



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

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

August 27, 2007

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. Kevin Witt, 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

A020

ENCLOSURE 1

Technical Specifications  
Section 6.8.4.a

Month	Reactor Critical (hours)	Energy Generated (MWh)	Energy Generated (MWd)
July-06	63.10	126.20	5.26
August-06	47.90	66.60	2.78
September-06	20.50	40.90	1.70
October-06	15.30	30.60	1.28
November-06	44.70	89.40	3.73
December-06	28.30	56.60	2.36
January-07	5.00	10.10	0.42
February-07	15.30	30.60	1.28
March-07	10.60	21.10	0.88
April-07	25.20	49.80	2.08
May-07	32.10	63.60	2.65
June-07	18.50	25.30	1.05
2006-07 Totals:	326.50	610.80	25.45
Total Energy Output Since Initial Criticality:		60,646.10	2,526.92

## ENCLOSURE 1

(Continued)

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## Monthly Information Sheet

NSC-78

Month: Jul-2006		Revised 3/22/2004
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## Cumulative MWH's

TOTAL

LEU

Start: 60,646.10		End: 60,772.33	11,064.91
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\*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
8009	6	2.00	0837	0958	1258	3.00	6.00	7,000	3.14E-05	0.84
8010	10	2.00	0820	0913	1641	7.47	14.93	10,000	4.49E-05	2.09
8011	11	2.00	0835	0940	1240	3.00	6.00	3,000	1.35E-05	0.84
8012	12	2.00	1110	1238	1538	3.00	6.00	5,000	2.25E-05	0.84
8013	13	2.00	0835	0944	1244	3.00	6.00	9,000	4.04E-05	0.84
8014	14	2.00	0820	0903	1550	6.78	13.57	8,000	3.59E-05	1.90
8015	17	2.00	0820	0910	1120	2.17	4.33	7,000	3.14E-05	0.61
8016	18	2.00	0820	0930	1230	3.00	6.00	11,000	4.94E-05	0.84
8017	19	2.00	0840	0932	1232	3.00	6.00	8,000	3.59E-05	0.84
8018	20	2.00	0835	0940	1240	3.00	6.00	8,000	3.59E-05	0.84
8019	21	2.00	0837	0940	1626	6.77	13.53	10,000	4.49E-05	1.89
8020	24	2.00	0825	0904	1600	6.93	13.87	9,000	4.04E-05	1.94
8021	25	2.00	0830	1015	1315	3.00	6.00	10,000	4.49E-05	0.84
8022	26	2.00	0850	0955	1255	3.00	6.00	9,000	4.04E-05	0.84
8023	27	2.00	0850	0955	1255	3.00	6.00	10,000	4.49E-05	0.84
8025	31	2.00	0838	0925	1225	3.00	6.00	9,000	4.04E-05	0.84
Totals:						63.12	126.23			17.67

## SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	154.0	63.1	MWH's:	308.0	126.2
Percentage		41%			41%
Stack Releases	17.7 curies				

## ENCLOSURE 1

(Continued)

NSC-78

## Monthly Information Sheet

NSC-78

Month: Aug-2006	Revised 3/22/2004
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## Cumulative MWH's

TOTAL

LEU

Start: 60,772.33	End: 60,838.90	11,131.48
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\*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
8025	1	2.00	0845	0930	1305	3.58	7.17	7,000	4.21E-05	1.00
8026	2	2.00	0915	1038	1338	3.00	6.00	7,000	4.21E-05	0.84
8027	3	2.00	0850	0947	1229	2.70	5.40	9,000	5.41E-05	0.76
8028	8	0.00	0940		1034	10.57	0.00			0.00
8029	8	0.00	1336	1442	1512	0.50	0.00	250	1.50E-06	0.00
8030	9	2.00	0835	0940	1240	3.00	6.00	9,000	5.41E-05	0.84
8031	10	2.00	0825	0940	1240	3.00	6.00	7,000	4.21E-05	0.84
8032	15	2.00	0820	0920	1220	3.00	6.00	7,000	4.21E-05	0.84
8033	17	2.00	0835	0933	1233	3.00	6.00	7,000	4.21E-05	0.84
8034	18	2.00	1043	1140	1440	3.00	6.00	5,000	3.01E-05	0.84
8035	22	2.00	0830	0920	1220	3.00	6.00	8,000	4.81E-05	0.84
8036	24	2.00	0835	0920	1220	3.00	6.00	8,000	4.81E-05	0.84
8037	28	0.00	1020	1139	1231	0.87	0.00	500	3.01E-06	0.00
8038	29	2.00	0838	0925	1225	3.00	6.00	7,000	4.21E-05	0.84
8039	30	0.00	1114	1229	1441	2.20	0.00	7,000	4.21E-05	0.00
8040	31	0.00	1420	1515	1542	0.45	0.00	4,000	2.40E-05	0.00
Totals:						47.87	66.57			6.72

## SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	147.0	47.9	MWH's:	294.0	66.6
Percentage		33%			23%
Stack Releases	6.7 curies				

## (Continued)

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**LÊU**

\*added HEU = 49698.01

## SUMMARY

<b>Operating</b>	<b>Max.</b>	<b>Actual</b>		<b>Max.</b>	<b>Actual</b>
<b>Hours</b>	147.0	20.5	<b>MWH's:</b>	294.0	40.9
<b>Percentage</b>		14%			14%
<b>Stack Releases</b>	5.7 curies				

## ENCLOSURE 1

(Continued)

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**Monthly Information Sheet**

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<b>Month:</b> Oct-2006		<b>Revised</b> 3/22/2004
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**Cumulative MWH's**

TOTAL

LEU

<b>Start:</b> 60,879.80		<b>End:</b> 60,910.40	11,202.98
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\*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
8049	3	2.00	0840	0926	1153	2.45	4.90	7,000	4.21E-05	0.69
8050	5	2.00	0835	0940	1145	2.08	4.17	7,000	4.21E-05	0.58
8051	10	2.00	0835	0924	0958	0.57	1.13	7,000	4.21E-05	0.16
8052	11	2.00	0840	0945	1150	2.08	4.17	8,000	4.81E-05	0.58
8053	17	2.00	0835	0925	1258	3.55	7.10	110	5.09E-05	0.99
8054	19	2.00	0840	0942	1059	1.28	2.57	110	5.09E-05	0.36
8055	24	2.00	0838	0943	1300	3.28	6.57	160	7.41E-05	0.92
<b>Totals:</b>						15.30	30.60			4.28

**SUMMARY**

Operating	Max.	Actual		Max.	Actual
Hours	154.0	15.3	MWH's:	308.0	30.6
Percentage		10%			10%
Stack Releases	4.3 curies				

## ENCLOSURE 1

(Continued)

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## Monthly Information Sheet

NSC-78

Month: Nov-2006	Revised 3/22/2004
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## Cumulative MWH's

TOTAL

LEU

Start: 60,910.40	End: 60,999.80	11,292.38
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\*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
8056	2	2.00	0835	0934	1012	0.63	1.27	150	6.95E-05	0.18
8057	9	2.00	0835	0930	1118	1.80	3.60	150	6.95E-05	0.50
8058	14	2.00	0835	0928	1228	3.00	6.00	160	7.41E-05	0.84
8059	16	2.00	0835	0923	0950	0.45	0.90	160	7.41E-05	0.13
8060	20	2.00	0830	0920	1637	7.28	14.57	170	7.87E-05	2.04
8061	21	2.00	0840	0933	1103	1.50	3.00	160	7.41E-05	0.42
8062	22	2.00	0830	0918	1625	7.12	14.23	250	1.16E-04	1.99
8063	27	2.00	0828	0915	1610	6.92	13.83	210	9.72E-05	1.94
8064	28	2.00	0830	0918	1052	1.57	3.13	200	9.26E-05	0.44
8065	29	2.00	0826	0914	1628	7.23	14.47	175	8.10E-05	2.03
8066	30	2.00	0804	0912	1624	7.20	14.40	250	1.16E-04	2.02
Totals:						44.70	89.40			12.52

## SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	133.0	44.7	MWH's:	266.0	89.4
Percentage		34%			34%
Stack Releases	12.5 curies				

## ENCLOSURE 1

(Continued)

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**Monthly Information Sheet**

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<b>Month:</b> Dec-2006		<b>Revised</b> 3/22/2004
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<b>Cumulative MWH's</b>			<b>TOTAL</b>	<b>LEU</b>
<b>Start:</b> 60,999.80		<b>End:</b>	61,056.37	11,348.95

\*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
8067	4	2.00	0825	0914	1632	7.30	14.60	250	1.16E-04	2.04
8068	5	2.00	0825	0918	1052	1.57	3.13	150	6.95E-05	0.44
8069	6	2.00	0825	0913	1630	7.28	14.57	175	8.10E-05	2.04
8070	7	2.00	0825	0926	1226	3.00	6.00	150	6.95E-05	0.84
8071	8	2.00	0830	0957	1036	0.65	1.30	170	7.87E-05	0.18
8072	12	2.00	0825	0920	1220	3.00	6.00	175	8.10E-05	0.84
8073	14	2.00	0835	0923	1022	0.98	1.97	140	6.48E-05	0.28
8074	19	2.00	0825	0915	1045	1.50	3.00	160	7.41E-05	0.42
8075	27	2.00	0825	0915	1215	3.00	6.00	225	1.04E-04	0.84
<b>Totals:</b>						28.28	56.57			7.92

**SUMMARY**

<b>Operating</b>	<b>Max.</b>	<b>Actual</b>		<b>Max.</b>	<b>Actual</b>
<b>Hours</b>	154.0	28.3	<b>MWH's:</b>	308.0	56.6
<b>Percentage</b>		18%			18%
<b>Stack Releases</b>	7.9 curies				



## ENCLOSURE 1

(Continued)

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**Monthly Information Sheet**

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Month: Jan-07	Revised 3/22/2004
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**Cumulative MWH's**

TOTAL

LEU

Start: 61,056.37	End: 61,066.44	11,368.43
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\*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
8076	4	2.00	0830	0923	1010	0.78	1.57	150	6.95E-05	0.22
8077	9	2.00	0830	0916	0950	0.57	1.13	120	5.56E-05	0.16
8078	11	2.00	0830	0915	1025	1.17	2.33	120	5.56E-05	0.33
8079	18	2.00	0840	0926	1020	0.90	1.80	120	5.56E-05	0.25
8080	23	2.00	0830	0918	1002	0.73	1.47	120	5.56E-05	0.21
8081	25	2.00	0838	0925	1002	0.62	1.23	120	5.56E-05	0.17
8082	30	2.00	1047	1201	1217	0.27	0.53	100	3.04E-07	0.07
Totals:						5.03	10.07			1.41

**SUMMARY**

Operating	Max.	Actual		Max.	Actual
Hours	147.0	5.0	MWH's:	294.0	10.1
Percentage		3%			3%
Stack Releases	1.4 curies				

## ENCLOSURE 1

(Continued)

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**Monthly Information Sheet**

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<b>Month:</b> Feb-07	<b>Revised</b> 3/22/2004
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**Cumulative MWH's**

TOTAL

LEU

<b>Start:</b> 61,066.44	<b>End:</b> 61,097.00	11,398.99
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\*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
8083	1	2.00	0830	0931	1035	1.07	2.13	120	3.65E-07	0.30
8084	6	2.00	0835	0935	1140	2.08	4.17	120	3.65E-07	0.58
8085	8	2.00	0835	1039	1100	0.35	0.70	90	2.74E-07	0.10
8086	13	2.00	0830	0923	1223	3.00	6.00	150	4.56E-07	0.84
8087	15	2.00	0845	0945	1245	3.00	6.00	110	3.34E-07	0.84
8088	20	2.00	0841	0925	1009	0.73	1.47	80	2.43E-07	0.21
8089	22	2.00	0854	0944	1138	1.90	3.80	100	3.04E-07	0.53
8090	27	2.00	0830	0920	1229	3.15	6.30	100	3.04E-07	0.88
<b>Totals:</b>						15.28	30.57			4.28

