GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Naturally Occurring Phenomenon
PROCEDURE TITLE

HNP-4858
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X) NON-SAFETY RELATED ( )

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
1	Page 1,2,6,9 & 10	W. H. Rogers	J. T. Beckham Jr.	12/31/82
2	Page 8	W. H. Rogers	Harry Nix	9/15/83
3	Page 7	R. W. Zavadoski	Harry Nix	6/10/83
4	Pages 1-2 and 5-8	R. W. Zavadoski	J. T. Beckham Jr.	10/28/83

VE 9/27

PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP- 4858 SHEET 1 OF 1

Revision No. 3

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
Tim J. Kuthkam	8/4/83	W A Rogers	9/22/83
		A W Zwadoski	9/25/83

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

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

PRESENT STATUS: Safety Related (X) Non-Safety Related ( )

The above Safety/Non-Safety Status has changed ( ) Yes to _____

Attach marked up copy of procedure to this form.

REASON FOR REQUEST: To comply with QA Item # 83-120, AIT # 4290

DESCRIPTION OF CHANGES: Procedure references have been made more specific for operator action on pages 1, 2, 6, 7, and 8. All but Tech Spec reference has been deleted on page 5.

PRB RECOMMENDS APPROVAL: (X) Yes ( ) No JZEck
PRB Secretary

83-185
PRB Number

9-30-83
Date

HNP-9

BT

MANUAL SET

SAFETY EVALUATION

This revision 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 this revision because the revision does not change the purpose or performance of the ~~system.~~ emergency plan or procedures

T.J.K.

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

T.J.K.

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 allow a limiting condition for operations to be exceeded as stated in Technical Specifications.

T.J.K.

NATURALLY OCCURRING PHENOMENON

NOTE

(This procedure supersedes: HNP-4300, Revision 4 approved 7/25/80; HNP-4301, Revision 4 approved 9/18/79; HNP-4302, Revision 1 approved 9/18/79.)

A. CONDITION: EARTHQUAKE

The plant accelerographs indicate: seismic activity, and ground motion is felt, or outside sources report ground motion.

B. OPERATOR ACTIONS

1. For a seismic shock with only annunciator D076 (Seismic Instrumentation Triggered) in panel H11-P657 and the RED INDICATOR LIGHT (L51-DS001) on the TIME HISTORY ACCELERGRAPH (L51-R600) in panel H11-P701 which is less than OBE (0.08g), continue to operate and proceed with plant inspection. Follow Figure 1. Declare a NOTIFICATION OF UNUSUAL EVENT EMERGENCY and refer to procedures HNP-4420, 4422, 4423 or 4430 for the appropriate response.

2. For a seismic shock with annunciation as stated in B-1 and any of the following:

   a. Unit I

      (1) Seismic peak shock recorder high G level alarms. (D070 in panel H11-P657 is set to actuate when 100% OBE of 0.08g vertical has been exceeded).

      NOTE

      One or more amber lights on peak shock annunciator panel (L51-R620 on panel H11-P701) will be on. These annunciator lights are set for 100% OBE level at 4 frequencies and 3 directions (North/South, East/West, Vertical). This info will be recorded in C.1.A.

   b. Unit II

      (1) Seismic peak shock recorder high G level alarms. (D068 in panel 2H11-P657 is set to actuate when 100% OBE (.08g) vertical has been exceeded.

NOTE

One or more red lights on peak shock annunciator panel (L51-R620 on panel H11-P701) will be on. These annunciators are set for 100% OBE level for 4 frequencies by 3 directions (12 total) (North/South, East/West, Vertical) This info will be recorded in C.1.A.

(2) "Seismic switch tripped" alarm (D069 on panel 2H11-P657) which is set at OBE level of .08g.

Shut down the affected unit(s) and declare an "Alert" emergency. Follow Figure 1. Refer to procedures HNP-4520, 4522, 4523 or 4530 for appropriate response.

NOTE

If any of the situations in section 2 occur, the operator should play back the Time History Recorder tapes to determine the actual maximum g acceleration magnitude. (For instructions on retrieval of seismic data, see HNP-1-3980 M - section G.2.)

(3) For a seismic shock with annunciation as stated in B.1 and B.2 above and the maximum g level measured by the time/history accellograph recorders is greater than OBE levels (0.15g), shut down the affected unit(s) and declare a site area emergency. Follow Figure 1. Refer to procedures HNP-4620, 4622, 4623 or 4630 for appropriate response.

(4) For a seismic shock resulting in massive damage to the ECCS system, refer to procedures HNP-4720, 4722, 4723 or 4730 for appropriate response.

(5) Notify Plant Management.

C. SUBSEQUENT OPERATOR ACTION

1. A post earthquake instrumentation review will be conducted as follows:

a. Record the Peak Acceleration recorder lights (Red and Yellow) on Data Package 1. Have three qualified operators verify the lights before resetting the panel.

b. Check the feedwater to steam flow for a mismatch.

c. Check the applicable neutron range monitors for abnormal readings.

d. Check all systems for abnormal power changes.

e. Check the drywell for temperatures, humidity, pressure and the sample system for abnormal activity levels.

f. Check the drywell sumps for high level and/or flow.

g. Check all other equipment drains and sumps for high level and/or high flow rates.

h. Check the torus water level recorder for high or low level.

i. Check all area radiation monitors for excessive activity levels.

j. Check the 4160 volt and 600 volt auxilliary equipment for trips.

k. Check the turbine generator instrumentation.

2. Notify the Test Shop to do each of the following as required by Figure 1.

a. Retrieve record plates from the Peak Shock Recorder (L51-N105) per HNP-1-5631 and record data. Install new record plates to record after shocks.

b. Retrieve record plates and tapes from the Teledyne PRA-103 Peak Recording Accelerometers per HNP-1-5625 and Engdahl PAR400 Peak Acceleration Recorders per HNP-2-5626. Install new record plates and tapes to record after shocks.

c. Retrieve magnetic tapes from the Time History Accelerograph recorder, L51-R600, per HNP-1-3980. Make hard copy records and install new tapes.

d. Restore all instrumentation to operable status with 24 hours. (Unit 2 Tech. Specs. 4.3.6.2.2).

e. Recalibrate all seismic monitoring instruments actuated during a seismic event within 30 days. Notify Kinemetrics, Inc. (telephone 213-795-2220) to perform calibration of the Time-History Accelerograph System and the Peak Shock Annunciator System (Unit 2 Tech. Specs. 4.3.6.2.2).

