

GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Survey Frequency and Work Scheduling
PROCEDURE TITLE

HNP-8050
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED ()

NON-SAFETY RELATED (X)

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
9	Page 11	<i>W.H. Rogan</i>	<i>Tom Quinn Jr</i>	<i>1/20/82</i>
10	General Revision	<i>W.H. Rogan</i>	<i>Lawrence Hix</i>	<i>10/20/82</i>
11	Pages 4-9, 11 & 13	<i>W.H. Rogan</i>	<i>Bob N</i>	<i>3/7/83</i>

Ful-Vu Pul-Prof Protector RF3-II Lightweight

Ful-Vu Pul-Prof Protector RF3-II Lightweight

RECEIVED

PROCEDURE REVISION REQUEST

FEB 8 1983

PROCEDURE NO. HNP-8050

PROCEDURE

Revision No. 10

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
Mike Lind	1-4-83	W.H. Rozen	2-6-83

REVISION CHANGES MODE OF OPERATION OR INTENT AS DESCRIBED IN FSAR:
() Yes () No

CHANGE INVOLVES:

() An unreviewed Safety Question () Tech. Specs. () Neither
(See back for Safety Evaluation if required).

Safety Related () Non-Safety Related ()

Safety/Non-safety Status Change () Yes () No

Attach marked up copy of procedure to this form.

REASON FOR REQUEST

- 1) Page^s 4-9 delete week number.
- 2) Page 5, add item^s 10, 11 and 12.
- 3) Page 9, add the word "for" on item 2.
- 4) Page 11, item 12 make requirement yearly.
- 5) Page 11, add item 14 + 15.
- 6) Page 13, add requirement to item 3
- 7) Page 13, add define month(s) to perform item # 6

PRB RECOMMENDS APPROVAL: () Yes () No

PRB Secretary

PRB Number

Date

HNP-3

MANUAL SET

SAFETY EVALUATION

The revision of this procedure does not constitute an unreviewed safety question as explained below.

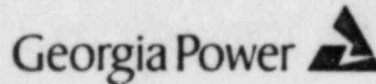
1. The probability of occurrence and the consequences of an accident or malfunction of equipment important to safety are not increased above those analyzed in the FSAR due to these changes because the revision does not change the purpose or performance of the system.

2. The possibility of an accident or malfunction of a different type than analyzed in the FSAR does not result from this change because the system responds and is operated as before the change.

3. The margin of safety as defined in the Technical Specifications is not reduced due to this revision because the revision does not change any limited safety system settings which would allow a safety limit to be exceeded or to allow a limiting condition for operations to be exceeded as stated in Technical Specifications.

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E. I. HATCH NUCLEAR PLANT



PROCEDURE NO
HNP-8050
REVISION NO
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SURVEY FREQUENCY AND WORK SCHEDULING

A. PURPOSE

To define a scheduling and sign-off procedure for the implementation of the Radiation Protection Program for Plant E. I. Hatch and the establishment of Daily Health Physics Log.

B. DISCUSSION

1. Figure 1, Health Physics Weekly Work Routines, defines the scheduled functions to be performed at least once per week. Figure 2, Health Physics Monthly Work Routines, defines the scheduled functions to be performed less often than once per week. Figure 1 also provides for the addition of those functions from Figure 2 that are to be performed in a particular week and a sign-off of all functions as they are performed.
2. Health Physics technicians will record daily important or pertinent information dealing with radiological matters within the plant in the Health Physics Log Book.

C. PROCEDURE

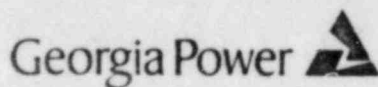
1. Prior to the start of each week the Laboratory Foremen or their designated alternates will prepare the portion of the work schedule which they are responsible for on Figure 1 for that week. He will add those items from Figure 2 to be performed that week and any special functions. The schedule will then be posted in the Health Physics Room.

NOTE

- The Health Physics Weekly Work Routines, Figure 1, is to be used as a guide in scheduling work on a weekly basis. It should not be construed to mean that it is mandatory to complete all assigned tasks on a specific day. The schedule must be flexible to allow for changing demands due to plant operational and unforeseen situations. Work scheduled for a particular week should be completed during that week, however.
2. The technician actually performing the particular functions initials the appropriate space on Figure 1 when the task is completed or a Lab Foreman may initial it for them.

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E . HATCH NUCLEAR PLANT



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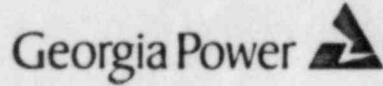
3. If, at the end of the work week, there are any items left undone an explanation shall be written on the reverse side of Figure 1 by the technician assigned the work. The Laboratory Foreman or his designated alternate will then determine what action is necessary to take to complete or re-schedule the work.
4. The completed Figure 1 will be filed in Documentation.
5. The following general guide may be used to designate task responsibilities:
 - HP-1, Foreman designated as #1
 - HP-2, Foreman designated as #2
 - HP-3, Foreman designated as #3
 - E, Foreman on Evening Shift
 - N, Foreman on Night Shift

NOTE

During 2 shift operation, night shift will do all evening shift tasks.

