108601			No Criteria		65000	58540.11784
BIS(2ETHYLHEXYL)PHTHALATE	117817		555	444	12	22	9.6
BUTYL BENZYL PHTHALATE	85687		85	68	1.9	1900	1.52
2CHLORONAPHTHALENE	91587			No Criteria		1600	1440.987516
1,2DICHLOROBENZENE	95501		79	63.2	1.8	1300	1.44
1,3DICHLOROBENZENE	541731		390	312	8.7	960	6.96
1,4DICHLOROBENZENE	106467		56	44.8	1.2	190	0.96
3,3DICHLOROBENZIDENE	91941			No Criteria		0.28	0.252172815
DIETHYL PHTHALATE	84662		2605	2084	58	44000	46.4
DIMETHYL PHTHALATE	131113		1650	1320	37	1100000	29.6
DI-n-BUTYL PHTHALATE	84742			No Criteria		4500	4052.777389
2,4DINITROTOLUENE	121142		1550	1240	34	34	27.2

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: PJ Keating RIPDES PERMIT #: RI0023761

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
1,2DIPHENYLHYDRAZINE	122667		14	11.2	0.31	2	0.248
FLUORANTHENE	206440		199	159.2	4.4	140	3.52
FLUORENE	86737			No Criteria		5300	4773.271147
HEXACHLOROBENZENE	118741			No Criteria		0.0029	0.00261179
HEXACHLOROBUTADIENE	87683			No Criteria		180	162.1110956
HEXACHLOROCYCLOPENTADIENE	77474		0.35	0.28	0.008	1100	0.0064
HEXACHLOROETHANE	67721		49	39.2	1.1	33	0.88
ISOPHORONE	78591		5850	4680	130	9600	104
NAPHTHALENE	91203		115	92	2.6		2.08
NITROBENZENE	98953		1350	1080	30	690	24
N-NITROSODIMETHYLAMINE	62759			No Criteria		30	27.01851593
N-NITROSODI-N-PROPYLAMINE	621647			No Criteria		5.1	4.593147708
N-NITROSODIPHENYLAMINE	86306		293	234.4	6.5	60	5.2
PYRENE	129000			No Criteria		4000	3602.46879
1,2,4trichlorobenzene	120821		75	60	1.7	70	1.36
PESTICIDES/PCBs							
ALDRIN	309002		3	2.4		0.0005	0.000450309
Alpha BHC	319846			No Criteria		0.049	0.044130243
Beta BHC	319857			No Criteria		0.17	0.153104924
Gamma BHC (Lindane)	58899		0.95	0.76		1.8	1.621110956
CHLORDANE	57749		2.4	1.92	0.0043	0.0081	0.00344
4,4DDT	50293		1.1	0.88	0.001	0.0022	0.0008
4,4DDE	72559			No Criteria		0.0022	0.001981358
4,4DDD	72548			No Criteria		0.0031	0.002791913
DIELDRIN	60571		0.24	0.192	0.056	0.00054	0.000486333
ENDOSULFAN (alpha)	959988		0.22	0.176	0.056	89	0.0448
ENDOSULFAN (beta)	33213659		0.22	0.176	0.056	89	0.0448
ENDOSULFAN (sulfate)	1031078			No Criteria		89	80.15493059
ENDRIN	72208		0.086	0.0688	0.036	0.06	0.0288
ENDRIN ALDEHYDE	7421934			No Criteria		0.3	0.270185159
HEPTACHLOR	76448		0.52	0.416	0.0038	0.00079	0.000711488
HEPTACHLOR EPOXIDE	1024573		0.52	0.416	0.0038	0.00039	0.000351241
POLYCHLORINATED BIPHENYLS3	1336363			No Criteria	0.014	0.00064	0.000576395
2,3,7,8TCDD (Dioxin)	1746016			No Criteria		0.000000051	4.59315E-08
TOXAPHENE	8001352		0.73	0.584	0.0002	0.0028	0.00016
TRIBUTYLTIN			0.46	0.368	0.072		0.0576

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: PJ Keating RIPDES PERMIT #: RI0023761