**SUMMARY**

Operating	Max.	Actual		Max.	Actual
Hours	140.0	15.3	MWH's:	280.0	30.6
Percentage		11%			11%
Stack Releases	4.3 curies				

## ENCLOSURE 1

(Continued)

NSC-78

**Monthly Information Sheet**

NSC-78

<b>Month:</b> Mar-07		<b>Revised</b> 3/22/2004
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**Cumulative MWH's**

TOTAL

LEU

<b>Start:</b> 61,097.00		<b>End:</b> 61,118.14	11,410.72
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\*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)	Todays total MWH	Stack Monitor max CPM	Ar-41 Released	
									Limit = 4E-4 uCi/cc	
									uCi/cc	Ci/day
8091	1	2.00	0830	0935	1148	2.22	4.43	150	4.56E-07	0.62
8092	6	2.00	0830	0930	1004	0.57	1.13	120	3.65E-07	0.16
8093	8	2.00	0825	0914	1132	2.30	4.60	120	3.65E-07	0.64
8094	13	2.00	0830	0952	1125	1.55	3.10	150	4.56E-07	0.43
8095	20	2.00	0835	0928	1008	0.67	1.33	150	4.56E-07	0.19
8096	22	2.00	0830	0930	1028	0.97	1.93	150	4.56E-07	0.27
8097	27	2.00	0830	0955	1130	1.58	3.17	160	4.86E-07	0.44
8098	28	2.00	1138	1215	1258	0.72	1.43	100	3.04E-07	0.20
<b>Totals:</b>						10.57	21.13			2.96

**SUMMARY**

Operating	Max.	Actual		Max.	Actual
Hours	147.0	10.6	MWH's:	294.0	21.1
Percentage		7%			7%
Stack Releases	3.0 curies				

## ENCLOSURE 1

(Continued)

NSC-78

## Monthly Information Sheet

NSC-78

Month: Apr-07	Revised 3/22/2004
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## Cumulative MWH's

TOTAL

LEU

Start: 61,118.14	End: 61,167.90	11,460.48
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\*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
8099	3	2.00	0832	0940	1327	3.78	7.57	150	4.56E-07	1.06
8100	10	2.00	0830	1107	1517	4.17	8.33	190	5.78E-07	1.17
8101	12	2.00	0820	1133	1134	0.02	0.03	100	3.04E-07	0.00
8102	16	2.00	1328	1417	1420	0.03	0.06	100	3.04E-07	0.01
8103	17	2.00	0828	0952	1235	2.72	5.43	200	6.08E-07	0.76
8104	19	2.00	0903	0959	1530	5.52	11.03	150	4.56E-07	1.54
8105	20	0.10	1430	1529	1530	0.02	0.00	150	4.56E-07	0.00
8106	23	1.00	1450	1515	1551	0.60	0.60	60	1.82E-07	0.08
8107	24	2.00	0926	1038	1255	2.28	4.57	160	4.86E-07	0.64
8108	26	2.00	0828	0923	1527	6.07	12.13	175	5.32E-07	1.70
Totals:						25.20	49.76			6.97

## SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	154.0	25.2	MWH's:	308.0	49.8
Percentage		16%			16%
Stack Releases	7.0 curies				

## ENCLOSURE 1

(Continued)

NSC-78

## Monthly Information Sheet

NSC-78

Month: May-07	Revised 3/22/2004
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Cumulative MWH's				TOTAL	LEU
Start: 61,167.90	End: 61,224.93	11,517.51			

