



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

RHODE ISLAND ATOMIC ENERGY COMMISSION

Rhode Island Nuclear Science Center
16 Reactor Road
Narragansett, RI 02882-1165

August 31, 2005

Docket No. 50-193

Mr. Daniel Hughes, 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. Hughes :

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,

Michael J. Davis
Reactor Supervisor

Enclosures (5)

Copy to :

Mr. Craig Bassett, USNRC Region I
Dr. Harry Knickle, Chairman NRSC
Dr. Stephen Mecca, Chairman RIAEC
Dr. Alfred L. Allen, RIAEC
Dr. Peter Gromet, RIAEC
Dr. Andrew Kadak, RIAEC
Dr. Bahram Nassersharif, RIAEC

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Rhode Island Nuclear Science Center

Annual Report

FY 04/05

ENCLOSURE 1

Technical Specifications
Section 6.8.4.a (01-02)

Month	Reactor Critical (hours)	Energy Generated (MWh)	Energy Generated (MWd)
July-04	29.42	58.83	2.45
August-04	42.90	56.57	2.36
September-04	16.60	33.24	1.39
October-04	15.33	30.66	1.28
November-04	17.15	33.98	1.42
December-04	47.48	94.73	3.95
January-05	89.40	178.80	7.45
February-05	93.75	187.50	7.81
March-05	79.20	157.98	6.58
April-05	14.03	28.07	1.17
May-05	31.70	60.50	2.52
June-05	29.20	58.40	2.43
2004-05 Totals:	506.16	979.26	40.80
Total Energy Output Since Initial Criticality:		60,019.91	2,500.83

ENCLOSURE 1

(Continued)

NSC-78

Monthly Information Sheet

NSC-78

Month: Jul-2004	Revised 3/22/2004
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Cumulative MWH's

TOTAL

LEU

Start: 59,040.65	End: 59,099.49	9,392.07
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*added HEU=49698.01

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 uCi/cc	
7736	1	2.00	1126	1426	3.00	6.00	7,000	2.13E-05	0.84
7737	6	2.00	1037	1337	3.00	6.00	7,000	2.13E-05	0.84
7738	8	2.00	1020	1320	3.00	6.00	6,000	1.82E-05	0.84
7739	13	2.00	1122	1422	3.00	6.00	8,000	2.43E-05	0.84
7740	15	2.00	1103	1403	3.00	6.00	5,000	1.52E-05	0.84
7741	20	2.00	1052	1352	3.00	6.00	5,000	1.52E-05	0.84
7742	22	2.00	1032	1332	3.00	6.00	5,000	1.52E-05	0.84
		2.00	1410	1708	2.97	5.93	5,000	1.52E-05	0.83
7743	27	2.00	1010	1157	1.78	3.57	5,000	1.52E-05	0.50
7744	29	2.00	1018	1358	3.67	7.33	5,000	1.52E-05	1.03
Totals:					29.42	58.83			8.24

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	154.0	29.4	MWH's:	308.0	58.8
Percentage		19%			19%
Stack Releases	8.2 curies				

(Continued)

NSC-78

*added HEU=49698.01

SUMMARY.

Operating Hours	Max.	Actual		Max.	Actual
	147.0	42.9	MWH's:	294.0	56.6
Percentage		29%			19%
Stack Releases					

(Continued)

NSC-78

Month: Sep-2004		Revised 3/22/2004		
Cumulative MWH's			TOTAL	LEU
Start: 59,156.05		End: 59,189.29	59,189.29	9,481.87
*added HEU=49698.01				

