BNL-62355

REACTOR OPERATIONS

BROOKHAVEN MEDICAL RESEARCH REACTOR

BROOKHAVEN HIGH FLUX BEAM REACTOR

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MAY 1995

INFORMAL REPORT

BROOKHAVEN NATIONAL LABORATORY

ASSOCIATED UNIVERSITIES, INC.

UPTON, NEW YORK 11973-5000

under contract No. DE-AC02-76CH00016 with the
United States Department of Energy

Disclaimer

Part I

Brookhaven Medical Research Reactor

1. Reactor

The reactor ran for 16 days with 24 startups during the month of May. A total of 131.15 Mwhrs of thermal energy were produced bringing the total to date to 21,939.25 Mwhrs.

2. Instrumentation

There were no reportable instrumentation events during the month of May.

3. Mechanical Maintenance

All scheduled tickler card maintenance was completed.

4. Occurrence Reports

There were no reportable occurrences for the month of May, 1995.

5. Safety

There were no reportable first aid or lost time due to accidents reported for the month of May 1995.

BMRR TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENTS RECORD

MONTH May YEAR 1995

Requirement	Period	Previous Completion Date	Scheduled Date	Completion Date	Deadline if Not Completed
Operations					
Confinement System					
a. Nuclear Incident System (M-4.2.4)	M	04/17/95	05/15/95	05/18/95	
b. Bldg. Relief Valves (M-4.2.2)	M	04/01/95	05/01/95	05/06/95	
c. Control Rod Seating Lights Battery Check	M	04/01/95	05/01/95	05/06/95	
Instrumentation					
None					

[tssrr/maytechs]

M = Monthly
Q = Quarterly
A/2 = Semi-Annually
A = Annually
( ) = Date of the month in which card is issued

SUMMARY OF BMRR IRRADIATIONS
05/01/95 TO 05/31/95

DATE	PROJECT	HOURS	FACILITY	DESCRIPTION OF SAMPLE
05/02/95	MEDICAL	0.367	TREATMENT ROOM #1	FILMS
05/02/95	MEDICAL	0.125	Pn-TUBE	In-115
05/02/95	MEDICAL	6.050	RADIAL	CELLS W/B-10
05/03/95	MEDICAL	2.533	TREATMENT ROOM #2	TLD's/Au FOILS
05/03/95	MEDICAL	2.583	RADIAL	CELLS W/B-10
05/04/95	MEDICAL	2.617	RADIAL	CELLS W/B-10
05/04/95	DAT	2.500	Pn-TUBE	SiO2 SLIDES
05/05/95	MEDICAL	5.417	TREATMENT ROOM #1	RATS
05/09/95	MEDICAL	6.583	TREATMENT ROOM #1	RATS
05/10/95	MEDICAL	0.250	Pn-TUBE	Gd-158
05/12/95	MEDICAL	5.483	RADIAL	CELLS w/B-10
05/15/95	MEDICAL	3.750	TREATMENT ROOM #1	RATS
05/16/95	MEDICAL	2.333	TREATMENT ROOM #1	RATS
05/17/95	MEDICAL	5.000	TREATMENT ROOM #1	RATS
05/19/95	MEDICAL	6.367	RADIAL	CELLS w/B-10
05/19/95	MEDICAL	0.125	Pn-TUBE	In-115 STANDARDS
05/19/95	DAT	3.750	Pn-TUBE	SiO2 SLIDES
05/22/95	INEL & WASH. ST. U.	5.217	TREATMENT ROOM #2	DOGS w/DOSIMETRY
05/23/95	MEDICAL	1.700	RADIAL	CELLS w/B-10
05/23/95	INEL & WASH. ST. U.	5.250	TREATMENT ROOM #2	DOGS w/DOSIMETRY
05/24/95	INEL & WASH. ST. U.	6.533	TREATMENT ROOM #2	DOGS w/DOSIMETRY
05/25/95	INEL & WASH. ST. U.	5.633	TREATMENT ROOM #2	DOGSw/DOSIMETRY
05/26/95	INEL & WASH. ST. U.	1.067	TREATMENT ROOM #2	DOGS w/DOSIMETRY
05/26/95	MEDICAL	3.033	RADIAL	CELLS w/B-10