NOTE: METALS CRITERIA ARE EXPRESSED AS DISSOLVED, METALS LIMITS ARE EXPRESSED AS TOTAL

CHEMICAL NAME	CAS #	BACKGROUND CONCENTRATION (ug/L)	FRESHWATER CRITERIA ACUTE (ug/L)	DAILY MAX LIMIT (ug/L)	FRESHWATER CRITERIA CHRONIC (ug/L)	HUMAN HEALTH NON-CLASS A CRITERIA (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:							
OTHER SUBSTANCES							
ALUMINUM (limits are total recoverable)	7429905	NA	750	600	87		69.6
AMMONIA as N(winter/summer)	7664417		11.225 | 11.23	10103 | 10103	3.757 | 1.881		3381.3 | 1692.9
4BROMOPHENYL PHENYL ETHER			18	14.4	0.4		0.32
CHLORIDE	16887006		860000	688000	230000		184000
CHLORINE	7782505		19	19	11		11
4CHLORO2METHYLPHENOL			15	12	0.32		0.256
1CHLORONAPHTHALENE			80	64	1.8		1.44
4CHLOROPHENOL	106489		192	153.6	4.3		3.44
2,4DICHLORO6METHYLPHENOL			22	17.6	0.48		0.384
1,1DICHLOROPROPANE			1150	920	26		20.8
1,3DICHLOROPROPANE	142289		303	242.4	6.7		5.36
2,3DINITROTOLUENE			17	13.6	0.37		0.296
2,4DINITRO6METHYL PHENOL			12	9.6	0.26		0.208
IRON	7439896			No Criteria	1000		800
pentachlorobenzene	608935		13	10.4	0.28		0.224
PENTACHLOROETHANE			362	289.6	8		6.4
1,2,3,5tetrachlorobenzene			321	256.8	7.1		5.68
1,1,1,2TETRACHLOROETHANE	630206		980	784	22		17.6
2,3,4,6TETRACHLOROPHENOL	58902		7	5.6	0.16		0.128
2,3,5,6TETRACHLOROPHENOL			8.5	6.8	0.19		0.152
2,4,5TRICHLOROPHENOL	95954		23	18.4	0.51		0.408
2,4,6TRINITROPHENOL	88062		4235	3388	94		75.2
XYLENE	1330207		133	106.4	3		2.4

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: PJ Keating RIPDES PERMIT #: RI0023761

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
PRIORITY POLLUTANTS:			
TOXIC METALS AND CYANIDE			
ANTIMONY	7440360	360.00	8.00
ARSENIC, TOTAL	7440382	272.00	1.26
ASBESTOS	1332214	No Criteria	0.00000
BERYLLIUM	7440417	6.00	0.14
CADMIUM, TOTAL	7440439	1.02	0.15344
CHROMIUM III, TOTAL	16065831	865.53	41.37
CHROMIUM VI, TOTAL	18540299	13.03	9.15
COPPER, TOTAL	7440508	7.00	4.93
CYANIDE	57125	17.60	4.16
LEAD, TOTAL	7439921	33.22	1.29
MERCURY, TOTAL	7439976	1.48	0.18
NICKEL, TOTAL	7440020	221.46	24.62
SELENIUM, TOTAL	7782492	16.00	4.00
SILVER, TOTAL	7440224	1.11	No Criteria
THALLIUM	7440280	36.80	0.42
ZINC, TOTAL	7440666	56.51	56.51
VOLATILE ORGANIC COMPOUNDS			
ACROLEIN	107028	2.32	0.04800
ACRYLONITRILE	107131	302.40	2.25
BENZENE	71432	212.00	4.72
BROMOFORM	75252	1172.00	26.40
CARBON TETRACHLORIDE	56235	1092.00	14.41
CHLOROBENZENE	108907	636.00	14.40
CHLORODIBROMOMETHANE	124481	No Criteria	117.08
CHLOROFORM	67663	1156.00	25.60
DICHLOROBROMOMETHANE	75274	No Criteria	153.10
1,2DICHLOROETHANE	107062	4720.00	104.80
1,1DICHLOROETHYLENE	75354	464.00	10.40
1,2DICHLOROPROPANE	78875	2100.00	46.40
1,3DICHLOROPROPYLENE	542756	No Criteria	18.91
ETHYLBENZENE	100414	1280.00	28.80
BROMOMETHANE (methyl bromide)	74839	No Criteria	1350.93
CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.00000
METHYLENE CHLORIDE	75092	7720.00	171.20
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00
TETRACHLOROETHYLENE	127184	192.00	4.24
TOLUENE	108883	508.00	11.20
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	9006.17
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00000
1,1,2TRICHLOROETHANE	79005	720.00	16.00
TRICHLOROETHYLENE	79016	1560.00	34.40
VINYL CHLORIDE	75014	No Criteria	2.16
ACID ORGANIC COMPOUNDS			
2CHLOROPHENOL	95578	103.20	2.32
2,4DICHLOROPHENOL	120832	80.80	1.76
2,4DIMETHYLPHENOL	105679	84.80	1.92
4,6DINITRO2METHYL PHENOL	534521	No Criteria	252.17
2,4DINITROPHENOL	51285	24.80	0.55
4NITROPHENOL	88755	No Criteria	0.00000
PENTACHLOROPHENOL	87865	0.05	0.03579
PHENOL	108952	200.80	4.48
2,4,6TRICHLOROPHENOL	88062	12.80	0.29
BASE NEUTRAL COMPUNDS			
ACENAPHTHENE	83329	68.00	1.52
ANTHRACENE	120127	No Criteria	36024.69
BENZIDINE	92875	No Criteria	0.00180
PAHs		No Criteria	0.16
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.77
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	58540.12
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60
BUTYL BENZYL PHTHALATE	85687	68.00	1.52
2CHLORONAPHTHALENE	91587	No Criteria	1440.99
1,2DICHLOROBENZENE	95501	63.20	1.44
1,3DICHLOROBENZENE	541731	312.00	6.96
1,4DICHLOROBENZENE	106467	44.80	0.96
3,3DICHLOROBENZIDENE	91941	No Criteria	0.25
DIETHYL PHTHALATE	84662	2084.00	46.40
DIMETHYL PHTHALATE	131113	1320.00	29.60
DI-n-BUTYL PHTHALATE	84742	No Criteria	4052.78
2,4DINITROTOLUENE	121142	1240.00	27.20
1,2DIPHENYLHYDRAZINE	122667	11.20	0.25
FLUORANTHENE	206440	159.20	3.52