3. A plant inspection should include but not be limited to the following:

   a. Inspect the main steam lines and turbine extraction steam lines for damage.

   b. Inspect the condensate piping and pumps for leaks and damage.

   c. Inspect the feedwater piping and pumps for leaks and damage.

   d. Inspect the turbine oil system for leaks or damage.

   e. Inspect the RWCCW and service water for external leaks. Check for an internal leak by monitoring the RBCCW surge tank level.

   f. Inspect the intake structure and associated equipment for damage.

   g. Inspect the off-gas stack and equipment for leaks.

   h. Visually inspect the diesel generators and their switchgear to assure the units are intact. Perform the routine surveillance test to prove the system is operable. Tie each diesel generator onto its bus and isolate its bus from the system one at a time. Minimize operation of the diesel generator in parallel with the system because a major transmission line fault, which is probable during this event, could cause damage to a parallel diesel generator.

   i. Inspect the switchyard for damage.

   j. Inspect the turbine pedestal for damage.

   k. Inspect instrument racks and control panels for damage.

   l. Inspect CSCS components for damage.

   m. Inspect fuel pool for damage.

   n. Inspect all plant batteries for damage.

   o. Inspect instrument and service air system.

   p. Inspect plant communications for damage.

4. Evaluate the post earthquate instrumentation review and plant inspection.

5. Completer analysis of seismic data.

NOTE

The results of the plant inspection will immediately be reviewed by the Plant Review Board and appropriate surveillance testing will be specified. A special report must be submitted to the NRC within 10 days.

D. REFERENCE

Unit 2 Technical Specifications - para. 3.3.6.2

E. CONDITION: TORNADO

The plant shall normally be alerted by outside communications and/or local indications of a tornado condition in the area which may disrupt the transmission system or present a hazard to the station facilities. The plant will remain at full availability unless dictated to be otherwise by deteriorating conditions. As evaluated by supervision.

F. OPERATOR ACTION

1. Thoroughly inspect the plant for loose materials which may be blown about.

2. Instruct contractor personnel of the event and advise them to commence preparations for the securing of construction materials and equipment.

3. Remove or secure all outside scaffolding and swinging stages.

4. Close and secure all Reactor, Turbine Building, Switchyard and Off-Gas Filter Building doors.

5. Plant personnel shall seek refuge within buildings and report to their supervisors for specific instructions.

6. Perform routine surveillance test of the standby Diesel-Generators in anticipation of a potential off site power failure, if a tornado has been sighted in immediate area or known to be headed in direction of site.

7. Arrange for additional assistance to provide continuous inpections of buildings and roofs.

8. Install door braces on all roll-up doors equipped for braces.

9. Notify plant management.

10. For any tornado onsite causing significant damage affecting plant operations, refer to procedures HNP-4420, 4422, 4423 or 4430 for appropriate response.

11. For any tornado striking the facility incurring damage affecting safety systems, refer to procedures HNP-4520, 4522, 4523 or 4530 for appropriate response.

12. For any tornado or sustained winds in excess of design level (300 mph), refer to procedures HNP-4620, 4622, 4623 or 4630 for appropriate response.

G. SUBSEQUENT OPERATION ACTION

1. In the event buildings have been damaged or the reactor power level has become abnormal, internal damage to the process system may be suspected. Proceed with an instrumentation review and plant inspection per HNP-4858 section C.

2. Perform continuous building inspections.

3. If the plant instrumentation review and plant inspection evaluation indicates damage to the process system, follow the applicable annunciator response or emergency procedure.

4. If the plant is not damaged and is operationally intact following an alert, resume normal operations and inform Load Dispatcher.

H. CONDITION: HIGH WINDS (HURRICANE)

The plant shall normally be alerted by outside communications and/or local indication of high wind conditions which may disrupt the transmission system, or present a hazard to the plant facilities. The plant personnel shall prepare for plant load reduction as may be required. In the event winds reach hurricane velocities (sustained wind speed greater than 75 mph) near the plant site and/or a plant load rejection is imminent, notify the load dispatcher and reduct to load as directed.

I. OPERATOR ACTIONS

1. Thoroughly inspect the plant for loose materials which may be blown about.

2. Instruct contractor personnel of the event and advise them to commence preparations for the securing of construction equipment and materials.

3. Remove or secure all outside scaffolding and swinging stages.

4. Close and secure all reactor, turbine building, switchyard and off-gas filter building doors.

5. Plant personnel shall seek refuge within the plant buildings and report to their supervisors for specific instructions.

6. Perform the routine surveillance test of the standby emergency diesel generators in anticipation of a potential off-site power failure when winds reach hurricane velocities near the site.

7. Arrange for additional assistance to provide continuous inspection of buildings and roofs.

8. At the direction of plant management or the Operations Supervisor reduce power to 25% rated when winds reach hurricane velocities near the site and a plant load rejection is imminent.

9. Install door braces on all roll-up doors equipped for braces.

10. Notify plant management.

11. For any hurricane (wind speed greater than 75 mph) onsite causing significant damage affecting plant operations, refer to procedures HNP-4420, 4422, 4423 or 4430 for appropriate response.

12. For hurricane winds near design basis level (300 mph), refer to procedures HNP-4520, 4522, 4523 or 4530 for appropriate response.

13. For hurricane winds greater than design level, refer to procedures HNP-4620, 4622, 4623 or 4630 for appropriate response.

J. SUBSEQUENT OPERATOR ACTION

1. In the event buildings have been damaged or the reactor power level has become abnormal, internal damage to the process system may be suspected. Proceed with an instrumentation review and plant inspection per HNP-4858 section C.

2. Perform continuous building inspections.

3. If the plant instrumentation review and plant inspection evaluation indicates damage to the process system, follow the applicable annunciator response or emergency procedure.

4. If the plant is not damaged and is operationally intact following an alert, resume normal operations and inform Load Dispatcher.

K. CONDITION: FLOOD

The plant shall normally be alerted by outside communications and/or local indications of river elevation greater than or equal to 88.6 ft Mean Sea Level which may present a hazard to the plant facilities. The plant personnel shall prepare for plant load reduction as may be required.

L. OPERATOR ACTIONS

1. For (50 year) flood causing significant damage affecting plant operations, refer to procedures HNP-4420, 4422, 4423 or 4430 for appropriate response.

2. For flood near design level (greater than 100 ft. Mean Sea Level), refer to procedures HNP-4520, 4522, 4523 or 4530 for appropriate response.

3. For flood or hurricane surge greater than design levels (greater than 120 ft. Mean Sea Level), refer to procedures HNP-4620, 4622, 4623 or 4630 for appropriate response.

