

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ONE CONGRESS STREET
MASSACHUSETTS 02114-2023

FACT SHEET

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

NPDES PERMIT NO.: MA0032689

NAME AND ADDRESS OF APPLICANT:

University of Massachusetts
Amherst, MA 01003

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Coal Storage and Handling Facility
University of Massachusetts
Amherst, MA 01003

RECEIVING WATER: Taylor Brook (through open ditch)
Connecticut River Watershed; MA Code 34

CLASSIFICATION: B

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

The above named applicant has requested that the U.S. Environmental Protection Agency (EPA) reissue its NPDES permit to discharge treated storm water into the designated receiving water through outfall 001 (attachment A). The discharge is from the coal storage and handling facility located at the University of Massachusetts at Amherst.

Taylor Brook has been classified as a Class B waterway by the state. The designated uses for a Class B water include: habitat for fish, other aquatic life, and wildlife, and primary and secondary contact recreation. Where designated, it shall be suitable as a source of public water supply with appropriate treatment. It shall be suitable for irrigation and other agricultural uses and other compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.

II. Description of Discharge.

A quantitative description of the discharge in terms of significant effluent parameters based on Discharge Monitoring Reports (DMRs) are shown on Attachment B.

III. Limitations and Conditions.

The effluent limitations and the monitoring requirements may be found in the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

This fact sheet is for the reissuance of the NPDES permit for the Coal Storage and Handling Facility located in Amherst, Massachusetts. The facility discharges treated storm water through outfall 001 to the Taylor Brook (Attachment A). Section 402(p) of the Clean Water Act requires that EPA issue permits for storm water discharges associated with industrial activity. This coal pile storage facility discharges storm water associated with industrial activity within the meaning of 40 C.F.R. §122.26(b)(14)(vii) and is therefore required to have a storm water permit.

Description of Wastewater Sources and Treatment Process

The coal pile storage area occupies a site of approximately 2 acres. The facility discharges storm water runoff from the coal pile storage area, which is collected in a storage/equalization basin which is sized to collect the runoff from a 100 year 24-hour storm. A perforated pipe underdrain system below the coal pile conveys storm water leachate to the storage basin. An impermeable liner below the underdrain system prevents contamination of groundwater. The collected storm water is treated at the rate of 72,000 gpd and discharged into Taylor Brook.

Treatment Process Unit Operations :

Storage/Equalization Basin:

The storage volume of the basin is 318,000 gallons, which is based on the surface runoff for a 100-year 24-hour storm. The basin is constructed of reinforced concrete protected by a corrosion resistant coating. The storage/equalization basin have provisions for overflow when the maximum capacity is reached.

Influent Pumping Station:

The pump station consists of a 4'-0" I.D. pump vault and separate 4'-0" I.D. valve vault. Runoff collected in the storage/equalization basin flows by gravity from the basin sump to the pump vault. The pump vault houses duplex submersible centrifugal pumps suitable for pumping the influent. The station provides influent to the raw water controller, inside the Treatment Plant Building, at the mixing tank. The level controls is set so that the pump station and treatment plant will operate continuously for a minimum of 9 hours before automatic shutdown.

Package Treatment Plant:

The treatment process consists of a "Microfloc Product, RECLA - MATE SWB - 75" packaged modular tertiary treatment plant with the following components :

Mixing Tank

A steel mixing tank is utilized for initial pH adjustment and sodium hydroxide addition for incoming Storage/Equalization Basin Influent. The influent is directed to the treatment tank.

Clarification for chemical flocculation

The steel treatment tank provides clarification of the influent and produces sludge consisting of chemical floc materials. Sludge is automatically discharged into a sump, while the clarified

effluent is directed to gravity filters. Sludge is pumped from the sump to a 5,000 gallon holding tank located outside the building for removal to an off-site disposal location.

Mixed Media Gravity Filter

The filter provides final polishing of the effluent prior to disposal to the surface water stream. The filter is equipped with an appurtenances required for fully automatic operation, including a backwash cycle.

Development of Permit Limitations

The Clean Water Act (CWA) requires that the discharge from point source discharges satisfy minimum treatment technology and receiving stream water quality requirements. The minimum technology requirements which are presently applicable are Best Practicable Control Technology Currently Available (BPT), Section 301(b)(1)A of the CWA; Best Available Technology Economically Achievable (BAT) for toxic pollutants, Section 301(b)(2)A; and Best Conventional Pollution Control Technology (BCT), Section 301(b)(2)E which applies to conventional pollutants. In the absence of technology based guidelines EPA is authorized to use Best Professional Judgement (BPJ) in accordance with Section 402(a)(1) of the Clean Water Act. In addition, Section 301(b)(1)c of the CWA requires that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water.