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 uCi/cc	
								uCi/cc	Ci/day
7759	7	2.00	1222	1532	3.17	6.33	7,000	2.13E-05	0.89
7760	9	2.00	1017	1326	3.15	6.30	11,000	3.34E-05	0.88
7761	13	2.00	1028	1100	0.53	1.07	15,000	4.56E-05	0.15
7762	14	2.00	1008	1308	3.00	6.00	8,000	2.43E-05	0.84
7763	16	2.00	1010	1112	1.02	2.04	6,000	1.82E-05	0.29
7764	21	2.00	1036	1116	0.67	1.33	7,000	2.13E-05	0.19
7765	22								
7766	23	2.00	1012	1120	1.13	2.27	7,000	2.13E-05	0.32
7767	28	2.00	1043	1343	3.00	6.00	7,000	2.13E-05	0.84
7768	30	2.00	1015	1112	0.95	1.90	7,000	2.13E-05	0.27
Totals:					16.62	33.24			4.65

SUMMARY

Operating Hours	Max.	Actual		Max.	Actual
	147.0	16.6	MWH's:	294.0	33.2
Percentage		11%			11%

ENCLOSURE 1

(Continued)

NSC-78

Monthly Information Sheet

NSC-78

Month: Oct-2004	Revised 3/22/2004
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Cumulative MWH's

TOTAL

LEU

Start: 59,189.29	End: 59,219.95	9,512.53
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*added HEU=49698.01

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 uCi/cc	
								uCi/cc	CI/day
7769	5	2.00	0956	1056	1.00	2.00	8,000	2.43E-05	0.28
7770	7	2.00	0958	1050	0.87	1.73	10,000	3.04E-05	0.24
7771	12	2.00	0923	1200	2.62	5.23	11,000	3.34E-05	0.73
7772	14	2.00	0915	1135	2.33	4.66	8,000	2.43E-05	0.65
7773	19	2.00	1008	1308	3.00	6.00	8,000	2.43E-05	0.84
7774	21	2.00	1052	1402	3.17	6.33	7,000	2.13E-05	0.89
7775	26	2.00	0958	1142	1.73	3.47	11,000	3.34E-05	0.49
7776	28	2.00	0956	1033	0.62	1.23	10,000	3.04E-05	0.17
Totals:					15.33	30.66			4.29

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	154.0	15.3	MWH's:	308.0	30.7
Percentage		10%			10%
Stack Releases					

ENCLOSURE 1

(Continued)

NSC-78

Monthly Information Sheet

NSC-78

Month: Nov-2004		Revised	3/22/2004
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Cumulative MWH's

TOTAL

LEU

Start: 59,219.95		End: 59,253.93	9,546.51
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*added HEU=49698.01

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 uCi/cc	
7777	1		1037	1039	0.03		1,000	3.04E-06	
7778	4	2.00	1025	1325	3.00	6.00	10,000	3.04E-05	0.84
7779	8	0.10	1033	1034	0.02	0.00	1,000	3.04E-06	0.00
7780	9	2.00	1000	1300	3.00	6.00	10,000	3.04E-05	0.84
7781	12	2.00	0950	1113	1.38	2.77	10,000	3.04E-05	0.39
7782	16	2.00	1013	1113	1.00	2.00	10,000	3.04E-05	0.28
7783	17	2.00	1010	1134	1.40	2.80	10,000	3.04E-05	0.39
7784	18	2.00	1013	1122	1.15	2.30	10,000	3.04E-05	0.32
7785	23	2.00	0957	1300	3.05	6.10	10,000	3.04E-05	0.85
7786	29	0.10	1053	1100	0.12	0.01	1,000	3.04E-06	0.00
7787	30	2.00	1015	1315	3.00	6.00	10,000	3.04E-05	0.84
Totals:					17.15	33.98			4.76

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	133.0	17.2	MWH's:	266.0	34.0
Percentage		13%			13%
Stack Releases	4.8 curies				

ENCLOSURE 1

(Continued)

NSC-78

Monthly Information Sheet

NSC-78

Month: Dec-2004	Revised 3/22/2004
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Cumulative MWH's

Start: 59,253.93	End: 59,348.66	TOTAL LEU 9,641.24
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*added HEU=49698.01