M. SUBSEQUENT OPERATOR ACTION

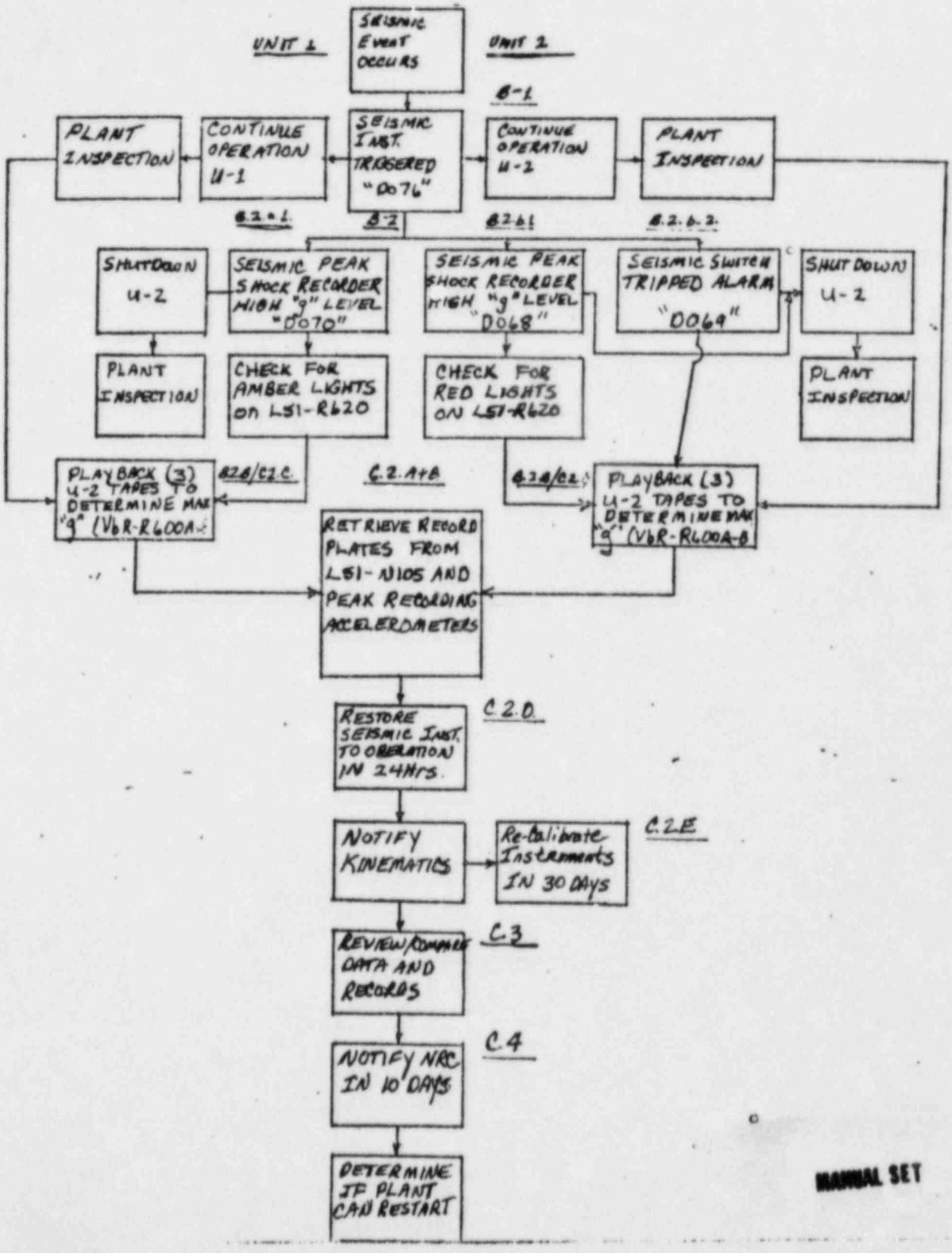
1. In the event buildings have been damaged or the reactor power level has become abnormal, internal damage to the process system may be suspected. Proceed with an instrumentation review and plant inspection per HNP-4858 section C.

2. Perform continuous building inspections.

3. If the plant instrumentation review and plant inspection evaluation indicates damage to the process system, follow the applicable annunciator response or emergency procedure.

4. If the plant is not damaged and is operationally intact following an alert, resume normal operations and inform Load Dispatcher.

FIGURE 1
EARTHQUAKE RESPONSE FLOW CHART



MANUAL SET

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-4858-1

SERIAL NO: R04-

MPL NO: _____

RTYPE: G15.03

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: As Required

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: _____

FIGURE 2
Page 1 of 2

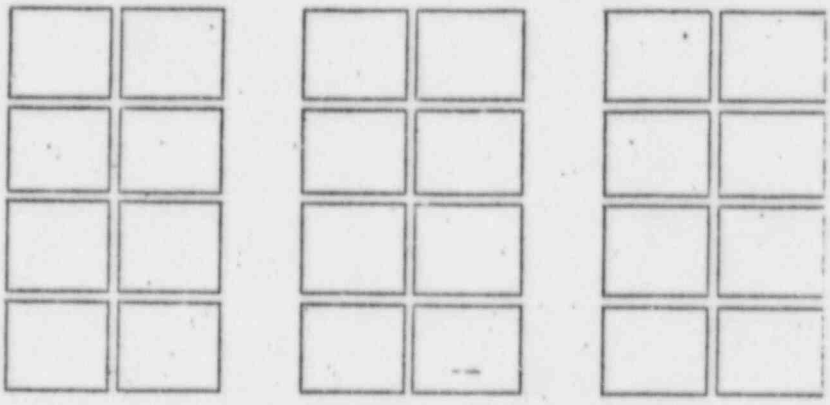
MANUAL SET

DATA PACKAGE 1

PEAK ACCELERATION RECORDER STATUS

Date of Seismic Event _____ Time of Event_____

X - Lamp is Lighted O - Lamp is not Lighted



LAPPS RESET BY	DATE/TIME

The undersigned certify that the above indications are correct.