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E. I. HATCH NUCLEAR PLANT



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PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8050-1

SERIAL NO: R11- **

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 7

FREQUENCY: Weekly

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS
AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTABLE _____ UNACCEPTABLE _____

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

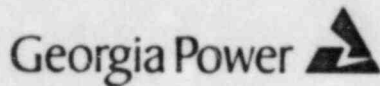
Fu-Yu Pul-Pruf Protector RF3-II Lightweight

Fu-Yu Pul-Pruf Protector RF3-II Lightweight

APPROVAL
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DATE
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E. I. HATCH NUCLEAR PLANT



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REVISION NO
11

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DATA PACKAGE 1

HEALTH PHYSICS WEEKLY WORK ROUTINES _____ DATES thru _____

H.P. 1 WEEKLY TASKS

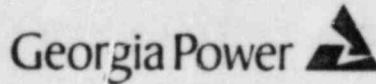
ITEM	TECH.	WORK DESCRIPTION	MON	TUES	WED	THUR	FRI	SAT	SUN
1		Survey Laundry for Shipment							
2		Survey Radwaste for Shipment							
3		Make List of all areas in the Plant for Decont as needed							
4		Check & Tag contaminated equipment as needed		X		X		X	
5									
6									
7									
8									
9									
10									

H.P. 2 WEEKLY TASKS

ITEM	TECH.	WORK DESCRIPTION	MON	TUES	WED	THUR	FRI	SAT	SUN
1		Clean & Sanitize all Respiratory Equipment as Needed							
2		Maintain a precise and systematic MSA Store Room							
3		Re-fill MSA SCDA Tanks as needed							
4		Re-Order H.P. Supplies as needed							
5		Frisker Checks PM, HPM	X		X	X		X	X
6		Eff. Checks cam, cim/cam	X	X		X	X	X	X
7		Audit portable instruments in office for cal due dates		X	X	X	X	X	X
8		Calibrate instruments as required by calibration schedule							
9									
10									
11									
12									

APPROVAL
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E. I. HATCH NUCLEAR PLANT



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DATA PACKAGE 1

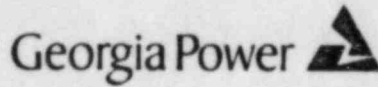
HEALTH PHYSICS WEEKLY WORK ROUTINES DATES thru

H.P. 3 WEEKLY TASKS

ITEM	TECH.	WORK DESCRIPTION	MON	TUES	WED	THUR	FRI	SAT	SUN
1		Read & Rezero Pocket Dosimeter PD, CD, SG, SD, OCD and Visitors							
2		Record Pocket Dosimeter Results							
3		Maintain Personnel Exposure Control Records							
4		Run *DOJDAT* Program							
5		Run *DOFRNT* Program							
6		Run *DOLIST* Program							
7		Run *PDFMAK* Program							
8		Run *ROSTER* Program		X	X	X	X	X	X
9		Read and Rezero High Range Pocket Dosimeter							
10		Rezero ambulance driver's dosimeter		X	X	X	X	X	X
11		Back Up Disk Drives						X	X
12		Clean Filters on computer	X	X	X	X	X		
13									
14									

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DATA PACKAGE 1

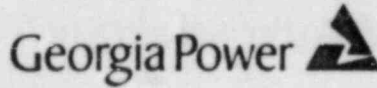
HEALTH PHYSICS DATES
WEEKLY WORK ROUTINES / / thru / /

EVENING SHIFT WEEKLY TASKS

ITEM	TECH.	WORK DESCRIPTION	MON	TUES	WED	THUR	FRI	SAT	SUN
1		Survey Rs. Bldg. Diag's 87' FORM 25 & 44	X	X	X	X	X		X
2		Survey Torus Catwalk Form 27	X	X	X	X	X		X
3		Survey Hot Machine Shop FORM 43	X	X	X	X	X	X	
4		Survey Turbine Bldg. Roof FIGURE 3	X	X	X	X	X	X	
5		Survey Reactor 130' FORM 7 & 33	X	X	X	X	X	X	
6		FORM 14 & 35 Survey Radwaste 132'	X	X	X	X	X	X	
7		FORM 32 Survey 164' Control Bldg.	X	X	X	X	X	X	
8		Survey Security Hdgs. Badge Exchange Area	X	X		X	X	X	X
9		Survey Scrap Pile and Landfill	X	X		X	X	X	X
10		Survey Inside Fence, Protected Area, FORM 46	X	X		X	X	X	X
11		ARM CHECKS	X	X		X	X	X	X
12		Update all Clothing Requirements and Radiation Signs	X		X		X		X
13		Survey Recombiner Bldg. 130' FORM 21		X	X	X	X	X	X
14		Survey Main Stack 145' FORM 24		X	X	X	X	X	X
15		Survey Plant Site FORM 20		X	X	X	X	X	X
16		Survey Reactor Bldg. 118' (HPCI) FORM 8 and 45		X	X	X	X	X	X
17		Survey Radwaste Bldg. 108' & 103' FORM 15 and 24		X	X	X	X	X	X
18		Survey Turbine Bldg. 130' FORM 31 and 10	X		X	X	X	X	X

APPROVAL
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E. I. HATCH NUCLEAR PLANT



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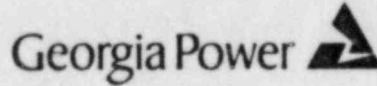
DATA PACKAGE 1

