



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Rhode Island Atomic Energy Commission
NUCLEAR SCIENCE CENTER
16 Reactor Road
Narragansett, R.I. 02882-1165

July 28, 1999

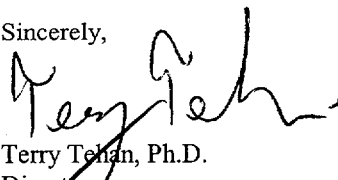
Docket No. 50-193

Mr. Marvin Mendonca, Senior Project Manager
Non-Power Reactors, Decommissioning and
Environmental Project Directorate
Division of Reactor Projects - III/IV/V
U.S. Nuclear Regulatory Commission (NRC)
Washington, D.C. 20555

Dear Mr. Mendonca,

This letter and enclosures constitute the annual report required by the RINSC Technical Specifications (Section 6.8.4). Enclosure 1 provides reactor operating statistics. Enclosure 2 provides information pertaining to inadvertent reactor shutdowns or scrams. Enclosure 3 discusses maintenance operations performed during the reporting period. Enclosure 4 describes changes to the facility carried out under the conditions of Section 50.59 of Chapter 10 of the Code of Federal Regulations. Lastly, Enclosure 5 summarizes the radiological controls information. If there are any questions regarding this information, please call me at 401-789-9391.

Sincerely,



Terry Tehan, Ph.D.
Director
TT:jd

Enclosures (5)

Copy to :

Craig Bassett, Region I
Harry Knickle, Chairman NRSC
Vincent Rose, Chairman RIAEC

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ENCLOSURE 1

Technical Specifications
Section 6.8.4.a (99-00)

Month	Reactor Critical (hours)	Energy Generated (MWh)	Energy Generated (MWd)
July-99	1.02	1.58	0.07
August-99	23.90	40.33	1.68
September-99	41.47	70.85	2.95
October-99	16.05	28.29	1.18
November-99	7.58	10.83	0.45
December-99	16.10	28.58	1.19
January-00	8.38	14.84	0.62
February-00	6.60	10.55	0.44
March-00	13.02	22.90	0.95
April-00	14.15	25.86	1.08
May-00	10.72	19.53	0.81
June-00	15.97	29.43	1.23
1999-00 Totals:	174.96	303.57	12.65
Total Energy Output since Initial Criticality:		57,193.81	2,383.08

(Continued)

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TOTAL

LEU

*added HEU=49698.01

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	140.0	1.0	MWH's:	280.0	1.6
Percentage		1%			1%
Stack Releases	0.2 curies				

(Continued)

NSC-78

*added HEU=49698.01

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	140.0	23.9	MWH's:	280.0	40.3
Percentage		17%			14%
Stack Releases	5.4 curies				

(Continued)

NSC-78

*added HEU=49698.01

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	140.0	41.5	MWH's:	280.0	70.8
Percentage		30%			25%
Stack Releases	9.1 curies				

(Continued)

NSC-78

*added HEU=49698.01

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	140.0	16.1	MWH's:	280.0	28.3
Percentage		11%			10%
Stack Releases	3.9 curies				

(Continued)

NSC-78

*added HEU=49698.01

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	140.0	7.6	MWH's:	280.0	10.8
Percentage		5%			4%
Stack Releases	2.1 curies				

(Continued)

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Cumulative MWH's		TOTAL		LEU
Start:	57,042.06	End:	57,070.64	7,372.63

Run No.	Day (1-31)	Ave Pwr Level (MW)	Start Time (hhmm)	S/D Time (hhmm)	Operating Time (hrs)	Todays total MWH	Stack Monitor max CPM	Ar-41 Released	
								Limit = 4E-4 uC/cc	
								uCi/cc	Ci/day
7244	1	1.75	1116	1119	0.05	0.09	2,000	9.80E-06	0.00
7245	3	1.85	1109	1134	0.42	0.77	6,000	2.94E-05	0.04
7246	3	1.85	1356	1550	1.90	3.52	9,000	4.41E-05	0.30
7247	10	1.78	1023	1515	4.87	8.66	7,500	3.68E-05	0.64
7248	13	1.80	0947	1133	1.77	3.18	8,000	3.92E-05	0.25
7249	22	1.72	1016	1526	5.17	8.89	15,000	7.35E-05	1.37
7250	23	1.80	1111	1307	1.93	3.48	7,500	3.68E-05	0.26
Totals:					16.10	28.58			2.86

Operating Hours	Max.	Actual		Max.	Actual
	140.0	16.1	MWH's:	280.0	28.6
Percentage		12%			10%
Stack Releases	2.9 curies				