CALCULATION OF WATER QUALITY BASED NON-CLASS AA FRESHWATER DISCHARGE LIMITS

FACILITY NAME: PJ Keating RIPDES PERMIT #: RI0023761

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
FLUORENE	86737	No Criteria	4773.27
HEXACHLOROBENZENE	118741	No Criteria	0.00261
HEXACHLOROBUTADIENE	87683	No Criteria	162.11
HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.00640
HEXACHLOROETHANE	67721	39.20	0.88
ISOPHORONE	78591	4680.00	104.00
NAPHTHALENE	91203	92.00	2.08
NITROBENZENE	98953	1080.00	24.00
N-NITROSODIMETHYLAMINE	62759	No Criteria	27.02
N-NITROSODI-N-PROPYLAMINE	621647	No Criteria	4.59
N-NITROSODIPHENYLAMINE	86306	234.40	5.20
PYRENE	129000	No Criteria	3602.47
1,2,4trichlorobenzene	120821	60.00	1.36
PESTICIDES/PCBs			
ALDRIN	309002	2.40	0.00045
Alpha BHC	319846	No Criteria	0.04
Beta BHC	319857	No Criteria	0.15
Gamma BHC (Lindane)	58899	0.76	0.76
CHLORDANE	57749	1.92	0.00344
4,4DDT	50293	0.88	0.00080
4,4DDE	72559	No Criteria	0.00198
4,4DDD	72548	No Criteria	0.00279
DIELDRIN	60571	0.19	0.00049
ENDOSULFAN (alpha)	959988	0.18	0.04480
ENDOSULFAN (beta)	33213659	0.18	0.04480
ENDOSULFAN (sulfate)	1031078	No Criteria	80.15
ENDRIN	72208	0.07	0.03
ENDRIN ALDEHYDE	7421934	No Criteria	0.27
HEPTACHLOR	76448	0.42	0.00
HEPTACHLOR EPOXIDE	1024573	0.42	0.00
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.00
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00
TOXAPHENE	8001352	0.58	0.00
TRIBUTYLTIN		0.37	0.06

CHEMICAL NAME	CAS#	DAILY MAX LIMIT (ug/L)	MONTHLY AVE LIMIT (ug/L)
NON PRIORITY POLLUTANTS:			
OTHER SUBSTANCES			
ALUMINUM, TOTAL	7429905	600.00	69.60
AMMONIA (as N), WINTER (NOV-API	7664417	10102.50	3381.30
AMMONIA (as N), SUMMER (MAY-OC	7664417	10102.50	1692.90
4BROMOPHENYL PHENYL ETHER		14.40	0.32
CHLORIDE	16887006	688000.00	184000.00
CHLORINE	7782505	19.00	11.00
4CHLORO2METHYLPHENOL		12.00	0.26
1CHLORONAPHTHALENE		64.00	1.44
4CHLOROPHENOL	106489	153.60	3.44
2,4DICHLORO6METHYLPHENOL		17.60	0.38
1,1DICHLOROPROPANE		920.00	20.80
1,3DICHLOROPROPANE	142289	242.40	5.36
2,3DINITROTOLUENE		13.60	0.30
2,4DINITRO6METHYL PHENOL		9.60	0.21
IRON	7439896	No Criteria	800.00
pentachlorobenzene	608935	10.40	0.22
PENTACHLOROETHANE		289.60	6.40
1,2,3,5tetrachlorobenzene		256.80	5.68
1,1,1,2TETRACHLOROETHANE	630206	784.00	17.60
2,3,4,6TETRACHLOROPHENOL	58902	5.60	0.13
2,3,5,6TETRACHLOROPHENOL		6.80	0.15
2,4,5TRICHLOROPHENOL	95954	18.40	0.41
2,4,6TRINITROPHENOL	88062	3388.00	75.20
XYLENE	1330207	106.40	2.40