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 uCi/cc	
7788	1	2.00	0941	1500	5.32	10.63	10,000	3.04E-05	1.49
7789	2	2.00	1006	1306	3.00	6.00	9,000	2.74E-05	0.84
7790	6	0.20	0940	0948	0.13	0.03	1,000	3.04E-06	0.00
7791	7	2.00	0947	1247	3.00	6.00	10,000	3.04E-05	0.84
7792	13	2.00	0941	1647	7.10	14.20	10,000	3.04E-05	1.99
7793	20	2.00	1048	1658	6.17	12.33	10,000	3.04E-05	1.73
7794	21	2.00	1040	1340	3.00	6.00	10,000	3.04E-05	0.84
7795	24	2.00	1001	1631	6.50	13.00	10,000	3.04E-05	1.82
7796	28	2.00	0947	1247	3.00	6.00	10,000	3.04E-05	0.84
7797	29	2.00	0927	1643	7.27	14.53	10,000	3.04E-05	2.03
7798	30	2.00	1004	1304	3.00	6.00	10,000	3.04E-05	0.84
Totals:					47.48	94.73			13.26

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	154.0	47.5	MWH's:	308.0	94.7
Percentage		31%			31%
Stack Releases	13.3 curies				

(Continued)

NSC-78

*added HEU=49698.01

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	147.0	89.4	MWH's:	294.0	178.8
Percentage		61%			61%
Stack Releases	25.0 curies				

ENCLOSURE 1

(Continued)

NSC-78

Monthly Information Sheet

NSC-78

Month: Mar-05 Revised 3/22/2004

Cumulative MWH's

TOTAL

LEU

Start: 59,714.96 End: 59,872.94 10,165.52

*added HEU=49698.01

Calibration Factor = 0.000449

Run No.	Day (1-31)	Ave Pwr Level (MW)	System On Time (hhmm)	Start Time (hhmm)	S/D Time (hhmm)	Operating Time (hrs)	Today's total MWH	Stack Monitor max CPM	Ar-41 Released	
									Limit = 4E-4 uCi/cc	
7834	1	2.00	1126	1126	1715	5.82	11.63	10,000	3.04E-05	1.27
7835	8	2.00	0921	0921	1647	7.43	14.87	10,000	4.49E-05	2.40
7836	9	2.00	0945	0945	1648	7.05	14.10	10,000	4.49E-05	2.28
7837	10	2.00	0955	0955	1700	7.08	14.17	10,000	4.49E-05	2.29
7838	11	2.00	0932	0932	1725	7.88	15.77	9,000	4.04E-05	2.29
7839	14	2.00	0923	0923	1526	6.05	12.10	10,000	4.49E-05	1.96
7840	15	2.00	0950	0950	1715	7.42	14.83	9,000	4.04E-05	2.16
7841	16	2.00	0955	0955	1712	7.28	14.57	9,000	4.04E-05	2.12
7842	17	2.00	1200	1200	1230	0.50	1.00	8,000	3.59E-05	0.13
7843	18	2.00	1037	1037	1720	6.72	13.43	9,000	4.04E-05	1.95
7844	21	2.00	1009	1009	1308	2.98	5.97	9,000	4.04E-05	0.87
7845	22	2.00	1032	1032	1217	1.75	3.50	8,000	3.59E-05	0.45
7846	23	2.00	0926	0926	1629	7.05	14.10	9,000	4.04E-05	2.05
7847	24	2.00	0930	0930	1055	1.42	2.83	9,000	4.04E-05	0.41
7848	29	2.00	0950	0950	1140	1.83	3.67	9,000	4.04E-05	0.53
7849	30	0.06	1116	1116	1122	0.10	0.01	600	2.69E-06	0.00
7850	30	0.06	1343	1343	1350	0.12	0.01	700	3.14E-06	0.00
7851	31	2.00	0912	0912	0955	0.72	1.43	10,000	4.49E-05	0.23
Totals:						79.20	157.98			23.41