(Continued)

Operating	Max.	Actual		Max.	Actual
Hours	140.0	8.4	MWH's:	280.0	14.8
Percentage		6%			5%
Stack Releases	1.1 curies				

(Continued)

Monthly Information Sheet

NSC-78

*added HEU=49698.01

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	140.0	6.6	MWH's:	280.0	10.6
Percentage		5%			4%
Stack Releases	0.9 curies				

(Continued)

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*added HEU=49698.01

SUMMARY

Operating Hours	Max.	Actual		Max.	Actual
	140.0	10.7	MWH's:	280.0	19.5
Percentage		8%			7%
Stack Releases	0.2 curies				

(Continued)

NSC-78

*added HEU=49698.01

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	140.0	16.0	MWH's:	280.0	29.4
Percentage		11%			11%
Stack Releases	0.3 curies				

ENCLOSURE 2

EMERGENCY SHUTDOWNS AND SCRAMS

The following is a listing of the emergency shutdowns and inadvertent scrams, including the reasons, which occurred during the 1999-2000 reporting period. This information is required by Technical Specification 6.8.4.b.

DATE	RUN #	LOGBOOK / PAGE	CAUSE
9/1/99	7228	48 / 33	Reactor scram caused by Log N High Period due to bad circuit card edge connector.
9/8/99	7230	48 / 36	Reactor scram caused by primary loop #1 flow display trip due to lightning storm.
10/28/99	7238	48 / 52	Reactor shutdown caused by short period on the Log N channel due to noise.
11/9/99	7241	48 / 55	Reactor shutdown caused by short period on the Log N channel due to noise.
12/10/99	7247	48 / 60	Reactor shutdown caused by short period on the Log N channel due to noise.
12/13/99	7248	48 / 61	Reactor shutdown caused by short period on the Log N channel due to noise.
12/22/99	7249	48 / 62	Reactor shutdown caused by short period on the Log N channel due to noise.
1/26/00	7254	48 / 69	Reactor scram caused by high power trip on Pico # 2 due to noise.
1/26/00	7255	48 / 69	Reactor scram caused by high power trip on Pico # 2 due to noise.
1/27/00	7257	48 / 70	Reactor shutdown caused by short period on the Log N channel due to noise.
2/1/00	7258	48 / 72	Reactor shutdown caused by short period on the Log N channel due to noise.
2/3/00	7260	48 / 74	Reactor shutdown caused by short period on the Log N channel due to noise.
3/15/00	7269	48 / 86	Reactor shutdown caused by short period on the Log N channel due to noise.
3/16/00	7270	48 / 87	Reactor shutdown caused by short period on the Log N channel due to noise.
3/30/00	7272	48 / 90	Reactor shutdown caused by short period on the Log N channel due to noise.
4/13/00	7274	48 / 95	Reactor shutdown caused by short period on the Log N channel due to noise.
5/18/00	7281	48 / 104	Reactor shutdown caused by short period on the Log N channel due to noise.
6/8/00	7285	48 / 109	Reactor shutdown caused by short period on the Log N channel due to noise.
6/14/00	7286	48 / 111	Reactor shutdown caused by short period on the Log N channel due to noise.

Almost all of these problems involved the Log N channel. As a result, RINSC is replacing this channel with the help of the DOE Instrumentation Grant.

ENCLOSURE 3

(Continued)

The following is a listing of the major maintenance operations performed in the 1999-2000 reporting period which includes impact upon the safe operation of the reactor and the reasons for corrective maintenance. This information is required by Technical Specification 6.8.4.c.

1. Decontamination of Underground Storage Tanks

The underground tanks, originally installed for the purpose of holding pool water when the pool was being drained, were removed and placed in the north driveway for further decontamination and eventual disposal. The tanks had been retired from use for a number of years, after it was discovered that they were leaking. There are two tanks : a 1000 gallon tank, and a 15,000 gallon tank. The 1000 gallon tank has been decontaminated and cleared for disposal. An initial cleaning of the 15,000 gallon tank has been performed, including the removal and analysis of the sediment that was inside the tank. The decontamination process for that tank is still ongoing.

2. Pool Water Make-up System Removal

Several years ago the original make-up water demineralizer system was taken out of service because the regeneration process involved handling some relatively strong acids and bases. The system was replaced with a cartridge tank system that is serviced by an outside company. The original system has been removed, cleaned, and is ready for disposal.