\*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
8109	1	2.00	0830	0918	1115	1.95	3.90	150	6.74E-07	0.55
8110	3	2.00	0830	1020	1343	3.38	6.77	110	4.94E-07	0.95
8111	8	2.00	0830	0920	1235	3.25	6.50	150	6.74E-07	0.91
8112	9	2.00	0830	1000	1455	4.92	9.83	230	1.03E-06	1.38
8113	10	2.00	0830	0940	1000	0.33	0.67	140	6.29E-07	0.09
8114	15	2.00	0835	0930	1500	5.50	11.00	200	8.98E-07	1.54
8115	17	2.00	0840	0935	1246	3.18	6.37	200	8.98E-07	0.89
8116	22	2.00	0830	0950	1250	3.00	6.00	150	6.74E-07	0.84
8117	24	2.00	0835	1034	1334	3.00	6.00	200	8.98E-07	0.84
8118	29	0.00	0840	1006	1025	0.32	0.00	20	8.98E-08	0.00
8119	30	2.00	0830	0927	1244	3.28	6.57	160	7.18E-07	0.92
Totals:						32.12	63.60			8.90

## SUMMARY

Operating	Max.	Actual		Max.	Actual
Hours	147.0	32.1	MWH's:	294.0	63.6
Percentage		22%			22%
Stack Releases	8.9 curies				

ENCLOSURE 1

(Continued)

NSC-78

**Monthly Information Sheet**

NSC-78

<b>Month:</b> Jun-2007	<b>Revised</b> 3/22/2004
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Cumulative MWH's				TOTAL		LEU
<b>Start:</b> 61,224.93		<b>End:</b>	61,250.20	11,542.78		

\*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
8120	5	2.00	0840	0955	1115	1.33	2.67	150	6.74E-07	0.37
8121	6	2.00	1110	1206	1355	1.82	3.63	150	6.74E-07	0.51
8122	7	2.00	0835	1012	1312	3.00	6.00	200	8.98E-07	0.84
8123	12	2.00	0830	0927	1039	1.20	2.40	150	6.74E-07	0.34
8124	14	2.00	0830	0922	1439	5.28	10.57	200	8.98E-07	1.48
8125	19	0.00	1030	1109	1542	4.55	0.00	0	0	0.00
8126	28	0.00	0915	1051	1135	0.73	0.00	22	9.88E-08	0.00
8127	29	0.00	1310	1533	1608	0.58	0.00	22	9.88E-08	0.00
<b>Totals:</b>						18.50	25.27			3.54

**SUMMARY**

Operating	Max.	Actual		Max.	Actual
Hours	147.0	18.5	MWH's:	294.0	25.3
Percentage		13%			9%
Stack Releases	3.5 curies				

ENCLOSURE 2

**EMERGENCY SHUTDOWNS AND SCRAMS**

The following is a listing of the emergency shutdowns and inadvertent scrams that occurred during the 2006-2007 reporting period. This information is required by Technical Specification 6.8.4.b.

<b>DATE</b>	<b>RUN #</b>	<b>LOGBOOK / PAGE</b>	<b>DESCRIPTION</b>
7/12/06	8012	54/73	Dropped Blade #1.
7/25/06	8021	54/82	Dropped Blade #1 three times.
7/26/06	8022	54/83	Dropped Blade #1.
8/3/06	8027	54/88	Scram due to building power failure.
9/28/06	8048	54/110	Scram due to operator error.
10/5/06	8050	54/112	Dropped Blade #3.
10/11/06	8052	54/114	Dropped Blade #3.
10/24/06	8055	54/117	Dropped Blade #2.
12/1/06	8066	54/128	Scram due to noise as a result of a relay jumper falling off.
3/1/07	8091	55/16	Dropped Blade #1.
3/13/07	8094	55/20	Dropped Blade #3.
3/27/07	8097	55/23	Dropped all four shim safety blades.
4/10/07	8100	55/27	Dropped Blades #3 and #4 twice.
4/12/07	8101	55/29	Dropped all blades twice. Dropped #3. Dropped #3 and #4 twice.
4/17/07	8103	55/31	Dropped Blades #1 and #2.
4/19/07	8104	55/32	Dropped Blades #1 and #2. Dropped all four shim safety blades.
4/20/07	8105	55/33	Dropped Blades #3 and #4.
5/3/07	8110	55/38	Scram. Dropped Blade #1.
5/9/07	8112	55/40	Dropped all four shim safety blades.
5/10/07	8113	55/41	Dropped Blade #1.
5/22/07	8116	55/44	Dropped Blade #3.
5/24/07	8117	55/45	Dropped Blade #3 due to misalignment.
5/29/07	8118	55/46	Dropped all four shim safety blades.
6/7/07	8122	55/50	Scram when switching the regulating blade to auto mode.