Name	Date	Time

FIGURE 2
Page 2 of 2

GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Pocket Dosimeter Use and Performance Test
PROCEDURE TITLE

HNP-8108
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X) NON-SAFETY RELATED ( )

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
4	Pages 3, 4 & 9	W H Rogers	Harry Nix	9/30/82
5	Pages 3, 4, 7 & 9	W H Rogers	C Jones for HCN	10/22/82
6	Pages 1-4 and 9	W H Rogers	Harry Nix	7/11/83
7	Pages 1 and 3-5	R S Gardner	Jon Greene for	10/28/83

Need by 10-25-83

WE 10/18/83

PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP-8108 SHEET 1 OF 2

Revision No. 6

REQUESTED BY	DEPARTMENT HEAD APPROVAL
Name: MRW Date:	Signature: RW Zavadoski Date: 10/18/83
RONALD L. LEGRAND 9-26-83	W H Rogers 10-17-83

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).

PRESENT STATUS: Safety Related (✓) Non-Safety Related ( )

The above Safety/Non-Safety Status has changed ( ) Yes to _____

Attach marked up copy of procedure to this form.

REASON FOR REQUEST: NEW DOSIMETER CALIBRATOR TO IMPROVE OUR PRESENT SYSTEM OF CALIBRATION.

DESCRIPTION OF CHANGES: PAGE 1 ADD TO G. REFERENCE "J.L. SHEPHERD. DOSIMETER CALIBRATOR". PAGE 1 D. DELETE "DOSIMETER CALIBRATION LEGRAND" AND ADD "MODEL 423 DOSIMETER CALIBRATOR S.N. 1401S". PAGE 3-62 d. - DELETE SENTENCE AND NOTE ADD "d.1 d.2 d.3 AND d.4 (a)(b)(c). PAGE 4 G.d.F. - DELETE SENTENCE →

PRB RECOMMENDS APPROVAL: (✓) Yes ( ) No JZ Elt
PRB Secretary

83-191
PRB Number

10-20-83
Date

HNP-9

BT

MANUAL SET

SAFETY EVALUATION

This revision 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 this revision 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 revision because the system responds and is operated as before the revision.

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 allow a limiting condition for operations to be exceeded as stated in Technical Specifications.

PROCEDURE REVISION REQUEST SHEET 2 OF 2

PROCEDURE NO. HNP-8108
REVISION NO. 7

REASON FOR REQUEST: NEW DOSIMETER CALIBRATOR TO IMPROVE OUR PRESENT SYSTEM OF CALIBRATION.

DESCRIPTION OF CHANGES: ADD TO G.2.E.1 "CALIBRATOR OPERATING PROCEDURE.
G.2.E.1. "REMOVE ... POSITION."
G.2.E.2. "GRASP ... SOURCE."
G.2.E.3 "AFTER ... TOP."
ADD NOTE "THE ... EMAIL "OFF"."
G.2.E.4. "REMOVE ... CALIBRATOR."
G.2.E.5. "DISCONNECT ... PLUG."
G.2.E.6. "STORE ... COVER."
Pg 1 add 5 number to document

HNP-9

MANUAL SET

APPROVAL	
See Title Page	
DATE	
See Title Page	

E. I. HATCH NUCLEAR PLANT

Georgia Power

PROCEDURE NO.	
HNP-8108	
REVISION NO.	
7	
PAGE NO.	
1 of 9	

BT

POCKET DOSIMETER USE AND PERFORMANCE TEST

A. PURPOSE

To ensure that the instrument is leak tested and response tested properly and to provide operation guides for the user.

B. SAFETY

Observe radiation protection procedures.

C. REFERENCES

1. ANSI N13.5-1972
2. S-10249 J. L. Shepherd and Associates Installation and Operation Manual for Model 423 Dosimeter Calibrator

D. TEST EQUIPMENT

1. Model 423 Dosimeter Calibrator S.N. 14015
2. Gamma Source
3. Dosimeter Charger
4. Timer

E. DESCRIPTION OF INSTRUMENT

The pocket dosimeter is a pencil shaped ionization chamber that measures gamma radiation and gives an instant read-out in milliroentgens or roentgens. The dosimeter is basically a capacitor with a single movable electrode. The capacitor is charged to a predetermined voltage which results in a given separation of the two electrodes. When exposed to X or gamma radiation, or both, ionization occurs in the chamber surrounding the electrodes and causes a decrease in the charge on the electrodes. This results in a change of position or deflection of the movable electrode. The magnitude of the deflection is a function of the radiation exposure and is observable through a self-contained optical system.

F. OPERATION OF INSTRUMENT

NOTE

Handle dosimeters with care. These instruments are delicate and expensive.

1. Check that the dosimeter is not visibly damaged.

2. Clean optical eyepiece of dosimeter with lens tissue paper as often as required.

NOTE

Dosimeters will be routinely checked for radioactive contamination by the Health Physics staff. However, if the user suspects contamination of his dosimeter, he should notify the Health Physics Staff immediately. A contaminated dosimeter should not be used.

3. Zeroing of dosimeter

a. Place dosimeter over charge connector on dosimeter charger and depress dosimeter.

b. Look in dosimeter eyepiece and adjust hairline to zero. Remove the dosimeter slowly.

c. Check its zero by reading the scale with the dosimeter in a vertical or near vertical position.

NOTE

The initial (zero) reading and final reading of the dosimeter must be made with the dosimeter in approximately the same geometrical position, i.e., read vertically or near vertical.

4. Reading of dosimeter for dose.

Read the dosimeter as in step F.3.c.

NOTE

If the reading is 75% of the fullscale deflection or greater the dose must be logged and the dosimeter re-zeroed. Notify the Health Physics Staff.

NOTE

If at anytime the dosimeter is dropped or erratic readings are noted by the user, the Health Physics staff should be notified in order that another dosimeter may be issued if deemed necessary.

G. EXPOSURE OF INSTRUMENT

1. Charge-leakage test

a. Adjust the hairline on the dosimeter using the dosimeter charger for a value of "0". Record value, date and time and dosimeter serial number on Data Package 1 (Data Sheet 1).

b. Store dosimeter in a radiation free area (less than 0.02 mR/hr) for a period of about 48 hours.

c. Read the dosimeter at end of storage period.

d. Enter the reading, date and time of reading on Data Package 1 (Data Sheet 1).

e. Determine the average rate of charge-leakage per 24 hours and enter the value on the data sheet.

f. If the average charge-leakage exceeds 2% of the fullscale reading per 24 hours, tag the dosimeter as having failed leak rate test, and mark the tag with the date of test and initials of tester.

g. REPEAT STEPS a - f a second time for failed dosimeters. If the dosimeter does not meet the 2% criteria the second time, it is to be disposed of or repaired.

2. Gamma Source Exposure

a. Record dosimeter serial number on Data Package 2 (Data Sheet 2).

b. Post area where exposure is going to take place in accordance with HNP-8003.

c. Adjust the hairline as in step G.1.a and log the reading in the Reading Before Exposure column.

d. Set-up dosimeter calibrator as follows:

(1) Place calibrator on stand in center of room.