HEALTH PHYSICS
 WEEKLY WORK ROUTINES DATES
 _____ thru _____
 EVENING SHIFT WEEKLY TASKS (Continued)

ITEM	TECH.	WORK DESCRIPTION	MON	TUES	WED	THUR	FRI	SAT	SUN
19		Survey Turbine Bldg. 112' FORM 11 and 30	X		X	X	X	X	X
20		Survey Reactor Bldg. 158' & 164' FORM 6 and 39	X		X	X	X	X	X
21		Survey Reactor Bldg. 185' FORM 5 and 40	X	X		X	X	X	X
22		Eff. & BNC Check Portable Scalers							
23		Survey and Change SOP's As Needed							
24		Survey Radwaste Bldg. 144' & 148' FORM 13 and 36	X	X		X	X	X	X
25		Survey Radwaste Bldg. 'A' 108' Form 18	X	X		X	X	X	X
26		Survey Turbine & Control 164' FORM 9 & 33	X	X		X	X	X	X
27		Survey Reactor Bldg. 203' FORM 4 & 41	X	X	X		X	X	X
28		Survey Radwaste Bldg. 156' & 164' FORM 12 & 37	X	X	X		X	X	X
29		Survey Main Stack 120' FORM 25	X	X	X		X	X	X
30		Survey WGT Bldg. 124' FORM 23	X	X	X		X	X	X
31		Survey Radwaste Bldg. 'A' 150' FORM 16	X	X	X		X	X	X
32		Survey Decon & Calibration 130' FORM 19	X	X	X	X		X	X
33		Survey Radwaste Bldg. 'A' 132' FORM 17	X	X	X	X		X	X
34		Survey Service Bldg. & Annex 130' FORM 1 & 29	X	X	X	X		X	X
35		Survey WGT Bldg. 106' FORM 22	X	X	X	X		X	X
36		Survey Reactor Bldg. 228' FORM 3 & 42	X	X	X	X		X	X

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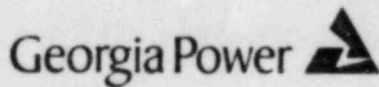
HEALTH PHYSICS WEEKLY WORK ROUTINES _____ DATES _____
 through _____

EVENING SHIFT WEEKLY TASKS (Continued)

ITEM	TECH.	WORK DESCRIPTION	MON	TUES	WED	THUR	FRI	SAT	SUN
37		Survey Main Stack 108' FORM 26	X	X	X	X	X		X
38		Survey Control Bldg. 130' FORM 2							
39		Audit CIM/CAM's and CAM's							
40		Eff. & BKG Check Mini Scalers							
41		Change L.V. Air Samplers							
42		Change Charcoal Cartridges in Low Volume Air Samp.	X	X	X	X		X	X
43		High Radiation Area Entrance Checks							
44		Survey Mobile Dry Cleaner(s) when in service							
45		Survey Dosimeters at all Dosimeter racks	X		X		X	X	X
46		Survey Decon Room daily when in use							
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									

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E. I. HATCH NUCLEAR PLANT



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DATA PACKAGE 1

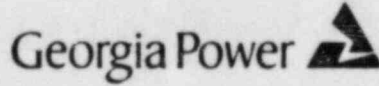
HEALTH PHYSICS DATES
 WEEKLY WORK ROUTINES thru

NIGHT SHIFT WEEKLY TASKS

ITEM	TECH.	WORK DESCRIPTION	MON	TUES	WED	THUR	FRI	SAT	SUN
1		Terminate Radiation Work Permit							
2		Audit for 10 CFR 20 Violation sas needed							
3		Blanket RWP Sign-in Checks	X		X		X		X
4									
5									
6									
7									
8									

APPROVAL
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E. I. HATCH NUCLEAR PLANT



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PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8050-2

SERIAL NO: R11-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 4

FREQUENCY: Monthly

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS
AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTABLE _____ UNACCEPTABLE _____

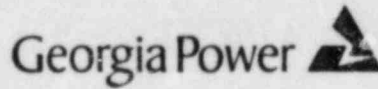
REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

APPROVAL
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E. I. HATCH NUCLEAR PLANT



PROCEDURE NO
HNP-8050
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DATA PACKAGE 2

NOTE
1st WEEK OF MONTH IS THE WEEK OF THE FIRST
HOLIDAY IN THE MONTH

HEALTH PHYSICS

MONTHLY WORK ROUTINES

ITEM	WORK ROUTINE	FREQ	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1.	Review OMSI Cash Certificates	6 MO.	X	X		X	X	X	X	X	X		X	X
2.	Quarterly Radwaste Report	3 MO.	X	X		X	X		X	X		X	X	
3.	Spent Annual Radwaste Report	5 MO.		X	X	X	X	X		X	X	X	X	X
4.	Free standing water analysis HNP-7141	1 MO.												

