

Annual Environmental Protection Plan Operating Report
January 1 - December 31, 1990

Millstone Unit 3 Environmental Protection Plan

prepared by
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1. Introduction

This report covers the period January 1 - December 31, 1990. During 1990, Unit 3 was shut down for 4 weeks in April and 2 weeks in May, following reactor trips caused by loss of condenser vacuum. The root cause of these trips was overloading of traveling water screens by seaweed and debris; both surveillance and operating procedures have been modified to improve plant response in the future, and two of the six traveling screen assemblies will be replaced in 1991, with screens of higher capacity. For most of the remainder of 1990, Unit 3 was at nominal full power of about 1150 MWe, operating at an annual capacity factor of 81.6% (overall third-cycle capacity factor from July 1989 through December 1990 was 82.1%).

As required by Millstone Unit 3 EPP, this Annual Environmental Protection Plan Operating Report (AEPPOR) includes:

- 1) summaries and analyses of the results of environmental protection activities,
- 2) a list of EPP noncompliances,
- 3) a list of all changes in station design or operation which involved a potentially significant unreviewed environmental question, and
- 4) a list of non-routine reports, describing events that could result in significant environmental impact.

2. Environmental Protection Activities

2.1 Annual NPDES Report of Ecological Monitoring (EPP Section 4.2)

Paragraph 5 of the referenced NPDES permit requires continuation of biological studies of MNPS supplying and receiving waters, entrainment studies, and intake impingement monitoring. These studies include analyses of intertidal and subtidal benthic communities, finfish communities, entrained plankton, lobster populations, and winter flounder populations. Paragraph 13 of the permit requires an annual report of these studies to the Commissioner of Environmental Protection. The report that fulfills these requirements for 1990, Monitoring the Marine Environment of Long Island Sound at Millstone Nuclear Power Station, Waterford, Connecticut - Annual Report, 1990, presents results from studies performed during 3-unit operation, and compares them to those from 2-unit operation. The added cooling water flow for Unit 3 affects impingement and entrainment, causes sediment scouring near the MNPS discharges, and alters the characteristics of thermal effluent plume. The biological effects of these changes are summarized in the Executive Summary section of the above-named report (Attachment 1) and further discussed in the report itself (Attachment 2).

2.2 Effluent Water Quality Monitoring

Paragraph 6 of the referenced NPDES permit requires monitoring and recording of many water quality parameters at MNPS intakes and at 37 discharge points within the plant, including outfalls of each unit to the effluent quarry, and outfall of the quarry to Long Island Sound. Paragraph 11 of the permit requires a monthly report of this monitoring to the Commissioner of Environmental Protection. The report that fulfills these requirements, Monthly Discharge Monitoring Report, includes data from all three Millstone units. Those data that pertain to Unit 3 are summarized in Table 1a.

During 1990, only one NPDES exception was reported from a discharge associated with Unit 3 (Table 1b). On August 26, the Total Residual Chlorine (TRC) concentration at the Millstone quarry cut (DSN 001) was 0.20 mg/l, exceeding the permitted concentration of 0.10 mg/l. The cause of the high concentration was attributed to simultaneous chlorination of Unit 1 circulating water and Unit 2 service water; as such, the permit exception does not pertain directly to Unit 3, but is included for your information. In any case, operating procedures are being modified to prevent recurrence of the situation.

Sampling for hydrazine (N_2H_4), biological oxygen demand (BOD), and chemical oxygen demand (COD) is required only when discharging wastewater containing hydrazine. The major hydrazine discharges at Unit 3 are releases following wet lay-up of steam generators during refueling outages; during 1990, none of these releases occurred.

Also included in environmental protection activities related to NPDES permitting during 1990 was the June 1 submittal to the Connecticut Department of Environmental Protection of a modification to the permit renewal application for Millstone (NPDES Permit CT0003263; EPA ID No. CT000845198), which had been submitted to the CT-DEP on December 1, 1989. Approval of the application and issuance of the renewed permit are expected in 1991.