## ENCLOSURE 2

### **EMERGENCY SHUTDOWNS AND SCRAMS**

Most of the unplanned shutdowns occurred because a shim safety blade magnet failed to hold on to the associated blade. Factors that contribute to this problem include misalignment between the magnet and the armature, and vibration caused by coolant flow past the blades.

#### **Run #8066:**

The latching relay for the regulating blade auto mode failed. A jumper was put into the system in order to make the auto mode function properly. A scram occurred when the jumper fell off and introduced noise in the system. The relay has been replaced.

#### **Run #8097:**

One of the shim safety blades dropped, followed by the release of other three blades. The suspected cause was that the vibration caused by the first blade knocked the other three blades loose.

#### **Runs #8100 through #8105:**

Blades started dropping in pairs. In each case, the pair of blades that dropped shared the same magnet amplifier. Ultimately, it was determined that some of the magnet current switch connections were loose, causing momentary current losses in a magnet current amplifier.

#### **Run #8110:**

A scram occurred with no indication of the cause.

#### **Run #8122:**

A scram occurred when the regulating blade was switched to auto mode. The switch caused noise in the system.



### ENCLOSURE 3

The following is a listing of the major maintenance operations performed in the 2006-2007 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.

During the 10/23/06 Pool Inspection, it was noted that the gasket on the cooling system outlet coupling was torn. Consequently, the gasket was replaced. The project involved unloading the fuel, gating off the high power section of the pool, and draining the high power section to a water level below the inlet and outlet couplings.

## ENCLOSURE 4

### **FACILITY CHANGES - 10CFR50.59 REVIEW**

The following is a listing and description of 10CFR50.59 evaluations conducted during the 2006-2007 reporting period. This information is required by Technical Specification 6.8.4.d.

1. Reactor Rod Control Equipment Change

Pursuant to 10CFR50.59, a committee was formed to evaluate an upgrade of the rod control system. The proposed system would use Opto22 industrial automation hardware and software to manipulate the control rods. The NRSC approved the upgrade. The shim safety rod drive motors and gear reducers have been replaced with stepper motors and reducers.

2. Emergency Plan Revision

Pursuant to 10CFR50.54(q), the RINSC Emergency Plan was revised to reflect current practices. This section of the regulation describes the types of changes that can be made to the Emergency Plan without NRC approval. All of the revisions that were made were deemed to be within the scope of this regulation. The NRSC approved the changes, and the Emergency Plan Implementing Procedures have been updated to reflect these changes.

## ENCLOSURE 5

### RADIOLOGICAL CONTROLS

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

Quarterly OSL<sup>1</sup> 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 <sup>RD</sup> QTR 2006	4 <sup>TH</sup> QTR 2006	1 <sup>ST</sup> QTR 2007	2 <sup>ND</sup> QTR 2007 <sup>2</sup>
Northeast Wall	75	27	23	25
Demineralizer Door	198	108	97	55
Heat Exchanger Door	78	22	22	22

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 1.5 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 4.58 mrem. Likewise the dose received at the Heat Exchanger Door would be 1.44 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. 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). On September 15, 2006, 600 gallons containing 156.486 microcuries of tritium, 0.103 microcuries of cobalt-60, 0.203 microcuries of zinc-65, 0.018 microcuries of antimony-124 and 0.062 microcuries of europium-152 were discharged to the sewer. The sum of the fractions for release totaled 0.011 (about 1%) of the discharge limit.

On June 20, 2007, 6681 gallons of pool water were discharged to the sewer during the gasket replacement project. The water contained 9,360 microcuries of tritium, 11 microcuries of sodium-24 and 4.34 microcuries of antimony-122. The sum of the fractions for the release totaled 0.038 (about 4%) of the discharge limit.

<sup>1</sup> Optically Stimulated Luminescence

<sup>2</sup> Landauer reads the OSL dosimeters to 1 mrem.