(2) Plug electrical cord into outlet.

(3) Plug timer cord into timer and tighten.

(4) Place dosimeters in the appropriate ring for calibration.

(a) Outer Ring - 200 mR dosimeters (appx. 86.5 mR/hr)

(b) Middle Ring - 500 mR dosimeters (appx. 188 mR/hr)

(c) Inner Ring - 1000 mR dosimeters (appx. 397 mR/hr)

e. Determine the time required for an exposure of 80% the fullscale reading. Record in the appropriate column on Data Package 2 (Data Sheet 2).

f. Calibrator Operating Procedure

(1) Remove the padlock which locks the source in the "off" position.

(2) Grasp the black operating knob while standing at arms length from the calibrator and raise it until the spring loaded detent engages the depression on the operating shaft, to expose the source.

(3) After the allotted time has expired, return the source to the "off" position. Push the operating knob down until the pin on the shaft strikes the stop on the calibration top.

NOTE

The shielding provides full shielding in all directions at all times when the source is in the "off" position. Position indicating lights (green = "off", red = "on") at the top of the calibrator shows source position at all times. The "on" light is activated whenever the source is not fully "off".

(4) Remove dosimeters from the calibrator.

(5) Disconnect timer and electrical plug.

(6) Store in designated location and cover.

g. Read the dosimeter(s) and record in the Reading After Exposure column.

h. Determine the net exposure.

i. Determine the efficiency by dividing the net exposure by the calculated exposure.

j. The dosimeter indication should be within -10%, +10% of the calculated exposure. If it is not, it is probably defective. Perform another complete exposure on the dosimeter.

k. If the dosimeter does not meet the -10%, +10% criteria the second time, place the dosimeter in a "Fail Cal" box for return to a vendor or disposal.

NOTE

Dosimeters are leak-tested and calibrated twice annually, usually once every six months.

H. CARE AND MAINTENANCE OF INSTRUMENT

1. Handle dosimeter with care. These instruments are delicate and expensive.

2. Clean optical eyepiece of dosimeter with tissue paper as often as required. Also visually inspect its physical condition.

3. Check dosimeters for both loose and fixed contamination according to the following schedule:

a. Dosimeters in use: Check as often as dictated by the possibility of their becoming contaminated.

b. General dosimeters in dispensers: Check on a routine weekly basis.

c. All dosimeters: Check just prior to their charge-leakage test and calibration.

d. Immediately replace any personnel or general dosimeter found to be contaminated with an equivalent dosimeter from stock.

e. Decontaminate and clean dosimeters as necessary by removing the clip and washing both the barrel and clip with soap and water. Observe applicable radiological safety practices and rules. Exercise care, particularly with the charging end of the dosimeter.

f. Immediately replace dosimeters when found defective.

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8108-1

SERIAL NO: R07-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: As Required

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: _____

FIGURE 1
Page 1 of 2

MANUAL SET

DATA PACKAGE 1
(Data Sheet 1)

DOSIMETER LEAKAGE CHECK

TESTED BY ______________________________

FULL SCALE READING ____________ ± 2% F.S. = _______ CODE _________

SERIAL NUMBER	FIRST READING (1) ( )*	SECOND READING (2) ( )*	CHARGE LEAKAGE (2)-(1) ( )*	PASSED TEST OR NO

* - PUT DOSE UNITS IN ( ) FIRST READING DATE______ TIME_____

SECOND READING DATE______ TIME_____

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8108-2

SERIAL NO: R07-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: As Required

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: _____

FIGURE 2
Page 1 of 2

DATA PACKAGE 2
(Data Sheet 2)

DOSIMETER EXPOSURE LOG

CALIBRATED BY _____

SOURCE _____ DATE _____

FULL SCALE READING _____ CODE _____

SERIAL NUMBER	READING BEFORE EXPOSURE (1) ( )*	READING AFTER EXPOSURE (2) ( )*	NET EXPOSURE (3)=(2)-(1) ( )*	TOTAL TIME EXPOSED	CALCULATED EXPOSURE (4) ( )*	% EFF. (3) ÷ (4)	PASSED TEST ✓ OR NO	REMARKS

* - PUT DOSE UNITS IN ( )

ACCEPTANCE = +10% } of actual
-10%

FIGURE 2
Page 2 of 2

GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

H. P. Well Counter System
PROCEDURE TITLE

HNP-8154
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X) NON-SAFETY RELATED ( )

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
0	New Procedure	[signature]	[signature]	7/13/82
1	Pages 1-2, 6-14 & 16-23	[signature]	[signature]	10/26/87

HNP-9

MANUAL SET

Ned 10/24

WE 10/18/83

PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP-8154 SHEET 1 OF 2

Revision No. 0

REQUESTED BY	DEPARTMENT HEAD APPROVAL
Name: W.R.W. Date: David Barnett 10-3-83	Signature: R.W. Swadeshi Date: 10/18/83; W.R. Rogers 10-17-83

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).

PRESENT STATUS: Safety Related (✓) Non-Safety Related ( )

The above Safety/Non-Safety Status has changed ( ) Yes to _____

Attach marked up copy of procedure to this form.

REASON FOR REQUEST: To revise the annual recalibration section to make it workable.

DESCRIPTION OF CHANGES: Pg 1, Add I.D.C. numbers to manuals, delete Eberline detector, change standards to specify which standards, Pg 2 add comma in top line, Pg 6, para G.5.b.(1) change 7.0 to 4.0, Pg 7, para G.6 change greater than 75 cpm -- to excessive (Typically 40 to 100 cpm---)

PRB RECOMMENDS APPROVAL: (✓) Yes ( ) No

J.E. Elt
PRB Secretary

10-20-83
Date

83-191
PRB Number

HNP-9

MANUAL SET

SAFETY EVALUATION

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 this procedure because the procedure 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 procedure because the system responds and is operated as before the procedure.

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

PROCEDURE REVISION REQUEST SHEET 2 OF 2

PROCEDURE NO. HNP-8154
REVISION NO. 0

REASON FOR REQUEST: To revise annual recalibration section to make it workable.