The effluent monitoring requirements have been established to yield data representative of the discharge under the authority of Section 308(a) of the CWA in accordance with 122.41(j), 122.44(i) and 122.48.

The remaining conditions of the permit are based on the NPDES regulations 40 C.F.R., Parts 122 through 125, and consist primarily of management requirements common to all permits.

Technology-based requirements:

Technology-based limits for the steam electric power generation point source category are set forth in 40 CFR 423. The limits in the permit must be as stringent as the applicable technology based limits from this section. The technology-based limits include a maximum TSS limit for coal pile runoff of 50 mg/l. (see 40 CFR Section 423.12 (b)(9)). However, based on review of water quality data of Taylor Brook and the coal pile runoff samples, more stringent limits are necessary to achieve water quality standards in Taylor Brook. .

Water quality-based requirements:

Section 301(b)(1)(c) of the CWA requires that effluent limitations based on water quality considerations be established for point source discharges, when such limitations are necessary to meet State and Federal Water Quality Standards that are applicable to the designated receiving water. Section 301(b)(1)(B) of the CWA requires discharges to achieve any more stringent limitations, including those necessary to meet water quality standards, by July 1, 1977. The Massachusetts Surface Water Quality Standards (314 CMR 4.00) include requirements for the regulation and control of toxic constituents and also require the EPA criteria, established pursuant to Section 304 (a) of the CWA, shall be used unless a site specific criteria is established. The state will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained, or attained.

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, and toxic) that is or may be discharged at a level that caused, has reasonable potential to cause, or contributes to an excursion above any water quality criterion. An excursion occurs if the projected or actual in stream concentrations exceed the applicable criterion. In determining reasonable potential, EPA considers existing controls on point and non-point sources of pollution, variability of the pollutant in the effluent, sensitivity of the species to toxicity and, where appropriate, the dilution of the effluent in the receiving water.

Anti-backsliding:

A permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirements of the CWA. The anti-backsliding provisions found in 40 CFR 122.44(l) prohibit the relaxation of permit limits, standards, and conditions. Therefore, the technology-based effluent limits in a reissued permit must be at least as stringent as those in the previous permit. Conditions for relaxing permit limits or exceptions to anti-backsliding, are found in Section 402 (o) of the CWA and 40 CFR §122.44(l). Effluent limits based on water quality and state certification requirements must also meet the anti-backsliding provisions found under Section 402(o) and 303(d)(4) of the CWA, as described in 40 CFR 122.44(l)

Anti-degradation:

The Massachusetts Anti-degradation Policy is found at Title 314 CMR 4.04. All existing uses of the receiving water must be protected. This draft permit is being reissued with allowable discharge limits as or more stringent than the current permit. There is no change in outfall location.

Proposed effluent limits:

TSS:

The current permit contains average monthly and maximum daily TSS limits of 10 mg/l and 20 mg/l, respectively. These limits are expected to be protective of water quality. Monitoring data submitted on discharge monitoring reports (DMRs) indicates that the treatment facility is achieving these limits. These TSS limits are continued in the draft permit.

Oil and Grease:

The current permit contains an oil and grease limit of 15 mg/l. A review of the DMRs from 1/99 to 4/03 shows that oil and grease concentrations vary between 0 and 4.3 mg/l, which is far less than the current permit limit. Due to low concentration of oil and grease in the effluent, the monitoring requirements have been reduced from to moved from the permit.

pH:

The pH of 6.5 to 8.3 standard units, which are the same as those in the current permit have been established based upon State Certification requirements for Class B waters, pursuant to Section 401(a)(1) of the CWA.

Flow:

Effluent flows are not directly measured or recorded by any continuous flow measurement instrumentation. Maximum daily flow from the facility is 50 gpm which is the rated capacity of the treatment process. Flow is calculated by multiplying duration of flow with 50 gpm (rated

capacity of the pump). The draft permit contains a maximum daily limit of 50 gpm, with reporting for monthly average flow.

Metals:

The current permit has monitoring requirements for copper, zinc, nickel and aluminum. EPA is required to limit any pollutant that is, or may be discharged at a level that causes, or has reasonable potential to cause, or contributes to an excursion above any water quality criterion.

The water quality criteria for many metals are dependent upon the hardness of the receiving waters. In this case, because the receiving water flows through a ditch without any dilution, the hardness of the effluent is used to determine the criteria and to evaluate reasonable potential of toxicity. Toxicity test reports from February, 2000 to June 2003 indicate that the effluent hardness varies between 116 mg/l to 410 mg/l. EPA has assumed a hardness of 100 mg/l to calculate the limits.

The applicable effluent limitations were compared to past monitoring data to determine if there is a reasonable potential to cause, or contribute to, a violation of water quality. A review of past metal concentrations in the effluent during the review period January 1999 through April 2003 was completed, and the results shown below.

