STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

RHODE ISLAND ATOMIC ENERGY COMMISSION
Rhode Island Nuclear Science Center
16 Reactor Road
Narragansett, RI 02882-1165

July 30, 2010

Docket No. 50-193

Mr. William Kennedy, Project Manager
Non-Power Reactors, Decommissioning and
Environmental Project Directorate
Division of Reactor Projects - III/IV/V
U. S. Nuclear Regulatory Commission (NRC)
Washington, DC 20555

Dear Mr. Kennedy:

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,

H. J. Bicehouse
Assistant Director for Radiation and Reactor Safety

Enclosures (5)

cc:

Mr. Jack Donohue, USNRC Region I
Dr. John J. Breen, Chairman NRSC
Dr. Stephen Mecca, Chairman RIAEC
Dr. Anthony Nunez, RIAEC
Dr. Peter Gromet, RIAEC
Dr. Andrew Kadak, RIAEC
Dr. Bahram Nassersharif, RIAEC

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ENCLOSURE 1
Technical Specifications
Section 6.8.4.a

Month	Year	Reactor Critical (Hours)	Energy Generated (MWhrs)	Energy Generated (MWdays)
July	2009	21.75	33.10	1.38
August	2009	32.40	46.22	1.93
September	2009	39.53	64.57	2.69
October	2009	84.67	136.17	5.67
November	2009	61.03	96.03	4.00
December	2009	46.32	70.90	2.95
January	2010	47.27	79.00	3.29
February	2010	54.72	90.90	3.79
March	2010	75.93	103.45	4.31
April	2010	79.65	129.10	5.38
May	2010	34.25	48.47	2.02
June	2010	24.77	26.17	1.09
2009-10 Totals		602.29	924.08	38.50

Total Energy Output since Initial Criticality: 62,966.63 MWhrs or 2,623.61 MWdays.

ENCLOSURE 2

EMERGENCY SHUTDOWNS AND SCRAMS

The following is a listing of the emergency shutdowns and inadvertent scrams that occurred during the 2009-2010 reporting period. This information is required by Technical Specification 6.8.4.b.

Date	Run No.	Logbook	Page	Description	Deliberate/Inadvertent
7/14/09	8367	57	6	Scram for tour	Deliberate
8/4/09	8372	57	11	Scram for tour	Deliberate
9/10/09	8382	57	22	Scram for shutdown to move fuel element	Deliberate
12/3/09	8421	57	61	Scram for experiment	Deliberate
12/29/09	8428	57	70	Scram for tour	Deliberate
1/27/10	8436	57	78	Scram for tour	Deliberate
3/16/10	8454	57	96	Scram for tour	Deliberate
3/17/10	8455	57	97	Operator error	Inadvertent
3/31/10	8463	57	105	Scram when primary pump shut off	Deliberate
4/10/10	8467	57	109	Scram for tour	Deliberate
4/14/10	8470	57	112	Scram for tour	Deliberate
4/20/10	8473	57	115	Scram for tour	Deliberate
5/3/10	8481	57	123	Scram by trainee	Inadvertent
5/7/10	8484	57	126	Scram for tour	Deliberate
5/14/10	8486	57	128	Scram for tour	Deliberate
5/18/10	8487	57	129	Scram for tour	Deliberate
5/25/10	8489	57	131	Scram caused by blade drop	Inadvertent
6/26/10	8500	57	142	Scram for tour	Deliberate

Table includes planned scrams, ("deliberate"), and unplanned scams, ("inadvertent").

ENCLOSURE 3

Technical Specification 6.8.4.c requires a listing of the major maintenance operations performed in the 2009-2010 reporting period including their impact upon the safe operation of the reactor and the reasons for the corrective maintenance. No major maintenance operations were performed during this reporting period.

ENCLOSURE 4

FACILITY CHANGES - 10CFR50.59 REVIEW

Technical Specification 6.8.4.d requires that we provide a listing and description of any 10 CFR 50.59 evaluations conducted during the 2009-2010 reporting period. There was one change requiring a 10 CFR 50.59 evaluation during this reporting period: moving the pneumatic sample transfer system (aka "Rabbit" System) send/receive stations and their control boxes from confinement to Room 305. The change required a penetration of the confinement wall and preservation of the differential pressure between the office area and the confinement. The "Rabbit" System blower continues to be controlled by the reactor operator in the control room.

ENCLOSURE 5

RADIOLOGICAL CONTROLS

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

   Quarterly OSL[1] 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	3RD QTR 2009	4TH QTR 2009	1ST QTR 2010	2ND QTR 2010[2]
Northeast Wall	18	Lost	12	16
Demineralizer Door	73	151	126	115
Heat Exchanger Door	3	14	2	7

   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. The dosimeter placed on this wall was lost during the fourth quarter of 2009. We will assume that the dose measurement was the same as the previous quarter, i.e. 18 mrem. Applying the occupancy factor, the annual dose to an individual in this area would be 0.64 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 4.65 mrem. Likewise the dose received at the Heat Exchanger Door would be 0.26 mrem. The variations from quarter to quarter and from previous reports were due in part to movements of items within the reactor building during the fiscal year.

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

   There were no personnel exposures greater than 500 mrem.

3. Radioactive Effluents - Technical Specification 6.8.4.g

   A. Individual gaseous effluent concentrations for each reactor operation are recorded on the Monthly Information Sheets (Form NSC-78). The concentration of radioactive materials in the effluent released from the facility exhaust stacks shall not exceed 1E+05 times concentrations specified in 10CFR20, Appendix B, Table II, when averaged over time periods permitted by 10CFR20.[3]

      Gamma spectroscopy of stack gas samples has shown that the principal gaseous effluent is Argon-41. The maximum concentration for this principal contaminant permitted under that Technical Specification is 1E-8 times 1E5 or 1E-3 μCi/cc. Concentrations released during the year were less than 0.02 of that limit.

      The total Argon-41 release during the reporting period was 129.36 curies. The calculated effective dose equivalent for this release is 2.7 mrem/year (COMPLY Code).

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[1] Optically Stimulated Luminescence
[2] Landauer reads the OSL dosimeters to 1 mrem.
[3] Technical Specifications, Section 3.7.2.

ENCLOSURE 5

RADIOLOGICAL CONTROLS

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). During the reporting period, one discharge was made to the sewer. On May 11, 2010, 30 gallons of water from the RINSC Retention Tank were discharged to the sewer. The discharge contained 32.968 μCi of Tritium, 0.033 μCi of Cobalt-60, and 0.025 μCi of Antimony-124. The radioisotope concentrations discharged were Tritium 2.90 E-04 μCi/ml, Cobalt-60 2.92 E-07 μCi/ml, and Antimony-124 2.24 E-07 μCi/ml. Using the sum of the fractions rule, the discharge was 0.042 (4.2%) of the discharge limit.