DESCRIPTION OF CHANGES: Pg 7, para C.7 delete (cover ltr 7-A-2 dated 1/1/74) change of to for. Pg 8 para H.1 + 2 change quarterly to annually and delete (ltr 7-A-2 dated 1/1/74), change Ba-133 to I-131, pg 9 reverse para H.2.d and H.2.e, delete using the formula below, delete if efficiency varies - - -, para H.3. delete ai ai decked - - - -, H.3.d add "the", H.3.e add, and initiate require. Delete old para H.4 on pgs 10 and 11, and add new pg 10 + 11, Pg 12 change as required to monthly, Pg 13 delete activity and efficiency and from quarterly efficiency determination, change 95 to 100, Pg 14 + 15 change as required to annually. Pg 17 change Ba-133 to I-131, change years to days, Pg 18 + 21 change as required to annually. Pg 22 + 23, delete efficiency columns and change sources from Ba-133 + Cs 137 to Co-57 and Cd 109, delete line at bottom of table, add one more space on right side of table on pg 22

HNP-9

MANUAL SET

APPROVAL	
See Title Page	
DATE	
See Title Page	

E. I. HATCH NUCLEAR PLANT

Georgia Power

PROCEDURE NO	
HNP-8154	
REVISION NO	
1	
PAGE NO	
1 of 23	

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H. P. WELL COUNTER SYSTEM

A. PURPOSE

To provide operating and calibration instructions for use of the ORTEC modular single channel analyzer to obtain accurate analyses of radio-iodine counting.

B. SAFETY

Observe Radiation Protection Procedures

C. REFERENCES

1. Ortec Operating and Service Manuals
   a. Single Channel Analyzer - Model 550, TDC #2044 M
   b. Counter - Model 770, TDC #2059 M
   c. Timer - Model 719, TDC #2061 M
   d. Amplifier - Model 485, TDC #2045 M
   e. High Voltage Power Supply - Model 456, TDC #2055 M
   f. Nim-bin and Power Supply - Model 401A, TDC #2039 M

D. STANDARDS

1. I-131 source .6 to .2 uci
2. Ba-133 source .25 uci
3. Co-57 source
4. Cd-109 source

E. DESCRIPTION OF INSTRUMENT

The H. P. well counter system is assembled from modular components as listed in C.1 placed in Nim-bin (C.1.f), a sodium iodide crystal placed on the photomultiplier base to the preamplifier. Radioactive gamma decay is sensed through the sodium iodide crystal and photomultiplier, the electrical signal is amplified and converted to a digital readout over a timed interval.

F. DESCRIPTION OF CONTROLS

The controls are listed and described, by module, as assembled left to right in the nim-bin.

1. Single Channel Analyzer

a. Window or Upper Level - A 10-turn potentiometer, used to determine the window width (when the toggle switch is in the Window position) or the upper level threshold (when the toggle switch is in the Normal or Integral position).

b. Lower Level - A 10-turn potentiometer adjustable from 20 mv to 10.02 volts. When the rear panel LL Ref switch is set on Int., determines the threshold for the Lower Level Discriminator.

c. Integral/Normal/Window - A 3-position locking toggle switch which selects the integral mode of operation or either of two types of differential single channel modes of operation.

(1) Integral - LL and UL are independently adjustable (0 to +10V) and UL response is ignored for an SCA output.

(2) Normal -LL and UL are independently adjustable (0 to +10V) and differential mode is effective.

(3) Window - LL sets baseline level (0 to +10V) and UL sets window width (0 to +1V) and differential mode is effective.

d. LL Ref Mode - Rear panel toggle switch which selects front panel LL control or voltage signal supplied through rear panel LL Ref connector as LL threshold.

2. Counter

a. Readout Display - A direct reading 6-digit display.

b. Overflow - A lamp which is illuminated from first readout overflow until reset.

c. Display Test - A pushbutton switch. When depressed, the readout display will read 888888 to verify that all elements of all six digits are illuminating. This test does not erase the reading or alter sample counting which may be in progress.

d. Master/Slave/Normal - A 3-position toggle switch selects functional module control when the module is in a printing loop.

e. Discriminator - A single-turn potentiometer, used to set the discrimination level for the positive input signal from 0.1 to 10 volts.

f. Reset - A pushbutton switch. When pushed and released, resets readout display and internal logic to an initial condition.

g. Count-Stop - A toggle switch. In UP position, unit is in counting mode; in DOWN position, unit is in non-counting mode.

h. Gate - An LED indicator lamp to the right of the count-stop switch is illuminated when the unit is in counting mode.

3. Timer

a. Preset - A 4-position switch, which with the multiplier switch, selects the number of time base intervals (see c below) over which the counting process will be made. Settings are 1, 2, 4, and 8.

b. Multiplier - A 5-position switch. Selects the decade multiplier factor to modify the Preset switch and determine the number of preset counting time intervals. Settings are 1, 10, 100, 1000, and 10,000.

c. Time Base - A 3-position slide switch. Used to select the time intervals to be counted. With the switch in the right position, an internal source of 0.1 second time intervals will be counted. With the switch in the left position, an internal source of 0.01 minute time intervals will be counted. With the switch in the middle (External) position, the time intervals furnished through the External Input connector will be counted.

NOTE

To determine actual counting time, multiply a, b, and c settings. For example, settings of 2, 100, and left will give an actual counting time of 200 x 0.01 minutes or 2.00 minutes. Similarly, settings of 8, 1000, and 0.1 second will give an actual counting time of 800 seconds.

d. Start - a pushbutton switch. When pushed, initiates the synchronizing process and the following timing interval.

e. Stop - A pushbutton switch. When pushed, stops and inhibits the counting interval, even though interval has been completed.

f. Interval - A lamp which is illuminated during each preset counting interval.

4. Amplifier

a. Coarse Gain - A rotary switch with 6 positions of X2, X4, X8, X16, X32, and X64 gain.

b. Fine Gain - A single turn rotary potentiometer selectable for factors of X3 through X10.

c. P-Z Trim - A slot-head screwdriver - adjustable potentiometer to adjust the pole-zero-cancellation network for varying preamplifier decay times.

d. POS-NEG - A toggle switch used to select compatibility with either positive or negative input signals from the preamplifier.

e. UNIPOLAR-BIPOLAR - A toggle switch used to select either unipolar or bipolar output pulses.

5. High Voltage Power Supply

a. Front Panel

(1) Meter - A zero-center indicating meter, shows the polarity and approximate kilovolts of the output.

(2) Output Level - Determined by setting three dials located vertically below the meter. Output level is the sum of the three settings. The top dial is a 6-position switch with settings of 0, 500, 1000, 1500, 2000, and 2500 volts. The middle dial is a 5-position switch with settings of 0, 100, 200, 300, and 400 volts. The bottom dial is a 10 turn potentiometer with a range of 0 to 100 volts (10 volts per turn).