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	147.0	79.2	MWH's:	294.0	158.0
Percentage		54%			54%
Stack Releases	23.4 curies				

ENCLOSURE 1

(Continued)

NSC-78

Monthly Information Sheet

NSC-78

Month: Apr-05 Revised 3/22/2004

Cumulative MWH's

TOTAL

LEU

Start: 59,872.94 End: 59,901.01 10,193.59

*added HEU=49698.01

Run No.	Day (1-31)	Ave Pwr Level (MW)	System On Time (hhmm)	Start Time (hhmm)	S/D Time (hhmm)	Operating Time (hrs)	Todays total MWH	Stack Monitor max CPM	Ar-41 Released	
									Limit = 4E-4 uCi/cc	
									uCi/cc	CI/day
7852	5	2.00	0925	0925	0928	0.05	0.10	5,000	2.25E-05	0.01
7853	7	2.00	0930	0930	1125	1.92	3.83	9,000	4.04E-05	0.54
7854	12	2.00	0930	0930	1115	1.75	3.50	9,000	4.04E-05	0.49
7855	14	2.00	0945	0945	1345	4.00	8.00	9,000	4.04E-05	1.12
7856	19	2.00	0942	0942	1100	1.30	2.60	9,000	4.04E-05	0.36
7857	21	2.00	0945	0945	1054	1.15	2.30	9,000	4.04E-05	0.32
7858	26	2.00	1005	1005	1045	0.67	1.33	9,000	4.04E-05	0.19
7859	28	2.00	0945	0945	1257	3.20	6.40	9,000	4.04E-05	0.90
Totals:						14.03	28.07			3.93

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	154.0	14.0	MWH's:	308.0	28.1
Percentage		9%			9%
Stack Releases	3.9 curies				

ENCLOSURE 1

(Continued)

NSC-78

Monthly Information Sheet

NSC-78

Month: May-05 Revised 3/22/2004

Cumulative MWH's

TOTAL

LEU

Start: 59,901.01 End: 59,961.51 10,254.09

*added HEU=49698.01

Run No.	Day (1-31)	Ave Pwr Level (MW)	System On Time (hhmm)	Start Time (hhmm)	S/D Time (hhmm)	Operating Time (hrs)	Todays total MWH	Stack Monitor max CPM	Ar-41 Released	
									Limit = 4E-4 uCi/cc	
									uCi/cc	CI/day
7860	3	2.00	0955	0955	1200	2.08	4.17	9,000	4.04E-05	0.58
7861	5	2.00	1012	1012	1050	0.63	1.27	9,000	4.04E-05	0.18
7862	9	2.00	0908	0908	1108	2.00	4.00	9,000	4.04E-05	0.56
7863	10	2.00	0930	0930	1441	5.18	10.37	9,000	4.04E-05	1.45
7864	12	2.00	1150	1150	1530	3.67	7.33	8,000	3.59E-05	1.03
7865	17	2.00	0945	0945	1245	3.00	6.00	8,000	3.59E-05	0.84
7866	18	1.00	1317	1317	1611	2.90	2.90	8,000	3.59E-05	0.41
7867	19	2.00	1000	1000	1300	3.00	6.00	10,500	4.71E-05	0.84
7868	20	2.00	1121	1121	1435	3.23	6.47	10,500	4.71E-05	0.91
7869	24	0.00	1000	1000	1000	0.00	0.00	0.00	0.00E-05	0.00
7870	26	2.00	0939	0939	1239	3.00	6.00	9,000	4.04E-05	0.84
7871	31	2.00	1030	1030	1330	3.00	6.00	10,000	4.49E-05	0.84
Totals:						31.70	60.50			8.47

Operating

SUMMARY

Hours	Max.	Actual		Max.	Actual
Percentage	147.0	31.7	MWH's:	294.0	60.5
Stack Releases		22%			21%
8.5 curies					

ENCLOSURE 1

(Continued)