3. Environmental Protection Plan Noncompliances

During 1990, no EPP noncompliances were identified for Unit 3. However, one Unresolved Item was identified in the annual EPP compliance audit. The EPP requires that the NRC be notified of proposed changes to the effective NPDES permit at the same time those changes are requested of the CT-DEP, and that the NRC be provided with a copy of the application for permit renewal at the same time the application is sent to the DEP, but it is not clear whether proposed modifications to a permit renewal application, made before the application is reviewed (e.g., the submittal mentioned above), must also be sent simultaneously to the NRC. In fact, a copy of that submittal was not sent to the NRC until March 15, 1991. The question will be resolved by the Northeast Utilities Environmental Review Board; if it is

determined that the delay constitutes an EPP noncompliance, a supplemental report will be sent.

4. Environmentally Significant Changes to Station Design or Operation

During 1990, no Unit 3 Plant Design Change Records (PDCRs) met the acceptance criteria for inclusion in this report, i.e., required an environmental review and received Plant Operation Review Committee (PORC) approval for implementation in 1990. Of the 292 PDCRs initiated during 1990, 52 received PORC approval; none of these involved unreviewed environmental issues. An additional PDCR, that had been initiated in 1989, received PORC approval in 1990; this did not involve an unreviewed environmental issues either.

Unit 3 has 133 System Operating Procedures; of these, 61 were added or revised during 1990. In addition, many procedures were modified to reflect small changes, of insufficient magnitude to require the issuance of a new revision. However, each of these changes, as part of the review/approval process, included an environmental evaluation; none were determined to involve an unreviewed environmental impact.

5. Non-Routine Reports of Environmentally Significant Events

During 1990, no events occurred at Unit 3 that met the acceptance criteria for inclusion in this report, i.e., required submittal of a Licensee Event Report (LER) from Unit 3, and involved a situation that could result in a significant environmental impact. Of the 28 events that constituted reportable occurrences in 1990, none were determined to cause a significant environmental impact.

Table 1. Millstone Unit 3 NPDES Data Summary, Jan. 1 - Dec. 31, 1990.

a). Selected water quality parameters for Unit 3¹. Excursions from permit limits are in bold type.

	discharge flow range (10 ³ gpm)	discharge pH range	discharge temp. range (°F)	discharge temp. (avg) (°F)	avg ΔT (°F)	max FAC (ppm)	max TRC (ppm)	settle. solids (mg/l)	SWS FAC (ppm)
Jan.	638-948	7.8-7.9	38.7-61.5	55.2	16.9	<0.05	<0.05	<0.1	0.20
Feb.	790-942	7.8-7.9	50.2-63.7	59.0	19.5	0.15	<0.05	<0.1	0.18
Mar.	334-948	7.8-8.0	39.6-67.6	59.0	17.7	0.09	<0.05	<0.1	0.20
Apr.	30-790	7.7-8.0	42.8-70.9	49.2	3.8	<0.05	<0.05	<0.1	0.10
May	334-796	7.9-8.1	49.8-74.8	63.9	12.8	0.15	0.07	<0.1	0.13
June	790-942	7.5-7.9	54.7-82.9	72.9	14.6	<0.05	<0.05	<0.1	0.20
July	942-948	7.6-7.8	79.0-86.9	82.3	17.4	0.20	0.10	<0.1	0.11
Aug.	790-948	7.5-7.9	81.9-90.1	86.4	17.6	0.15	0.20	<0.1	0.07
Sep.	790-948	7.6-7.8	74.5-88.9	84.2	16.2	0.06	<0.05	<0.1	0.07
Oct.	638-942	7.7-7.9	63.0-88.2	80.6	16.1	<0.05	<0.05	<0.1	0.10
Nov.	790-948	7.8-7.8	66.7-81.0	71.9	17.4	0.05	<0.05	<0.1	0.08
Dec.	638-942	7.7-7.8	63.9-72.5	67.4	19.3	<0.05	<0.05	<0.1	0.10

b). Number of NPDES exceptions during year².

pH	temp.	FAC	TRC	Set. Sol.	Susp. Sol.	BOD ³	COD ³	hydrazine ³	Boric acid	conduct.	lithium	oil & grease	metals
0	0	0	1	0	0	0	0	0	0	0	0	0	0

¹Parameters are measures at Unit 3 discharge (DSN 001C), except for TRC and settleable solids, which are measured at MNPS discharge (quarry cuts; DSN 001) and SWS FAC (service water system; DSN 001c-5).

²Some parameters are measured at more than one point within Unit 3 or only under certain operating conditions. Values represent number of NPDES exceptions for all discharge points.

³Sampling for BOD, COD, and hydrazine is required only when discharging wastewater containing hydrazine; data for these events are presented in the text.