Summary

Facility Name: *PJ Keating*

RIPDES Permit #: *RI0023761*

Outfall #: *001 and 002*

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data 11/13		Ave. DMR Data (ug/L) 9/09-9/13		Potential Permit Limits (ug/L)		Reasonable Potential?
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
PRIORITY POLLUTANTS											
TOXIC METALS AND CYANIDE											
ANTIMONY	7440360	360.00	8.00	---	---	---	---	---	360	8	N
ARSENIC (limits are total recoverable)	7440382	272.00	1.26	---	---	---	---	---	272	1.260864077	N
ASBESTOS	1332214	No Criteria	0.00	---	---	---	---	---	---	0	N
BERYLLIUM	7440417	6.00	0.14	---	---	---	---	---	6	0.136	N
CADMIUM (limits are total recoverable)	7440439	1.02	0.15	---	---	---	---	---	1.01845041	0.15344228	N
CHROMIUM III (limits are total recoverable)	16065831	865.53	41.37	---	---	---	---	---	865.532683	41.36955134	N
CHROMIUM VI (limits are total recoverable)	18540299	13.03	9.15	---	---	---	---	---	13.0346232	9.147609148	N
COPPER (limits are total recoverable)	7440508	7.00	4.93	---	---	---	---	---	7.00101414	4.927704017	N
CYANIDE	57125	17.60	4.16	---	---	---	---	---	17.6	4.16	N
LEAD (limits are total recoverable)	7439921	33.22	1.29	---	---	---	---	---	33.2199782	1.294534858	N
MERCURY (limits are total recoverable)	7439976	1.48	0.18	---	---	---	---	---	1.48235294	0.178799002	N
NICKEL (limits are total recoverable)	7440020	221.46	24.62	---	---	---	---	---	221.461102	24.6221627	N
SELENIUM (limits are total recoverable)	7782492	16.00	4.00	---	---	---	---	---	16	4	N
SILVER (limits are total recoverable)	7440224	1.11	No Criteria	---	---	---	---	---	1.11084484	1.110844843	N
THALLIUM	7440280	36.80	0.42	---	---	---	---	---	36.8	0.423290083	N
ZINC (limits are total recoverable)	7440666	56.51	56.51	---	---	---	---	---	56.5103029	56.51030292	N
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN	107028	2.32	0.05	---	---	---	---	---	2.32	0.048	N
ACRYLONITRILE	107131	302.40	2.25	---	---	---	---	---	302.4	2.251542994	N
BENZENE	71432	212.00	4.72	---	---	---	---	---	212	4.72	N
BROMOFORM	75252	1172.00	26.40	---	---	---	---	---	1172	26.4	N
CARBON TETRACHLORIDE	56235	1092.00	14.41	---	---	---	---	---	1092	14.40987516	N
CHLOROBENZENE	108907	636.00	14.40	---	---	---	---	---	636	14.4	N
CHLORODIBROMOMETHANE	124481	No Criteria	117.08	---	---	---	---	---	---	117.0802357	N
CHLOROFORM	67663	1156.00	25.60	---	---	---	---	---	1156	25.6	N
DICHLOROBROMOMETHANE	75274	No Criteria	153.10	---	---	---	---	---	---	153.1049236	N
1,2DICHLOROETHANE	107062	4720.00	104.80	---	---	---	---	---	4720	104.8	N
1,1DICHLOROETHYLENE	75354	464.00	10.40	---	---	---	---	---	464	10.4	N
1,2DICHLOROPROPANE	78875	2100.00	46.40	---	---	---	---	---	2100	46.4	N
1,3DICHLOROPROPYLENE	542756	No Criteria	18.91	---	---	---	---	---	---	18.91296115	N
ETHYLBENZENE	100414	1280.00	28.80	---	---	---	---	---	1280	28.8	N
BROMOMETHANE (methyl bromide)	74839	No Criteria	1350.93	---	---	---	---	---	---	1350.925796	N