NSC-78

Monthly Information Sheet

NSC-78

Month: Jun-2005 Revised 3/22/2004

Cumulative MWH's

TOTAL

LEU

Start: 59,961.51 End: 60,019.91 10,312.49

*added HEU=49698.01

Run No.	Day (1-31)	Ave Pwr Level (MW)	System On Time (hhmm)	Start Time (hhmm)	S/D Time (hhmm)	Operating Time (hrs)	Today's total MWH	Stack Monitor max CPM	Ar-41 Released	
									Limit = 4E-4 uCi/cc	
									uCi/cc	CI/day
7872	2	2.00	0947	0947	1209	2.37	4.73	10,000	4.49E-05	0.66
7873	3	2.00	0917	0917	1621	7.07	14.13	9,000	4.04E-05	1.98
7874	7	2.00	0935	0935	1125	1.83	3.67	9,000	4.04E-05	0.51
7875	9	2.00	0945	0945	1020	0.58	1.17	9,000	4.04E-05	0.16
7876	14	2.00	0928	0928	1246	3.30	6.60	11,000	4.94E-05	0.92
7877	16	2.00	0930	0930	1241	3.18	6.37	9,000	4.04E-05	0.89
7878	20	2.00	0922	0922	1102	1.67	3.33	9,000	4.04E-05	0.47
7879	21	2.00	0922	0922	1124	2.03	4.07	9,000	4.04E-05	0.57
7880	23	2.00	0930	0930	1030	1.00	2.00	9,000	4.04E-05	0.28
7881	26	2.00	0952	0952	1102	1.17	2.33	9,000	4.04E-05	0.33
7882	30	2.00	1007	1007	1507	5.00	10.00	10,000	4.49E-05	1.40
Totals:						29.20	58.40			8.18

SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	147.0	29.2	MWH's:	294.0	58.4
Percentage		20%			20%
Stack Releases	8.2 curies				

ENCLOSURE 2

EMERGENCY SHUTDOWNS AND SCRAMS

The following is a listing of the emergency shutdowns and inadvertent scrams that occurred during the 2004-2005 reporting period. This information is required by Technical Specification 6.8.4.b.

DATE	RUN #	LOGBOOK / PAGE	CAUSE
7/1/04	7736	52 / 71	Reactor scram caused by short period on the Log N channel due to noise.
7/13/04	7739	52 / 74	Reactor scram caused by short period on the Log N channel due to noise.
7/15/04	7740	52 / 75	Reactor scram caused by short period on the Log N channel due to noise.
7/20/04	7741	52 / 76	Reactor scram caused by short period on the Log N channel due to noise.
8/24/04	7754	52 / 90	Dropped Blade #3 due to magnet misalignment.
9/13/04	7761	52 / 98	Dropped Blade #3 due to magnet misalignment.
9/21/04	7764	52 / 101	Reactor scram caused by short period on the Log N channel due to noise.
10/21/04	7774	52 / 111	Dropped Blade #3 due to magnet misalignment.
11/4/04	7778	52 / 115	Dropped Blade #3 due to magnet misalignment.
11/16/04	7782	52 / 119	Dropped Blade #3 due to magnet misalignment.
11/29/04	7786	52 / 123	Dropped Blade #3 due to magnet misalignment.
2/11/05	7823	53 / 25	Reactor scram caused by operator error. Power level switch not set to 2 MW.
3/10/05	7837	53 / 39	Dropped Blade #3 due to magnet misalignment.
3/23/05	7846	53 / 48	Dropped Blade #2 due to magnet misalignment.
3/30/05	7849	53 / 51	Dropped Blade #2 due to magnet misalignment.
4/21/05	7857	53 / 59	Reactor scram caused by short period on the Log N channel due to noise.
5/3/05	7860	53 / 62	Reactor scram caused by short period on the Log N channel due to noise.
5/5/05	7861	53 / 63	Dropped Blade #3 due to magnet misalignment.
5/10/05	7863	53 / 65	Reactor scram caused by short period on the Log N channel due to noise.
5/17/05	7865	53 / 67	Reactor scram when Wide Range Monitor #1 ranged down during start-up.
5/18/05	7866	53 / 68	Reactor scram during adjustment of Wide Range Monitor gain.
5/19/05	7867	53 / 69	Reactor scram when turning pumps on.
5/26/05	7870	53 / 72	Dropped Blade #2 due to magnet misalignment.
6/2/05	7872	53 / 74	Dropped Blade #2 due to magnet misalignment.