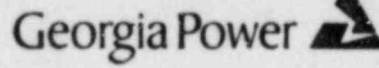
HEALTH PHYSICS

MONTHLY WORK ROUTINES

ITEM	WORK ROUTINE	FREQ	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1.	TLD Badge Exchange	1 M												
2.	Record TLD Results	1 MO.												
3.	Run "PANEL" Program	1 MO.												
4.	Run "TLD CRT" Program	1 MO.												
5.	Run "SERV" Program	1 MO.												
6.	Run "MPCRT" Program	6 MO.		X	X	X	X	X		X	X	X	X	X
7.	Run "TERMIN" Program	1 MO.												
8.	Personal Exposure Report	1 YR.		X	X	X	X	X	X	X	X	X	X	X
9.	Dosimeter Calibration	6 MO.												
10.	Dosimeter Leak Check	6 MO.												
11.	TLD Badge Calibration	3 MO.	X	X		X	X		X	X		X	X	
12.	Bioassay Sampling	1 YR.	X	X	X	X	X	X	X	X	X	X	X	X
13.	Corp. Insurance Dept. Annual Exp. (10 CFR 20.103 and 10 CFR 20.107)	1 YR.	X	X		X	X	X	X		X	X	X	X
14.	Quarterly NBC cross check	3 MO.		X	X		X	X		X	X		X	X
15.	Prepare Monthly Management Exposure Report by 25th of each month													

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E. I. HATCH NUCLEAR PLANT



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HEALTH PHYSICS
MONTHLY WORK ROUTINES

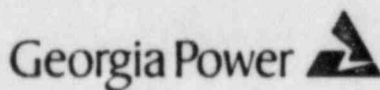
NIGHT, QUIET, MONTHLY, TOWER

ITEM	WORK ROUTINE	FREQ	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1.	Up-Date Blanket Rwp's	1 MO.												
2.	Up-Date Routine Rwp's	1 MO.												

NOTE
1st WEEK OF MONTH IS THE WEEK OF THE FIRST MONDAY IN THE MONTH

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E. I. HATCH NUCLEAR PLANT



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NOTE
1st WEEK OF MONTH IS THE WEEK OF THE FIRST
HOLIDAY IN THE MONTH

HEALTH PHYSICS

19__

MONTHLY WORK ROUTINES

H.P. 2 MONTHLY TASKS

ITEM	WORK ROUTINE	FREQ	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1.	Inspect Respirator Equip. 1 MO.													
	Inventory Emerg. Aids 3 MO.		X	X		X	X		X	X		X	X	
2.	Exchange TLD's in Emerg. Meter/Record dosimeters 3 MO.		X	X		X	X		X	X		X	X	
4.	Inventory Medical Room 1 YR.		X	X	X		X	X	X	X	X	X	X	X
5.	Exch. Pocket Dosimeter in Emergency Aids 6 MO.		X	X	X	X	X		X	X	X	X	X	
6.	Class D Air Analytica Breathing Air Supplies 3 MO.			X	X		X			X	X		X	X
7.	Hydrostatic Test of MSA Aids 5 YR.													
8.	Monthly Safety Meeting 1 MO.													
9.	Permade Inspection For Good House-keeping 1 MO.													
10.	Update Emergency Call List 6 MO.		X		X	X		X	X		X	X	X	X
11.	Air Flow Calibration Devices 2 YR.													
12.	Clean & Change filters on Robbers Breathing Air Comp. (two oper. Hrs) 1 YR.													
13.	Respirator Occurrence Monthly Report 1 MO.													
14.	Annual PMS Review of Emergency Plans 1 YR.		X		X	X	X	X	X	X	X	X	X	X
15.	Review temporary Shielding Log 1 MO.													
16.	Emer. Telephone Check one wk. each month. See HPP-A-250 1 MO.													
17.	Prepare Init Calibration Schedule for year Annually		X	X	X	X	X	X	X	X	X	X	X	X
18.	Annual Site Survey Annually													

GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Count Rate Meter PRM-4A Operation And Calibration
PROCEDURE TITLE

HNP-8102
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X)

NON-SAFETY RELATED ()

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
7	Page 1	<i>W H Rosen</i>	<i>St Bely for</i>	3/7/83

PROCEDURE REVISION REQUEST

7/1/83
Nud 3/7

PROCEDURE NO. HNP- 8102

Revision No. 6

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
<u>Mike Link</u>	<u>1-24-83</u>	<u>W. J. Ryan</u>	<u>1-24-83</u>

REVISION CHANGES MODE OF OPERATION OR INTENT AS DESCRIBED IN FSAR:
() Yes () No

CHANGE INVOLVES:

() An unreviewed Safety Question () Tech. Specs. () Neither
(See back for Safety Evaluation if required).

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Attach marked up copy of procedure to this form.

REASON FOR REQUEST

Page 1, correct reference.

PRB RECOMMENDS APPROVAL: () Yes () No

Stell
PRB Secretary

83-19

2-3-83

PRB Number

Date

HNP-9

SAFETY EVALUATION

The revision of this procedure does not constitute an unreviewed safety question as explained below.


1. The probability of occurrence and the consequences of an accident or malfunction of equipment important to safety are not increased above those analyzed in the FSAR due to these changes because the revision does not change the purpose or performance of the system.

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APPROVAL
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Georgia Power 

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EC

COUNT RATE METER PRM-4A OPERATION AND CALIBRATION

A. PURPOSE

To establish a standard technique for operation and calibration of the model PRM-4A rate meter with Geiger-Muller and scintillation type detectors.