<i>Pollutant</i>	<i>Effluent Concentration</i>		<i>Water Quality Limit*</i>	
	<i>Average</i>	<i>Maximum</i>	<i>Chronic</i>	<i>Acute</i>
Copper, ug/l	3.41	20	9.3	14
Zinc, ug/l	10.8	50	119.8	119.8
Nickel, ug/l	2.84	20	52.2	469.2
Aluminum, ug/l	62.18	176	87	750.0

** Based on a hardness of 100 mg/l and no dilution*

A review of the above information indicates that there is no reasonable potential of toxicity for zinc, nickel and aluminum. Therefore, the monitoring requirements for these pollutants have been removed from the draft permit.

Based on reasonable potential that the water quality criteria may be exceeded, the draft permit includes monitoring requirements and limits for maximum daily total recoverable copper. Only one out of twelve samples showed a value of 20 ug/l for copper. The remaining eleven samples varied between 0 - 4.5 ug/l which is less than the acute criteria of 14 ug/l. No limit is established at this time but may be imposed in the future if it is necessary.

Whole Effluent Toxicity:

National studies conducted by the Environmental Protection Agency (EPA) have demonstrated that industrial sources contribute toxic constituents, such as metals, chlorinated solvents, aromatic hydrocarbons. The impact of such complex mixtures are often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity testing.

Therefore, based on the potential for toxicity, water quality standards, and available dilution, the present permit included whole effluent acute toxicity testing and monitoring requirements using Ceriodaphnia and Fathead Minnows, four times per year. (See, e.g., "Policy for the Development of Water quality-Based Permit Limitations for toxic Pollutants", 50 Fed. Reg. 30,784 (July 24, 1985).

A review of the toxicity test results from February 2000 to June 2003 indicates that LC₅₀ is always equal to or above 100%. Therefore, the monitoring requirement and effluent limitation for whole effluent toxicity has been removed from the draft permit.

V. Storm Water Pollution Prevention Plan (SWPPP)

Pursuant to Section 304(e) of the CWA and 40 CFR §125.103(b), Best Management Practices (BMPs) may be expressly incorporated into a permit on a case-by-case bases where necessary to carry out Section 402(a)(1) of the CWA. The coal pile storage facility engages in operations which could result in the storm water discharge of pollutants to waters of the United States. These operations include at least one of the following from which there is or could be site runoff: material storage, in-facility transfer, material processing, material handling, or loading and unloading.

The permit requires the permittee to update and implement the existing SWPPP to reflect the recent site conditions and as outlined in the attachment B of the draft permit.

The SWPPP becomes an enforceable element of the permit upon the effective date of the permit. Consequently, the SWPPP is as enforceable as any effluent limits on the discharges.

VI. Essential Fish Habitat.

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 *et seq.*(1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat." 16 U.S.C. § 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. 16 U.S.C. § 1802(10). Adversely impact means any impact which reduces the quality and/or quantity of EFH. 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. *Id.*

Essential fish habitat is only designated for fish species for which federal Fisheries Management Plans exist. 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

Based on the permit requirements and limitations identified in the draft permit and fact sheet that are designed to be protective of aquatic species, EPA has concluded that formal consultation with NMFS is not required because this authorized discharge is not likely to adversely affect federally managed species, their forage, or their habitat. If adverse effects do occur as a result of this permit action, or if new information becomes available that changes the basis for this conclusion, then NMFS will be notified and consultation promptly initiated.

VII. State Certification Requirements.

Under Section 401 of the CWA, EPA is required to obtain certification from the state in which the discharge is located which determines that all water quality standards, in accordance with Section 301(b)(1)(C) of the CWA, will be satisfied. Regulations governing state certification are set forth in 40 CFR §124.53 and §124.55. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.44(d). The staff of the MA DEP has reviewed the draft permit. EPA has requested permit certification by the state pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

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

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Suproakash Sarker, the U.S. EPA, One Congress Street, Suite 1100, Mail Code CPE, Boston, Massachusetts 02114-2023 and Paul Hogan, Department of Environmental Protection, Division of Watershed Management, 627 Main Street, 2nd Floor, Worcester, MA 01608. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator of EPA and the Director of DEP/DWM will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

IX. EPA Contact.

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

Suproakash Sarker
US Environmental Protection Agency
One Congress Street
Suite 1100 (CPE)
Boston, Massachusetts 02114-2023
Telephone: 617-918-1693
fax: 617-918-1505
e-mail: sarker.soupy@epa.gov

Date

Linda M. Murphy, Director*
Office of Ecosystem Protection
U.S. Environmental Protection Agency

* Comments should be addressed to both Suproakash Sarker and Paul Hogan, not Linda M. Murphy.