TOTAL NO. OF HOURS: 84.26667
TOTAL NO. OF SAMPLE CAPSULES LOADED: 5

End of Report

PART II

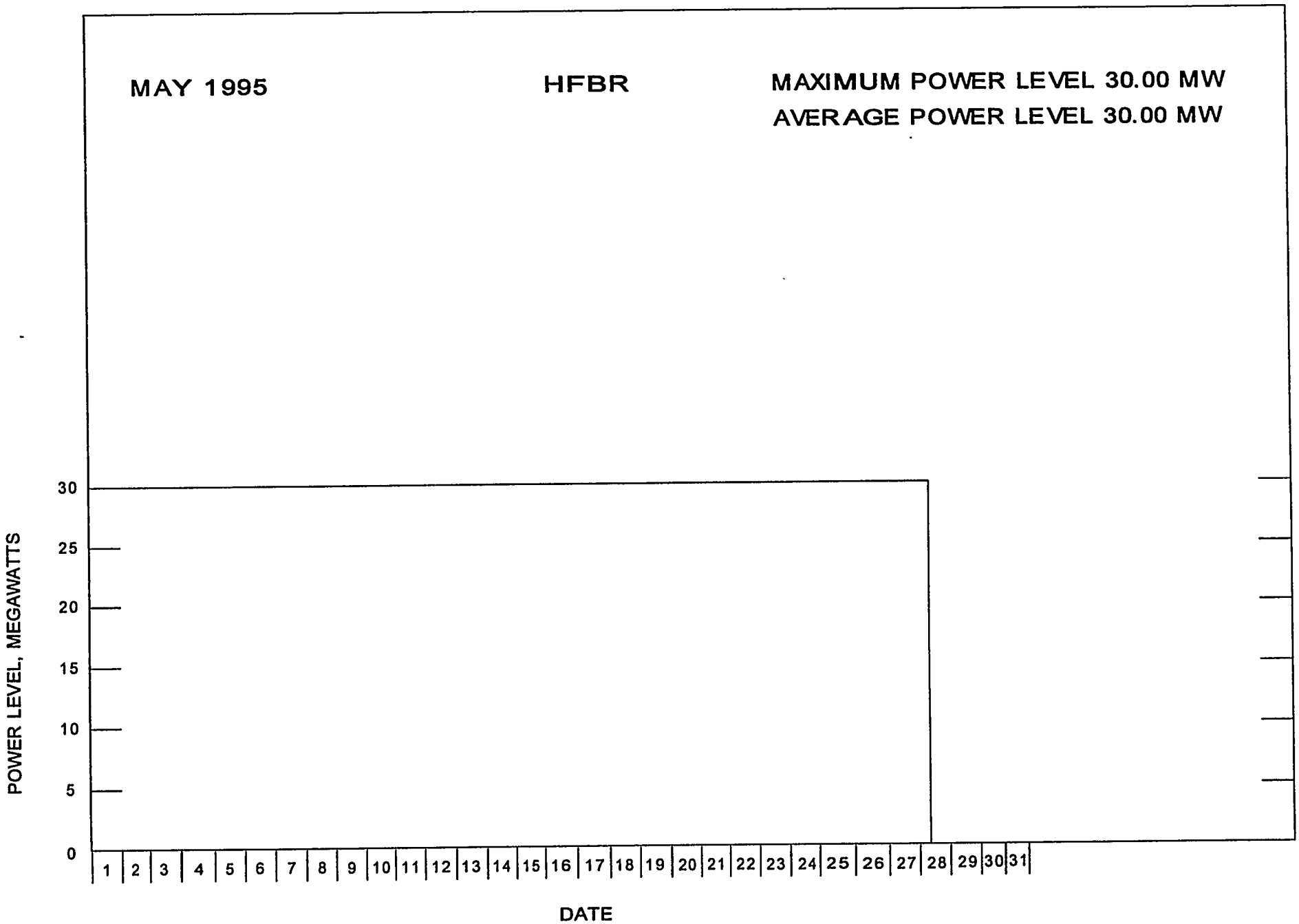
Brookhaven High Flux Beam Reactor

May

31 Days

10776 - 10806

Reactor Operation to Date	277,671.30	MWD
Reactor Operation for Month	814.13	MWD
Hours of Operation	651.30	HRS
Average Power Level ((MWDx24) / Hours of Operation)	30.00	MW
Maximum Power Level	30.00	MW
Downtime	12.45	%
Electrical Energy Consumed within HFBR Bldg.	1,038,000.	KWH
Electrical Energy Consumed by Sec. Water Pumps	257,500.	KWH
Electrical Energy Consumed in Pumphouse 440V System	3,300.	KWH
Total Electrical Energy Consumed within HFBR Complex	1,298,800.	KWH
Electrical Energy Consumed by CNF Compressor	261,600.	KWH
Elements Charged this Month	7	
Elements Discharged this Month	7	
Reactor D_2O Inventory (within 200 pounds)	103,073.00 (46,753.91	LBS KG)
Reactor D_2O Isotopic Purity (Average All Systems)	99.52	%
Helium Consumed (NTP)	26,734. (756.	CF CM)
CO2 Consumed	13,600. (6,168.	LBS KG)