B. SAFETY

Observe radiation protection procedures. Observe safety rules outlined in Georgia Power Company, SAFETY, Section "O".

C. REFERENCES

1. Count Rate Meter Model PRM-4 Technical Manual.
2. Mini-pulser Procedure HNP-8116.
3. Eberline Checkout Procedures.

D. TEST EQUIPMENT

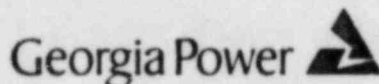
1. Mini-Pulser with coaxial cable.
2. Gamma Field
3. Electrostatic Voltmeter.

E. DESCRIPTION OF INSTRUMENT

1. The PRM-4A is a portable, battery-operated pulse rate meter which may be used with a wide variety of detectors for measurement of alpha, beta, gamma or neutron radiation. Normally the HP-177C geiger detector is used with the instrument, for measurement of gamma radiation and detection of beta radiation. The count rate is read out by the Eberline Lin-Log presentation.
2. This presentation eliminates all scale switching and multiplying factors, yet retains linear increments within each decade. Four decades are covered using two meter movements to yield a scale length of about 1.5 inches per decade, which gives maximum readability and ease of interpretation. Full scale readings for the four decades are 200, 2K, and 20K and 200K counts per minute (CPM) respectively, calibrated to read the true pulse frequency.

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F. DESCRIPTION OF CONTROLS

1. External Controls.

- a. Switch-three position switch turns instrument OFF, ON or BATT. Spring return from battery check position to ON.
- b. High Voltage Adjustment - controls magnitude of high voltage applied to the detector. Clockwise rotation increases voltage.

2. Internal Controls.

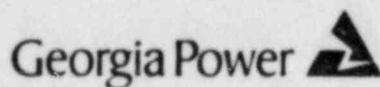
- a. Calibration Controls - four controls to adjust the meter reading to agree with pulser frequency.
- b. Sensitivity Controls - 20 turn variable resistor (R207) mounted on card P202 adjusts sensitivity of detector.

G. OPERATION OF INSTRUMENT

1. To operate instrument turn the switch to the BATT position. The left pointer (Black) should read in the green area. If the black pointer does not read in the green area, tag instrument out with a TO SHOP tag stating the reason(s) it was tagged out.
2. Read the Pointer that is on scale. The Black pointer is read up to 2K CPM then it disappears from view and the Red pointer is read. Fluctuation of the pointer is normal and is caused by the random nature of radioactive emissions.
3. When using the earphone a click will be heard for each event counted. Using an SK-1 speaker, only one-half the number of clicks will be heard.
4. When surveying a general area for gamma radiation with the HP-177C Geiger-Muller Detector, the probe should be held perpendicular to the source of radiation and at waist level. For beta detection, open the beta window and hold the detector as close as possible to the surface being surveyed. Now close the beta window and monitor the surface again. When no significant difference is seen in the needle deflection with the beta window open and the beta window closed, the radiation should be reported as gamma only. When significant differences are seen in the needle deflection with the beta window open and the beta window closed, beta radiation is present. For true beta dose rate, obtain an RO-2A or RO-3A.

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5. Daily Calibration with Scintillation Detector.

- a. Turn switch to the BATT position. The left pointer (Black) should read in the green area. Check BATT Ck. column of Data Sheet 3 if pointer is in green area.
- b. Release switch and it will return to the ON position.
- c. Obtain an average background count and record on Data Sheet 3 in counts per minute (C.P.M.).
- d. Place a radioactive standard (Cs-137-4) in the center of the bottom detector surface and obtain an average source count. Record on Data Sheet 3 in C.P.M.
- e. Subtract the background counts from the source counts and record this source net counts on Data Sheet 3.
- f. Calculate the detector efficiency using the following formula and record on Data Sheet 3, ensuring that the efficiency is greater than or equal to 5%.

$$\text{Detector Efficiency} = \frac{\text{Source Net C.P.M.}}{\text{Source D.P.M.}} \times 100$$

H. CALIBRATION OF INSTRUMENT WITH HP-177C HAND PROBE

1. Remove the instrument from the case and silica gel.
2. Remove the High Voltage Supply from instrument. (P-201A).
3. Turn the control switch to BATT position and check battery condition. Black pointer must be in green area, if not replace batteries.
4. Connect Mini-pulser at spring connector (Junction R8 and C2-marked on the instrument). See Figure 1.
5. Set Mini-pulser for negative pulses at 10 millivolt amplitude and adjust sensitivity control pot (located on P-202) for optimum setting of 10 millivolts.
6. Set the Mini-pulser frequency to 160 cpm, 1,600 cpm, 16,000 cpm, and 160,000 cpm successively and check and record readings on Instrument Calibration Data Sheet 1 in the As Found column.

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NOTE

Even though the instrument is $\pm 20\%$ of calibration points every effort should be made to make it read as close as possible to the calibration points.

7. If readings are within $\pm 20\%$ of the Mini-pulsar frequency, turn instrument OFF, remove Mini-pulsar cable, replace High Voltage Supply card and silica gel, place instrument in case and proceed to step H.15.

NOTE

Check crossover points on the LIN-LOG scale by using 1,000 CPM and 100,000 CPM input frequencies respectively. Readings should be $1,000 \pm 400$ CPM and $100,000 \pm 40,000$ CPM. Do not record these results, but if instrument is not within these limits proceed to step H.8.