3. Removal of Hazardous Chemicals

An effort has been made to go through all of the hazardous materials that have been used and stored in the facility over the years. Materials deemed not to be currently in use, have been collected and disposed of through the University of Rhode Island's Haz-Mat waste department.

4. Building Painting Project

The exterior walls of the building have been patched and painted. The negative pressure that is maintained in the confinement room has had a tendency to draw water in through the walls when it rains. It is anticipated that having the exterior walls painted will reduce the amount of water that moves through the walls.

5. Laboratory Renovation

We are in the process of renovating one of the laboratories in the facility in order to prepare it for upcoming isotope work.

ENCLOSURE 4

FACILITY CHANGES - 10CFR50.59 REVIEW

The following is a listing and description of 10CFR50.59 evaluations conducted during the 1998-99 reporting period. This information is required by Technical Specification 6.8.4.d.

1. Radiation Protection Officer Position Upgrade

Pursuant to 10CFR50.59, a committee was formed to evaluate a change in the organizational structure of the facility consisting of an upgrade for the Radiation Protection Officer position. Under the new organizational structure, the Radiation Protection Officer reports to the Director, rather than the Assistant Director, so that the radiation protection responsibilities are separate from the operational responsibilities. This change required a change in section 6.1 of the Technical Specifications, describing the facility's organizational chart. This change did not create an unresolved safety item.

2. Change in Frequency of Emergency Generator Testing

Pursuant to 10CFR50.59, a committee was formed to evaluate changing the frequency of the emergency generator test discussed in the bases of section 4.4, 4.5, 4.6 specification 3, which states that the test will be performed in accordance with RINSC Operating Procedures and manufacturer recommendations. RINSC had been performing this test on a weekly basis, but has changed the frequency to monthly. The committee found that this change did not involve a change in the Technical Specifications because it is a change in the bases, to bring them in line with the actual technical specification. The change did not create an unresolved safety question.

3. Replacement of the Log N and Wide Range Linear Power Monitor # 2 Channels

Pursuant to 10CFR50.59, a committee was formed to evaluate the replacement of the Log N and Wide Range Linear Power Monitor # 2 channels with a combination Log and Linear Power Monitor. Our current Log N Monitor has been increasingly susceptible to noise problems. This change did not require a change in the Technical Specifications, nor did it create an unreviewed safety question.

ENCLOSURE 5

RADIOLOGICAL CONTROLS

1. Environmental Surveys Outside the Facility - Technical Specification 6.8.4.e

Quarterly TLD badges are deployed outside the reactor building in three separate locations. The general public does not frequent these locations and therefore occupancy factors may be used to approximate annual dose. The allowable external dose rates must be below 50 mrem per year. The quarterly doses in units of mrem are shown in the table below.

LOCATION	3 RD QTR 1999	4 TH QTR 1999	1 ST QTR 2000	2 ND QTR 2000 ¹
Northeast Wall	220	240	260	172
Demineralizer Door	40	30	20	30
Heat Exchanger Door	<10	10	<10	6

These areas are in locations where access is limited. Consequently, the general public will not frequent these areas, and appropriate occupancy factors can be used to approximate annual dose. Assuming that the maximum time that a member of the general public would be present in one of these locations is 15 minutes per day, an occupancy factor of 0.01 can be used to obtain the annual dose that would be received by a member of the general public, in any of these areas.

The dose rate in the Northeast Wall area is due to storage of RAM, and is present regardless of reactor operation. Applying the occupancy factor, the annual dose to an individual in this area would be 8.92 mrem over the course of last year. The annual dose rate at the Demineralizer and Heat Exchanger Doors is dependent on the operations schedule of the reactor. Ignoring the fact that the dose rate is not present 24 hours per day, and applying the occupancy factor of 0.01, the annual dose that would be received by an individual at the Demineralizer Door would be 1.2 mrem. Likewise the dose received at the Heat Exchanger Door would be 0.36 mrem.

2. Annual Exposures Exceeding 500 mrem - Technical Specification 6.8.4.f

There were no personnel exposures greater than the above limit.

3. Radioactive Effluents - Technical Specification 6.8.4.g

A. Gaseous effluent concentrations are documented on the Monthly Information Sheets (Form NSC-78) enclosed. The gaseous effluents, primarily Argon-41, are about 3-4% of the maximum permissible concentrations.

B. Liquid effluent concentrations released to the sewer are documented on the Sewer Disposal Record (Form NSC-52) and / or the Liquid Release Record (Form NSC-17). No releases were made during this reporting period.

¹ Landauer OSL badges were used. Landauer reads those dosimeters to 1 mrem.