ENCLOSURE 2

EMERGENCY SHUTDOWNS AND SCRAMS

There were eight scrams due to noise on the Log N Period channel. The staff determined that cooling tower #1 has been a large source of the noise that has been causing these scrams. The level control system for the cooling tower energizes a solenoid valve to fill the reservoir. When the solenoid changes state, a noise signal is generated back through the AC power line. This noise signal is picked up by the Log N Period channel, which causes the period indication to become unstable when reactor power is in the start-up range. A scram occurs whenever the Log N Period channel indicates a period of three seconds or less. On windy days when cooling tower #1 is in use, the wind causes ripples in the reservoir water, which causes the level probes to oscillate between the fill and no fill states. This causes the solenoid valve to oscillate open and closed, generating a lot of noise back through the AC power line.

To combat this problem, a stiller has been put around the reservoir level probes to minimize the effect of ripples in the reservoir water, and an isolation transformer has been put in the AC power line between the secondary cooling system power and the reactor console power, in order to prevent noise in the line from getting back to the Log N Period Channel.

ENCLOSURE 3

The following is a listing of the major maintenance operations performed in the 2004-2005 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. Replacement of Secondary Cooling Tower Level Control Systems

As discussed in Enclosure 2, the level control systems for the secondary cooling towers were replaced because the old systems generated noise that interfered with reactor start-ups.

2. Installation of Bollards on the rear side of the facility

Bollards were installed at the rear of the facility, in accordance with the RINSC Security Plan.

3. Installation of Inline Primary Coolant Conductivity and pH Instrumentation

Inline conductivity and pH instrumentation was installed in the Primary Coolant System. Calibration of the system is in progress.

ENCLOSURE 4

FACILITY CHANGES - 10CFR50.59 REVIEW

The following is a listing and description of 10CFR50.59 evaluations conducted during the 2004-2005 reporting period. This information is required by Technical Specification 6.8.4.d.

1. Modification of Neutron Flux Monitor HV Trip

Pursuant to 10CFR50.59, a committee was formed to evaluate the modification of the Neutron Flux Monitor HV Trip. The Neutron Flux Monitor HV scram was wired through an alarm relay in the monitor, as well as through the "Inst Trouble" annunciator indicator on the console.

2. Modification of Shim Safety Blade Position Indicators

Pursuant to 10CFR50.59, a committee was formed to evaluate the modification of the Shim Safety Blade Position Indicators. The mechanical odometers that were being used for shim safety blade position indication were replaced with optical encoders. Also, the old blade position displays were replaced with new digital displays.

ENCLOSURE 5

RADIOLOGICAL CONTROLS

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

Quarterly OSL¹ 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 2004	4 TH QTR 2004	1 ST QTR 2005	2 ND QTR 2005 ²
Northeast Wall	32	7	27	1
Demineralizer Door	96	122	85	107
Heat Exchanger Door	12	42	18	11

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 0.67 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 4.10 mrem. Likewise the dose received at the Heat Exchanger Door would be 0.83 mrem.

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. Gaseous effluent concentrations are documented on the Monthly Information Sheets (Form NSC-78) enclosed. The gaseous effluents, primarily Argon-41, were less than 5% of the 10 CFR 20, Appendix B, Table 2, Column 1 effluent limits.

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 liquids were discharged during the reporting period.

¹ Optically Stimulated Luminescence

² Landauer reads the OSL dosimeters to 1 mrem.