8. If readings are not within $\pm 20\%$ turn R3 and R5 to maximum clockwise position.
9. Adjust High Voltage to 900 volts, see Figure 1, and record the MPL number of the electrostatic voltmeter used in the REMARKS section of the Instrument Calibration Data Sheet 1.
10. Set the Mini-pulsar frequency to 160 cpm and adjust R2 for proper meter reading. Record reading on Instrument Calibration Data Sheet 1 in the As Left column.
11. Set the Mini-pulsar frequency to 1,600 cpm and adjust R3 for proper meter reading. Record reading on Instrument Calibration Data Sheet 1 in the As Left column.
12. Set the Mini-pulsar frequency to 16,000 cpm and adjust R4 for proper meter reading. Record reading on Instrument Calibration Data Sheet 1 in the As Left column.
13. Set the Mini-pulsar frequency to 160,000 cpm and adjust R5 for proper meter reading. Record reading on Instrument Calibration Data Sheet 1 in the As Left column.

NOTE

Check crossover points on the LIN-LOG scale by using 1,000 CPM and 100,000 CPM input frequencies respectively. Readings should be $1,000 \pm 400$ CPM and $100,000 \pm 40,000$ CPM. Do not record these results, but if instrument is not within these limits proceed to step H.8.

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14. Turn instrument OFF, reinstall High Voltage Power Supply, remove Mini-pulsar cable, and place instrument in its case.
15. Place the G-M probe with the beta window closed, in gamma fields of about 0.14, 1.5, 10 and 100 mR/hr and record the count rate on Instrument Calibration Data Sheet 1 in the As Found column.

NOTE

Using Cesium 137 sources for the above dose rates, the following count rates should be observed on the instrument meter.

0.14 mR/hr - 170 cpm
1.5 mR/hr - 1,600 cpm
10 mR/hr - 9,500 cpm
100 mR/hr - 82,000 cpm

16. Verify that the instrument is reading the correct count rate $\pm 20\%$ and record count rate in the As Left column if ok.
 17. If the instrument can not be calibrated, initiate repairs.
 18. Repeat section H when instrument is repaired or when probe is replaced.
 19. If the instrument checks out properly, complete Instrument Calibration Data Sheet 1, replace the calibration sticker with a new one bearing this test date and when the instrument is due for its next routine quarterly calibration.
- I. CALIBRATION OF INSTRUMENT WITH SPA-3 SCINTILLATION DETECTOR


NOTE

Complete steps H.1 through H.14 before proceeding to step I.1. Record results on Data Sheet 2.

1. If readings are within $\pm 20\%$ of the Mini-pulsar frequency, turn instrument OFF, remove Mini-pulsar cable and replace High Voltage Supply card.
2. Connect the detector cable to the high voltage connector using either an EIC Model SK-1006 adapter or shielded clip leads. See Figure 1.
3. Connect electrostatic voltmeter to the High Voltage Connector see Figure 1, and record MPL number of electrostatic voltmeter used on Data Sheet 2.

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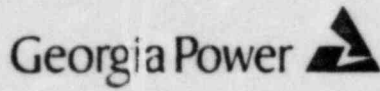
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4. Tape a gamma source (Cs-137-4) to the center of the bottom detector surface to ensure a consistent geometry.
5. Using Data Sheet 2, plot a detector high voltage plateau from 500 to 1500 volts in 50 volt increments. Join the points on the graph to form a curve.
6. Determine the voltage setting at the knee of the plateau and record on Data Sheet 2. Add 50 volts to this knee voltage to obtain the instrument's operating voltage. Record on Data Sheet 2.
7. Adjust the detector high voltage to the value of the operating voltage determined on Data Sheet 2.
8. Calculate the PRM-4A/SPA-3 efficiency on Data Sheet 2, ensuring that the efficiency is greater than or equal to 5%.
9. Turn instrument OFF, remove electrostatic voltmeter, EIC Model SK-1006 adaptor or shielded clip leads, replace silica gel, place instrument in case and replace the calibration sticker with a new one bearing this test date and when the instrument is due for its next routine quarterly calibration.