(3) Power-Off - A toggle switch, when power cable is plugged into an appropriate source and the switch is in the UP position, the High Voltage Power Supply is energized and the indicator lamp is illuminated.

b. Rear Panel

(1) Polarity - A slot-head switch. Adjustable with a screwdriver. Selects either positive or negative polarity of the output.

NOTE

Do not change polarity while the power is on. High Voltage meter must read zero.

(2) Control - A slide switch. Used to select the reference source for the output voltage. With switch in the left position, the front panel controls select the output voltage and the polarity (1 above) is used to select either polarity. With switch in the right position, output voltage is proportional to refcrence input.

(3) Two 1.5 amp fuses are located on the rear panel, one of each side of the input power line.

6. NIM-BIN and Power Supply

The power supply is factory assembled in the NIM-BIN. The NIM-BIN becomes the cabinet for the other 5 modules. The NIM-BIN itself has no controls. The power supply controls are as follows.

a. Front Panel

(1) Power On-Off - A toggle switch. In the UP position, the unit is energized and an indicator lamp is illuminated. In the DOWN position, the unit is not energized and the indicator lamp is out.

(2) Temp - An indicator lamp which is lighted when the internal temperature rises to within 20 degrees C of the maximum safe operating temperature.

b. Rear Panel

Power-Selector Switch - A slide switch is located on the rear panel for selecting 110 or 220 volt inputs.

7. Sodium Iodide Detector and Photomultiplier Base

Potentiometer - A single turn locking potentiometer used for adjustment of photomultiplier tube grid potential.

G. OPERATION OF INSTRUMENT

1. Verify power cables for power supply and HV Power supply are connected to grounded 115 volt line receptacles.

2. Verify cables from photomultiplier tube are properly connected.

3. Energize power supply and HV power supply (switches in UP position). Verify system is energized by checking the indicator lamps.

NOTE

Allow system to warm up for at least 60 minutes.

4. Verify the well contains no sample or standard. Move door over well.

5. Set controls.

NOTE

Module control settings are based on data obtained from sections C and H of this procedure. Initial settings given below are to be used as guidelines only and may change from time to time.

a. Single Channel Analyzer

(1) Window or Upper Level - 10

(2) Lower Level - 130

(3) Integral/Window/Normal - Normal

b. Counter

(1) Discriminator - 4.0 volts

(2) Count Switch - Up

(3) Reset button - depress (readout should be zero)

(4) Display Test Button - Depress (readout should show six 8s while button is depressed and one zero when button is released.)

(5) Master/Slave/Normal - Normal

c. Timer

(1) Set timer to desired time by setting Preset, Multiplier, and Time Base. A ten minute time would be as follows:

(a) Preset - 1

(b) Multiplier - 1000

(c) Time Base - Switch in left position (0.01 min.)

d. Amplifier

(1) Coarse Gain - 32

(2) Fine Gain - 8.5

(3) Input - Positive

(4) Polarity - Bipolar

e. High Voltage Power Supply

(1) Top switch at 500

(2) Middle switch at 300

(3) Bottom switch at 7.00

(4) Meter at top of unit should indicate less than 1 on the right (positive) side of zero.

6. Daily Background Count

a. After system is properly warmed up, set timer controls for ten minutes and depress Reset button and Start button. Interval lamp on timer should light.

b. Observe and record background count on Data Package 1. If count rate is excessive (typically, 40 to 100 cpm is normal), instrument may not be functioning properly. If out of tolerance, notify H. P. Foreman.

7. Daily Calibration

a. Insert the Ba-133 charcoal cartridge calibration standard and count for four minutes as in Step G.6.a.

b. Observe and record count on Data Package 1. If instrument is within ± 1% of expected reading, it is functioning properly. If out of tolerance, notify H.P. Foreman.

NOTE

If the system is out of tolerance for 3 consecutive calibrations, a new chi-square should be completed.

c. Press Display Test button on counter. The readout should display six 8s. If it does, check column on Data Package 1. If not, notify H.P. Foreman.

8. Sample Count

a. Insert radio-iodine charcoal cartridge to be counted in the well counter and set timer for desired count time (normally 10 minutes), depress Reset and then Start pushbutton.

b. Record the gross counts, counting time, background count rate, and efficiency on the appropriate data package for Unit 1 or Unit 2 as appropriate.

H. CALIBRATION OF INSTRUMENT

1. High Voltage Plateau (Annually or more often as deemed necessary by H.P. Foreman)

a. Place Ba-133 calibration source in well counter.

b. Count source for one minute intervals between voltages of 700 to 1100 volts, advancing voltage controls by 25 volts after each count.

c. Record data on Data Package 2.

d. Set operating voltage at optimum count rate as indicated by data.

e. If optimum voltage differs from previous setting by more than 10 volts, inform H. P. foreman.

2. Efficiency Determination (Annually or more often as deemed necessary by H. P. foreman)

a. Place the I-131 calibration source in well counter.

b. Count source for four minutes and record results on Data Package 3.

c. Obtain a background count rate and record on Data Package 3.

d. Compute actual activity in uci and actual dpm of the calibration source and record the results on Data Package 3.

e. Calculate the efficiency factor for the source by dividing the net cpm by the known dpm of the standard.

3. Chi-square Test (Quarterly)

a. Place the Ba-133 calibration source in well counter.

b. Count source for one minute duration twenty times and record results on Data Package 4.

c. Calculate chi-square. If result is between 7 and 35, the instrument is functioning properly. If not, investigate the possibility of malfunction.

d. Calculate $\bar{n}$ + 1% of $\bar{n}$ and $\bar{n}$ - 1% of $\bar{n}$. Enter data on Data Package 4 and Data Package 1.

e. If instrument does not pass chi-square test, notify H.P. foreman and initiate repairs.

4. Annual Recalibration

Gain and lower level discriminator set points.

NOTE

The well counter system must be calibrated for a gain and discriminator bias at 32 Kev.

a. Perform step H.1.

b. Make a series of count rate determinations for isotope standards using the information provided in Table 1 below and as follows: Record on Data Package 5.

TABLE 1

	Coarse Gain	Fine Gain	Lower Level Disc.
Cobalt 57	32	8.5	10.00 - 5.00
(.122 Mev)	16	8.5	6.0 - 2.00
Cadmium 109	32	8.5	8.50 - 3.00
(.088 Mev)	16	8.5	4.00 - 1.00

(1) Set the Coarse Gain and Fine Gain on the first settings in Table 1.