MAY 1995
HFBR
MAXIMUM POWER LEVEL 30.00 MW
AVERAGE POWER LEVEL 30.00 MW
POWER LEVEL, MEGAWATTS
0
5
10
15
20
25
30
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
DATE

2. Explanation of Histogram

Operating Cycle No. 280 was in progress at the beginning of this report period. The reactor was shutdown at 0318 hours on May 28, 1995 for scheduled maintenance and refueling.

3. Operating Difficulties:

None.

4. Reactivity Comments:

The excess reactivity at the end of Operating Cycle No. 280 was 0.0$.

5. Building Confinement - Test and Changes

A planned building confinement break was initiated May 31, 1995 by placing the Exit Air Bypass Filters in bypass mode to permit painting within the building confinement.

6. Changes to Reactor or Process Systems

Maintenance Replacement Approval (MRA) #94-09 "Inlet Air Handling units AC-1 & AC-2 Removal" was completed in May.

7. Instrumentation

There were no reportable instrumentation events during the month of May.

8. Mechanical Maintenance

All scheduled tickler card maintenance was performed and completed.

9. Occurrence Reports

There was one reportable occurrence during the month of May, 1995.

CH-BH-BNL-HFBR-1995-0004, Personnel Radioactive Contamination, Particle on Vest Button. - 5/3/95.

10. Experimental Facilities

Experimental work was in progress on the following beam lines from May 1 - 28, 1995. The reactor was shutdown for maintenance on May 28, 1995.

H-1B Physics Department - Nuclear Structure Group - work in progress.
H-1A Powder diffractometer in service.

H-2 Physics Department - TRISTAN Experiment Dismantled

H-3 Biology Department - On 5/15 experiment shutdown for modification work.

H-3A Experimental work in progress.

H-3B Experimental work in progress.

H-4 Physics Department - Neutron Scattering Group.

H-4M Experimental work in progress.

H-4S Experimental work in progress.

H-5 Chemistry Department - Chemistry Department Neutron Scattering Group.

H-6 Chemistry Department - Chemical Crystallography Group.

H-6M & H-6S - Experimental work in progress.
H-7 Physics Department - Neutron Scattering Group.

H-8 Physics Department - Neutron Scattering Group.

H-9 Reactor Division - Cold Neutron Facility.

H-9A Physics - Experimental work in progress.

H-9B Biology - Experimental work in progress.

H-9R Physics - Neutron Reflectometer in-service.

11. Cold Neutron Facility

Operating History

The CNF was operating at the beginning of the reporting period. The CNF shutdown with the reactor on May 28th at 0318 hours for scheduled maintenance. The CNF remained shutdown for the remainder of the reporting period.

The CNF operated 651.3 hours during May and produced cold neutrons 100% of the time that the reactor was at full power.

Operating Difficulties

None.

Maintenance Activities

All required maintenance and surveillance testing was completed. Hardware installation and acceptance testing for MRA 95-05, Redesign of Valve N501 and Relocating PIAN501 Pressure Tap, was completed.

12. Safety

There were no reportable first aid accidents for the month of May.

13. Fuel Element Inventory

Elements in Use as of May 31, 1995

In Reactor(s)	HFBR 28	BMRR 36	64

Element Movement during the Month

Charged to reactor	0
Discharged from reactor	0

HFBR TECHNICAL SAFETY
SURVEILLANCE REQUIREMENTS RECORD

May 1995.

Requirement	Tech Spec Period	Previous Completion Date	Current Completion Date	Tech Spec Deadline
IC 2.1.exp *Chloride Content in Experimental System* BIMONTHLY	M	05/02/95	05/17/95	06/24/95
IC 2.1.pri *Chloride Content in Primary System* BIMONTHLY	M	05/09/95	05/17/95	06/24/95
IR 2.exp *Isotopic Purity of Experimental System* WEEKLY	M	05/09/95	05/17/95	06/24/95
IR 2.pri *Isotopic Purity of Primary System* WEEKLY	M	05/09/95	05/17/95	06/24/95
MIS 1.1 *Determination of pD with Orion pH meter (Primary System)* WEEKLY	M	05/09/95	05/26/95	07/03/95
TC 302 *Criticality Alarm System Operability Test* MONTHLY	M	04/01/95	05/01/95	06/08/95
TC 310 *SPAM Station Checks* MONTHLY	M	04/25/95	05/15/95	06/22/95
TC 175 *Main Control Rod SCRAM Times (Digital System)* JAN/APR/JUL/OCT	3M	04/15/95	05/28/95	09/17/95
TC 117 *Bldg. Confinement Leak Rate* MAR/SEP	2Y/6M **DUE**	09/25/94	01/28/95	09/09/95
TC 131 *Poison Water Chemical Content* MAY	A **DUE**	06/13/94	01/10/95	04/10/96