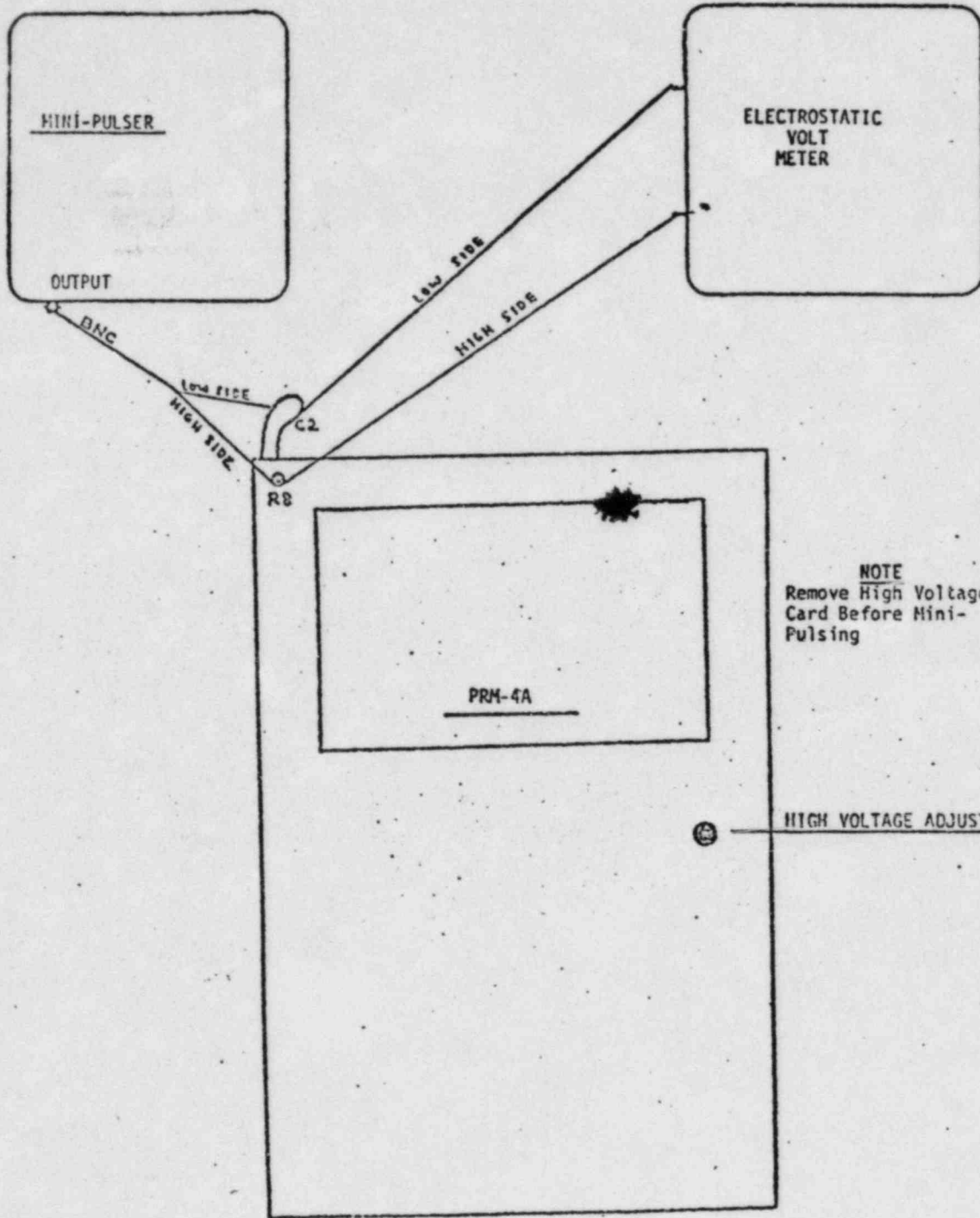
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FIGURE 1

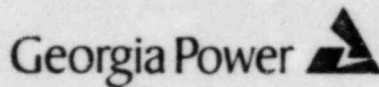


NOTE
 Remove High Voltage
 Card Before Mini-
 Pulsing

PRM-4A "MINI-PULSE AND H.V. CONNECTIONS"

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PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8102-1

SERIAL NO: R07-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: Quarterly

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS
AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTABLE _____ UNACCEPTABLE _____

REVIEWED BY: _____

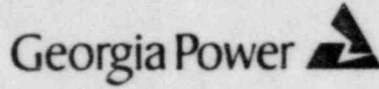
DATE REVIEWED: _____

REMARKS: _____

Full-Vu Pub-Prof Protector, EEJ II, Lightweight

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DATA PACKAGE 1
 INSTRUMENT CALIBRATION DATA SHEET

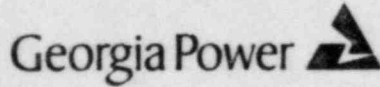
INSTRUMENT CALIBRATION DATA SHEET

INSTRUMENT _____ PRM-SA _____ LOCATION _____
 MPL NO. _____

CALIB. SOURCE	ACTUAL COUNT RATE	ACTUAL DOSE RATE	DATE CALIB. BY				INSTRUMENT READINGS				DATE CALIB. BY											
			AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT										
MP-1	160 CPM	N/A	CPM	CPM																		
SA-	1600 CPM	N/A	CPM	CPM																		
SH-	16000 CFM	N/A	CPM	CPM																		
SV-	160000 CPM	N/A	CPM	CPM																		
CS-137	170 CPM	0.18 MB/HR	CPM	CPM																		
	1600 CPM	1.5 MB/HR	CPM	CPM																		
	9500 CPM	10 MB/HR	CPM	CPM																		
	82000 CPM	100 MB/HR	CPM	CPM																		
H.V., POWER SUPPLY, SENS. SET			(CIRCLE) H.V., P.S., SENS.				(CIRCLE) H.V., P.S., SENS.				(CIRCLE) H.V., P.S., SENS.											
MAINT. PERFORMED																						
REMARKS																						

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PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8102-2

SERIAL NO: R07-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: Quarterly

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS
AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTABLE

UNACCEPTABLE

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

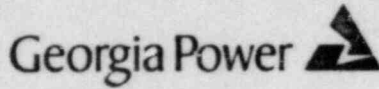
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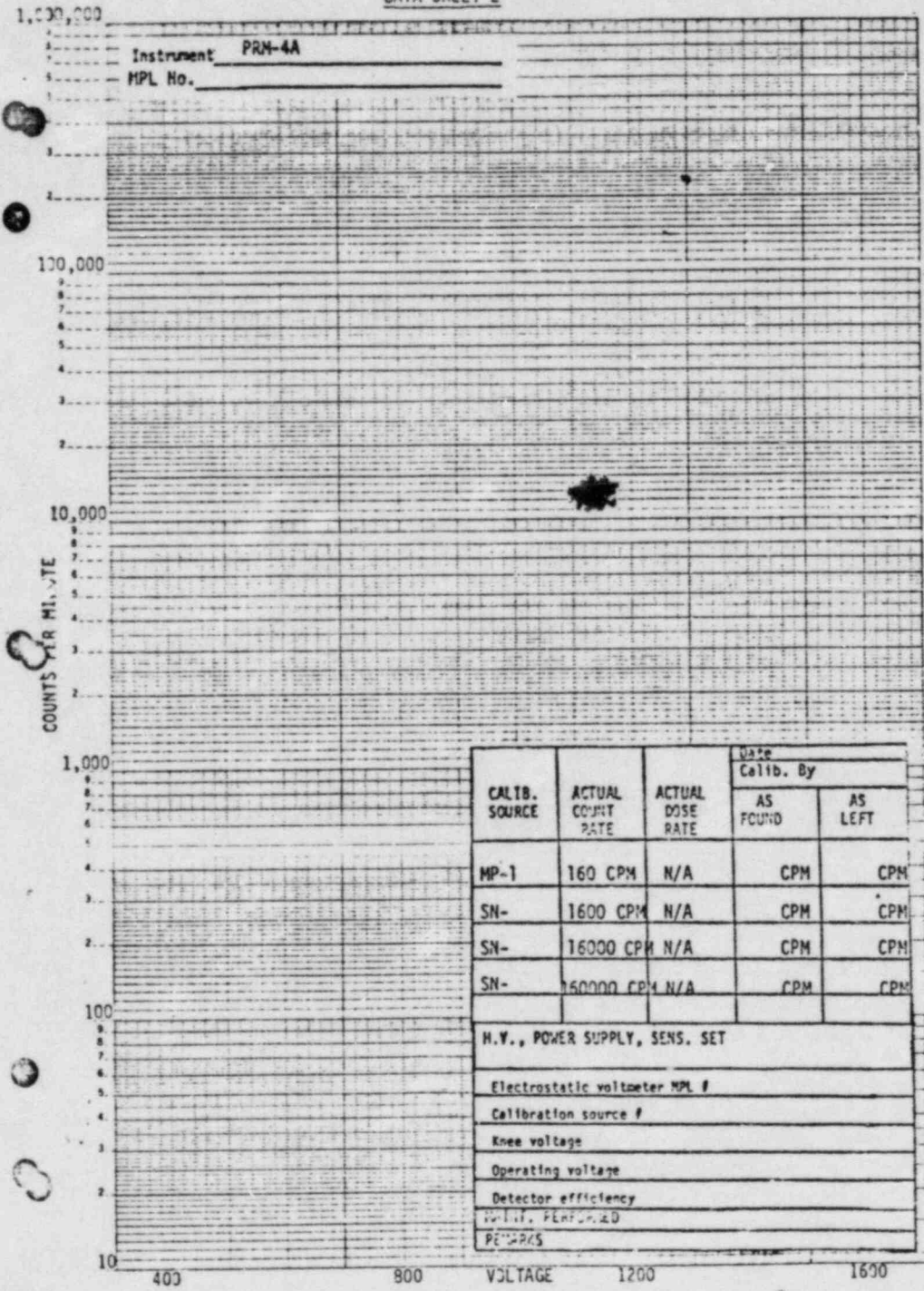


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DATA PACKAGE 2
DATA SHEET 2



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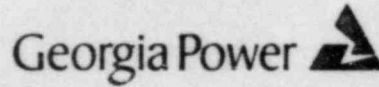
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MANUAL SET

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PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8102-3

SERIAL NO: R07-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: Monthly

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS
AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTABLE

UNACCEPTABLE

REVIEWED BY: _____

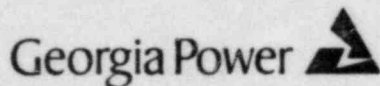
DATE REVIEWED: _____

REMARKS: _____

E.I. Hatch Nuclear Plant, E. I. Hatch Nuclear Plant, E. I. Hatch Nuclear Plant

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DATA PACKAGE 3
 PRM-4A DAILY CALIBRATION
 DATA SHEET 3

MONTH _____ 19____

SOURCE: _____ SER. NO. _____
 ACTIVITY _____ DPM INST. M.P.L. NO: _____

$$* \text{ DETECTOR EFFICIENCY} = \frac{\text{SOURCE C.P.M.}}{\text{SOURCE D.P.M.}} \times 100$$

DAY	DATE	BATT CK.	BKG. C.P.M.	SOURCE C.P.M.	SOURCE NET C.P.M.	EFF.	REMARKS	DONE BY
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								

* DETECTOR EFFICIENCY MUST BE GREATER THAN OR EQUAL TO 5%.