Summary

Facility Name: *PJ Keating*

RIPDES Permit #: *RI0023761*

Outfall #: *001 and 002*

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data 11/13		Ave. DMR Data (ug/L) 9/09-9/13		Potential Permit Limits (ug/L)		Reasonable Potential?
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
CHLOROMETHANE (methyl chloride)	74873	No Criteria	0.00	---	---	---	---	---	---	0	N
METHYLENE CHLORIDE	75092	7720.00	171.20	---	---	---	---	---	7720	171.2	N
1,1,2,2TETRACHLOROETHANE	79345	372.80	8.00	---	---	---	---	---	372.8	8	N
TETRACHLOROETHYLENE	127184	192.00	4.24	---	---	---	---	---	192	4.24	N
TOLUENE	108883	508.00	11.20	---	---	---	---	---	508	11.2	N
1,2TRANSDICHLOROETHYLENE	156605	No Criteria	9006.17	---	---	---	---	---	---	9006.171976	N
1,1,1TRICHLOROETHANE	71556	No Criteria	0.00	---	---	---	---	---	---	0	N
1,1,2TRICHLOROETHANE	79005	720.00	16.00	---	---	---	---	---	720	16	N
TRICHLOROETHYLENE	79016	1560.00	34.40	---	---	---	---	---	1560	34.4	N
VINYL CHLORIDE	75014	No Criteria	2.16	---	---	---	---	---	---	2.161481274	N
ACID ORGANIC COMPOUNDS											
2CHLOROPHENOL	95578	103.20	2.32	---	---	---	---	---	103.2	2.32	N
2,4DICHLOROPHENOL	120832	80.80	1.76	---	---	---	---	---	80.8	1.76	N
2,4DIMETHYLPHENOL	105679	84.80	1.92	---	---	---	---	---	84.8	1.92	N
4,6DINITRO2METHYL PHENOL	534521	No Criteria	252.17	---	---	---	---	---	---	252.1728153	N
2,4DINITROPHENOL	51285	24.80	0.55	---	---	---	---	---	24.8	0.552	N
4NITROPHENOL	88755	No Criteria	0.00	---	---	---	---	---	---	0	N
PENTACHLOROPHENOL	87865	0.05	0.04	---	---	---	---	---	0.04664647	0.035787449	N
PHENOL	108952	200.80	4.48	---	---	---	---	---	200.8	4.48	N
2,4,6TRICHLOROPHENOL	88062	12.80	0.29	---	---	---	---	---	12.8	0.288	N
BASE NEUTRAL COMPOUNDS											
ACENAPHTHENE	83329	68.00	1.52	---	---	---	---	---	68	1.52	N
ANTHRACENE	120127	No Criteria	36024.69	---	---	---	---	---	---	36024.6879	N
BENZIDINE	92875	No Criteria	0.00	---	---	---	---	---	---	0.001801234	N
POLYCYCLIC AROMATIC HYDROCARBONS		No Criteria	0.16	---	---	---	---	---	---	0.162111096	N
BIS(2CHLOROETHYL)ETHER	111444	No Criteria	4.77	---	---	---	---	---	---	4.773271147	N
BIS(2CHLOROISOPROPYL)ETHER	108601	No Criteria	58540.12	---	---	---	---	---	---	58540.11784	N
BIS(2ETHYLHEXYL)PHTHALATE	117817	444.00	9.60	---	---	---	---	---	444	9.6	N
BUTYL BENZYL PHTHALATE	85687	68.00	1.52	---	---	---	---	---	68	1.52	N
2CHLORONAPHTHALENE	91587	No Criteria	1440.99	---	---	---	---	---	---	1440.987516	N
1,2DICHLOROBENZENE	95501	63.20	1.44	---	---	---	---	---	63.2	1.44	N
1,3DICHLOROBENZENE	541731	312.00	6.96	---	---	---	---	---	312	6.96	N
1,4DICHLOROBENZENE	106467	44.80	0.96	---	---	---	---	---	44.8	0.96	N
3,3DICHLOROBENZIDENE	91941	No Criteria	0.25	---	---	---	---	---	---	0.252172815	N