Requirement	Tech Spec Period	Previous Completion Date	Current Completion Date	Tech Spec Deadline
TC 225 *HFBR Technical Specification Review* APR	A **DUE**		04/29/94	07/29/95
TC 325 *Line Management Responsibilities/ Authority at BNL Reacto* MAY	A	05/20/94	05/19/95	08/19/96
TC 163 *Test & Inspection of Poison Water Dump Valves* MAY 1995	2Y **DUE**	04/09/91	05/13/93	11/13/95
TC 307 *SPAM Drum Station Gadolinium Content* MAY 1995	2Y	05/27/93	05/31/95	11/30/97
TC 308 *SPAM Flexible Hose Pressure Test* MAY 1995	2Y	04/30/93	05/30/95	11/30/97
TC 309 *SPAM Station Operability Check* MAY 1995	2Y	05/19/93	05/31/95	11/30/97
TC 205A.5Y *Load Test - 250V DC Batteries NO. 1* APR 1995	5Y **DUE**		02/21/91	08/21/96
TC 205B.5Y *Load Test - 250V DC Batteries NO. 2* APR 1995	5Y **DUE**		02/25/91	08/25/96
HE 3&11(A) *24 VDC Battery Float Voltage* MONTHLY	M **DUE**	03/31/95	04/28/95	06/05/95
HB 26 *RRa-100 Calibration* MAY	A **DUE**	05/03/93	04/27/94	07/27/95
HB 27 *RRa-105 Calibration* APR	A	04/22/94	05/04/95	08/04/96

Requirement	Tech Spec Period	Previous Completion Date	Current Completion Date	Tech Spec Deadline
HB 39 *RRa-306 Calibration* APR	A	04/15/94	05/05/95	08/05/96
HC 1&5 *Count Rate Ch 7&8 Calibration* MAY	A		05/10/95	08/10/96
HE 14 *Electronic Alarm Module Calibration (24VDC Annun Relay)* MAY	A **DUE**			09/30/95
HP 36 *LI-107 Calibration* FEB	A **OVERDUE** NOTE: LI107 is out of service	02/02/93	02/10/94	05/10/95
HT 27 *FRa-201 Calibration* MAY	A **DUE**	05/12/93	04/25/94	07/25/95
HT 28 *FI-202 Calibration* MAY	A **DUE**	05/11/93	04/26/94	07/26/95
HT 47 *FI-207 Calibration* MAY	A **DUE**	05/11/93	04/28/94	07/28/95
TC 627E *250V Monthly Battery Inspection* MONTHLY	M	04/03/95	05/02/95	06/09/95
TC 632E *Monthly Pony Motor Battery Inspection* MONTHLY	M	04/03/95	05/02/95	06/09/95

...end...

SUMMARY OF HFBR IRRADIATIONS
05/01/95 TO 05/31/95

DATE	PROJECT	HOURS	FACILITY	DESCRIPTION OF SAMPLE
05/02/95	MEDICAL	96.000	V-16	TiO2 (Ti-47)
05/08/95	PHYSICS	70.900	V-14	Cu-63
05/09/95	DAT	0.333	V-11	SiO2 SLIDES
05/16/95	CHEMISTRY	20.000	V-10	LIMESTONE
05/22/95	UNIV. OF MARYLAND	4.000	V-14	TEFLON FILTERS
05/22/95	TEL AVIV UNIV.	8.000	V-11	Au/Ir ON SILICON & GRAPHITE WAFERS
05/23/95	CHEMISTRY	20.617	V-10	LIMESTONE
05/24/95	LOS ALAMOS	2661.700	V-12	Mg3Te06 (Te-128)
05/25/95	DAT	0.333	V-11	SiO2 SLIDES

TOTAL NO. OF HOURS: 2881.883
TOTAL NO. OF SAMPLE CAPSULES LOADED: 9

End of Report