Summary

Facility Name: *PJ Keating*

RIPDES Permit #: *RI0023761*

Outfall #: *001 and 002*

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data 11/13		Ave. DMR Data (ug/L) 9/09-9/13		Potential Permit Limits (ug/L)		Reasonable Potential?
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
DIETHYL PHTHALATE	84662	2084.00	46.40	---	---	---	---	---	2084	46.4	N
DIMETHYL PHTHALATE	131113	1320.00	29.60	---	---	---	---	---	1320	29.6	N
DInBUTYL PHTHALATE	84742	No Criteria	4052.78	---	---	---	---	---	---	4052.777389	N
2,4DINITROTOLUENE	121142	1240.00	27.20	---	---	---	---	---	1240	27.2	N
1,2DIPHENYLHYDRAZINE	122667	11.20	0.25	---	---	---	---	---	11.2	0.248	N
FLUORANTHENE	206440	159.20	3.52	---	---	---	---	---	159.2	3.52	N
FLUORENE	86737	No Criteria	4773.27	---	---	---	---	---	---	4773.271147	N
HEXACHLOROBENZENE	118741	No Criteria	0.00	---	---	---	---	---	---	0.00261179	N
HEXACHLOROBUTADIENE	87683	No Criteria	162.11	---	---	---	---	---	---	162.1110956	N
HEXACHLOROCYCLOPENTADIENE	77474	0.28	0.01	---	---	---	---	---	0.28	0.0064	N
HEXACHLOROETHANE	67721	39.20	0.88	---	---	---	---	---	39.2	0.88	N
ISOPHORONE	78591	4680.00	104.00	---	---	---	---	---	4680	104	N
NAPHTHALENE	91203	92.00	2.08	---	---	---	---	---	92	2.08	N
NITROBENZENE	98953	1080.00	24.00	---	---	---	---	---	1080	24	N
NNITROSODIMETHYLAMINE	62759	No Criteria	27.02	---	---	---	---	---	---	27.01851593	N
NNITROSODINPROPYLAMINE	621647	No Criteria	4.59	---	---	---	---	---	---	4.593147708	N
NNITROSODIPHENYLAMINE	86306	234.40	5.20	---	---	---	---	---	234.4	5.2	N
PYRENE	129000	No Criteria	3602.47	---	---	---	---	---	---	3602.46879	N
1,2,4trichlorobenzene	120821	60.00	1.36	---	---	---	---	---	60	1.36	N
PESTICIDES/PCBs											
ALDRIN	309002	2.40	0.00	---	---	---	---	---	2.4	0.000450309	N
Alpha BHC	319846	No Criteria	0.04	---	---	---	---	---	---	0.044130243	N
Beta BHC	319857	No Criteria	0.15	---	---	---	---	---	---	0.153104924	N
Gamma BHC (Lindane)	58899	0.76	0.76	---	---	---	---	---	0.76	0.76	N
CHLORDANE	57749	1.92	0.00	---	---	---	---	---	1.92	0.00344	N
4,4DDT	50293	0.88	0.00	---	---	---	---	---	0.88	0.0008	N
4,4DDE	72559	No Criteria	0.00	---	---	---	---	---	---	0.001981358	N
4,4DDD	72548	No Criteria	0.00	---	---	---	---	---	---	0.002791913	N
DIELDRIN	60571	0.19	0.00	---	---	---	---	---	0.192	0.000486333	N
ENDOSULFAN (alpha)	959988	0.18	0.04	---	---	---	---	---	0.176	0.0448	N
ENDOSULFAN (beta)	33213659	0.18	0.04	---	---	---	---	---	0.176	0.0448	N
ENDOSULFAN (sulfate)	1031078	No Criteria	80.15	---	---	---	---	---	---	80.15493059	N
ENDRIN	72208	0.07	0.03	---	---	---	---	---	0.0688	0.0288	N
ENDRIN ALDEHYDE	7421934	No Criteria	0.27	---	---	---	---	---	---	0.270185159	N

Facility Name: *PJ Keating*

RIPDES Permit #: *RI0023761*

Outfall #: *001 and 002*

NOTE: METALS LIMITS ARE TOTAL METALS

Parameter	CAS #	Concentration Limits (ug/L) Based on WQ Criteria		Antideg. Limits (ug/L)	Permit Application Data 11/13		Ave. DMR Data (ug/L) 9/09-9/13		Potential Permit Limits (ug/L)		Reasonable Potential?
		Daily Max	Monthly Ave	Monthly Ave	Max	Ave	Daily Max	Monthly Ave	Daily Max	Monthly Ave	
HEPTACHLOR	76448	0.42	0.00	---	---	---	---	---	0.416	0.000711488	N
HEPTACHLOR EPOXIDE	1024573	0.42	0.00	---	---	---	---	---	0.416	0.000351241	N
POLYCHLORINATED BIPHENYLS3	1336363	No Criteria	0.00	---	---	---	---	---	---	0.000576395	N
2,3,7,8TCDD (Dioxin)	1746016	No Criteria	0.00	---	---	---	---	---	---	4.59315E-08	N
TOXAPHENE	8001352	0.58	0.00	---	---	---	---	---	0.584	0.00016	N
TRIBUTYLTIN		0.37	0.06						0.368	0.0576	N
NON PRIORITY POLLUTANTS:											
OTHER SUBSTANCES											
ALUMINUM (limits are total recoverable)	7429905	600.00	69.60	---	---	---	---	---	600	69.6	N
AMMONIA (winter)	7664417	10102.50	3381.30	---	---	10	---	---	10102.5	3381.3	N
AMMONIA (summer)		10102.50	1692.90	---	---	10	---	---	10102.5	1692.9	N
4BROMOPHENYL PHENYL ETHER	16887006	14.40	0.32	---	---	---	---	---	14.4	0.32	N
CHLORIDE	7782505	688000.00	184000.00						688000	184000	N
CHLORINE		19.00	11.00	---	---	---	---	---	19	11	N
4CHLORO2METHYLPHENOL		12.00	0.26	---	---	---	---	---	12	0.256	N
1CHLORONAPHTHALENE	106489	64.00	1.44	---	---	---	---	---	64	1.44	N
4CHLOROPHENOL		153.60	3.44	---	---	---	---	---	153.6	3.44	N
2,4DICHLORO6METHYLPHENOL		17.60	0.38	---	---	---	---	---	17.6	0.384	N
1,1DICHLOROPROPANE	142289	920.00	20.80	---	---	---	---	---	920	20.8	N
1,3DICHLOROPROPANE		242.40	5.36	---	---	---	---	---	242.4	5.36	N
2,3DINITROTOLUENE		13.60	0.30	---	---	---	---	---	13.6	0.296	N
2,4DINITRO6METHYL PHENOL	7439896	9.60	0.21	---	---	---	---	---	9.6	0.208	N
IRON	608935	No Criteria	800.00		---	40			---	800	N
pentachlorobenzene		10.40	0.22	---	---	---	---	---	10.4	0.224	N
PENTACHLOROETHANE		289.60	6.40	---	---	---	---	---	289.6	6.4	N
1,2,3,5tetrachlorobenzene	630206	256.80	5.68	---	---	---	---	---	256.8	5.68	N
1,1,1,2TETRACHLOROETHANE	58902	784.00	17.60	---	---	---	---	---	784	17.6	N
2,3,4,6TETRACHLOROPHENOL		5.60	0.13	---	---	---	---	---	5.6	0.128	N
2,3,5,6TETRACHLOROPHENOL	95954	6.80	0.15	---	---	---	---	---	6.8	0.152	N
2,4,5TRICHLOROPHENOL	88062	18.40	0.41	---	---	---	---	---	18.4	0.408	N
2,4,6TRINITROPHENOL	1330207	3388.00	75.20	---	---	---	---	---	3388	75.2	N
XYLENE		106.40	2.40						106.4	2.4	N

PART II
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DEFINITIONS

GENERAL REQUIREMENTS

(a) Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Chapter 46-12 of the Rhode Island General Laws and 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.

(1) The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants 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 requirement.

(2) The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the CWA is subject to a civil penalty not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307 or 308 of the Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment of not more than 1 year, or both.

(3) Chapter 46-12 of the Rhode Island General Laws provides that any person who violates a permit condition is subject to a civil penalty of not more than $5,000 per day of such violation. Any person who willfully or negligently violates a permit condition is subject to a criminal penalty of not more than $10,000 per day of such violation and imprisonment for not more than 30 days, or both. Any person who knowingly makes any false statement in connection with the permit is subject to a criminal penalty of not more than $5,000 for each instance of violation or by imprisonment for not more than 30 days, or both.

(b) Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, 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 Director. (The Director shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

(c) 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.

(d) Duty to Mitigate

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

(e) 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. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures, and, where applicable, compliance with DEM "Rules and Regulations Pertaining to the Operation and Maintenance of Wastewater Treatment Facilities" and "Rules and Regulations Pertaining to the Disposal and Utilization of Wastewater Treatment Facility Sludge." 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.

(f) Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause, including but not limited to: (1) Violation of any terms or conditions of this permit; (2) Obtaining this permit by misrepresentation or failure to disclose all relevant facts; or (3) A change in any conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

(g) Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

(h) Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director 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 Director, upon request, copies of records required to be kept by this permit.

(i) Inspection and Entry

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

(1) 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;

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

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

(4) Sample or monitor any substances or parameters at any location, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA or Rhode Island law.

(j) Monitoring and Records

(1) Samples and measurements taken for the purpose of monitoring shall be representative of the volume and nature of the discharge over the sampling and reporting period.

(2) The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings from 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 5 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

(3) Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;

(ii) The individual(s) who performed the sampling or measurements;

(iii) The date(s) analyses were performed;

(iv) The individual(s) who performed the analyses;

(v) The analytical techniques or methods used; and

(vi) The results of such analyses.

(4) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136 and applicable Rhode Island regulations, unless other test procedures have been specified in this permit.

(5) 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 per violation or by imprisonment for not more than 6 months per violation or by both. Chapter 46-12 of the Rhode Island General Laws also provides that such acts are subject to a fine of not more than $5,000 per violation, or by imprisonment for not more than 30 days per violation, or by both.

(6) Monitoring results must be reported on a Discharge Monitoring Report (DMR).

(7) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136, applicable State regulations, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

(k) Signatory Requirement

All applications, reports, or information submitted to the Director shall be signed and certified in accordance with Rule 12 of the Rhode Island Pollutant Discharge Elimination System (RIPDES) Regulations. Rhode Island General Laws, Chapter 46-12 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 $5,000 per violation, or by imprisonment for not more than 30 days per violation, or by both.

(l) Reporting Requirements

(1) Planned changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

(2) Anticipated noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with the permit requirements.

(3) Transfers. This permit is not transferable to any person except after written notice to the Director. The Director 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 State and Federal law.

(4) Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(5) Twenty-four hour reporting. The permittee shall immediately report any noncompliance which may endanger health or the environment by calling DEM at (401) 222-4700 or (401) 222-3070 at night.

A written submission shall also be provided within five (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.

The following information must be reported immediately:

(i) Any unanticipated bypass which causes a violation of any effluent limitation in the permit; or

(ii) Any upset which causes a violation of any effluent limitation in the permit; or

(iii) Any violation of a maximum daily discharge limitation for any of the pollutants specifically listed by the Director in the permit.

The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

(6) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (1), (2), and (5), of this section, at the time monitoring reports are submitted. The reports shall contain the information required in paragraph (l)(5) of the section.

(7) 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 Director, they shall promptly submit such facts or information.

(m) Bypass

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

(1) 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 provisions of paragraphs (2) and (3) of this section.

(2) Notice.

(i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of the bypass.

(ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Rule 14.18 of the RIPDES Regulations.

(3) Prohibition of bypass.

(i) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, where "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 reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production;

(B) 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 backup 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 preventive maintenance; and

(C) The permittee submitted notices as required under paragraph (2) of this section.

(ii) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph (3)(i) of this section.

(n) Upset

"Upset" means an exceptional incident in which there is 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.

(1) 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 (2) 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.

(2) 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:

(a) An upset occurred and that the permittee can identify the cause(s) of the upset;

(b) The permitted facility was at the time being properly operated;

(c) The permittee submitted notice of the upset as required in Rule 14.18 of the RIPDES Regulations; and

(d) The permittee complied with any remedial measures required under Rule 14.05 of the RIPDES Regulations.

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

(o) Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. Discharges which cause a violation of water quality standards are prohibited. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different or increased discharges of pollutants must be reported by submission of a new NPDES application at least 180 days prior to commencement of such discharges, or if such changes will not violate the effluent limitations specified in this permit, by notice, in writing, to the Director of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by the permit constitutes a violation.

(p) Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner consistent with applicable Federal and State laws and regulations including, but not limited to the CWA and the Federal Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq., Rhode Island General Laws, Chapters 46-12, 23-19.1 and regulations promulgated thereunder.

(q) Power Failures

In order to maintain compliance with the effluent limitation and prohibitions of this permit, the permittee shall either:

> In accordance with the Schedule of Compliance contained in Part I, provide an alternative power source sufficient to operate the wastewater control facilities;

or if such alternative power source is not in existence, and no date for its implementation appears in Part I,

> Halt reduce or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

(r) Availability of Reports

Except for data determined to be confidential under paragraph (w) below, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the DEM, 291 Promenade Street, Providence, Rhode Island. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA and under Section 46-12-14 of the Rhode Island General Laws.

(s) State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law.

(t) 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, and local laws and regulations.

(u) Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

(v) Reopener Clause

The Director reserves the right to make appropriate revisions to this permit in order to incorporate any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA or State law. In accordance with Rules 15 and 23 of the RIPDES Regulations, if any effluent standard or prohibition, or water quality standard is promulgated under the CWA or under State law which is more stringent than any limitation on the pollutant in the permit, or controls a pollutant not limited in the permit, then the Director may promptly reopen the permit and modify or revoke and reissue the permit to conform to the applicable standard.

(w) Confidentiality of Information

(1) Any information submitted to DEM 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, DEM may make the information available to the pubic without further notice.

(2) Claims of confidentiality for the following information will be denied:

(i) The name and address of any permit applicant or permittee;

(ii) Permit applications, permits and any attachments thereto; and

(iii) NPDES effluent data.

(x) Best Management Practices

The permittee shall adopt Best Management Practices (BMP) to control or abate the discharge of toxic pollutants and hazardous substances associated with or ancillary to the industrial manufacturing or treatment process and the Director may request the submission of a BMP plan where the Director determines that a permittee's practices may contribute significant amounts of such pollutants to waters of the State.

(y) Right of Appeal

Within thirty (30) days of receipt of notice of a final permit decision, the permittee or any interested person may submit a request to the Director for an adjudicatory hearing to reconsider or contest that decision. The request for a hearing must conform to the requirements of Rule 49 of the RIPDES Regulations.

DEFINITIONS

1. For purposes of this permit, those definitions contained in the RIPDES Regulations and the Rhode Island Pretreatment Regulations shall apply.

2. The following abbreviations, when used, are defined below.

cu. M/day or M^3/day	cubic meters per day
mg/l	milligrams per liter
ug/l	micrograms per liter
lbs/day	pounds per day
kg/day	kilograms per day
Temp. ^oC	temperature in degrees Centigrade
Temp. ^oF	temperature in degrees Fahrenheit
Turb.	turbidity measured by the Nephelometric Method (NTU)
TNFR or TSS	total nonfilterable residue or total suspended solids
DO	dissolved oxygen
BOD	five-day biochemical oxygen demand unless otherwise specified
TKN	total Kjeldahl nitrogen as nitrogen
Total N	total nitrogen
NH_3-N	ammonia nitrogen as nitrogen
Total P	total phosphorus
COD	chemical oxygen demand
TOC	total organic carbon
Surfactant	surface-active agent
pH	a measure of the hydrogen ion concentration
PCB	polychlorinated biphenyl
CFS	cubic feet per second
MGD	million gallons per day
Oil & Grease	Freon extractable material
Total Coliform	total coliform bacteria
Fecal Coliform	total fecal coliform bacteria
ml/l	milliliter(s) per liter
NO_3-N	nitrate nitrogen as nitrogen
NO_2-N	nitrite nitrogen as nitrogen
NO_3-NO_2	combined nitrate and nitrite nitrogen as nitrogen
$C1_2$	total residual chlorine