(2) Set the count time for one (1) minute.

(3) Place the radioactive standard in the well cave.

(4) Set the Lower Level Discriminator to the maximum in Table 1.

(5) Count the standard for one minute and record data on Data Package 2.

(6) Repeat steps H.4.b.(1) thru H.4.b.(5), each time decreasing the discriminator setting by a maximum of 0.5 until the minimum setting in Table 1 is reached.

NOTE

Always approach the discriminator setpoint from a counterclockwise direction when changing the setting.

(7) Repeat steps H.4.b.(1) thru H.4.b.(6) but with the other gain settings in Table 1.

(8) Repeat steps H.4.b.(1) thru H.4.b.(7) until all standards have been counted.

(9) Plot data on 5 cycle semi-log paper for lower level discriminator setting (linear) vs count rate (log) for each gain setting. Draw smooth curve through points.

(a) Construct straight extension lines from the nearly horizontal upper and lower arms of the curve.

(b) Determine the recorded counts at the two points where the curve breaks.

(c) Subtract lower reading from higher reading and divide by 2. Add the result to the lower reading.

(d) Locate result of step H.4.b.(9)(c) on the log scale axis. Construct horizontal dashed line through this point and extend to the curve.

(e) Construct vertical dashed line from point of intersection of horizontal dashed line with the curve. Vertical dashed line is to be extended to lower level discriminator setting axis.

(f) Read lower level discriminator value indicated by vertical dashed line.

(g) Label values of dashed lines and the two break points.

c. Make an energy vs discriminator plot by performing the following:

(1) On linear graph paper, label shorter scale Energy (MeV), longer scale discriminator setting. Energy scale range is 0 to 0.7 in 0.1 increments. The discriminator scale range is 0 to 10.

(2) Plot gamma energy of the standard source versus the respective discriminator settings determined in step (9)(c).

(3) Connect the points determined with the same coarse gain setting by a straight line and extend the line in both directions. The lines drawn should meet near the origin of the graph.

(4) Locate energy level of 0.032 MeV on the energy scale. Construct horizontal dashed line through this point and extend past both straight line curves.

(5) Determine and label discriminator setting readings for the two points where the dashed line in step H.4.c.(4) intersects each straight line curve.

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8154-1

SERIAL NO: R01-

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: _____

FIGURE 1
Page 1 of 2

MANUAL SET

DATA PACKAGE 1
H. P. WELL COUNTER DAILY CALIBRATION

SOURCE_____ SER. NO._____ MONTH_____19____

MPL NO._____

COUNTING TIME:
BACKGROUND - 10 min.
SOURCE - 4 min.
BACKGROUND RANGE: 40 - 100 cpm

FROM QTRLY CHI-SQUARE
SOURCE COUNT RATE ($\bar{R}$)=_____cpm
$\bar{R}$ + 1%=_____cpm
$\bar{R}$ - 1%=_____cpm

DAY	DATE	DISPLAY TEST	BKG CPM	SOURCE CPM	REMARKS	COMPLETED BY	SUPV. REVIEW

FIGURE 1
Page 2 of 2

MANUAL SET

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8154-2

SERIAL NO: RO1-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: Annually

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: _____

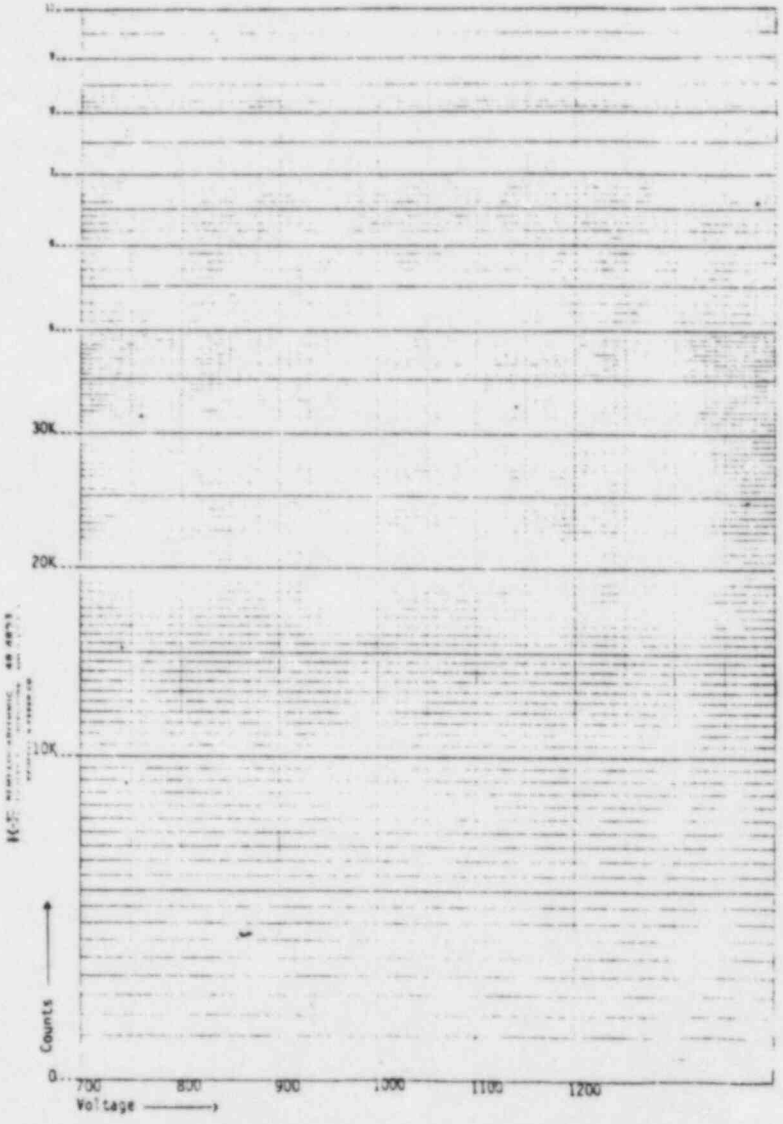
REMARKS: _____

FIGURE 2
Page 1 of 2

MANUAL SET

DATA PACKAGE 2

SOURCE TYPE_____ SER. NO._____ BKG CPM = _____



COMPLETED BY	DATE

FIGURE 2
Page 2 of 2

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8154-3

SERIAL NO: R01-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: Annually

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: _____

FIGURE 3
Page 1 of 2

MANUAL SET

DATA PACKAGE 3

H. P. WELL COUNTER EFFICIENCY DETERMINATION

MPL_____ MONTH_____19____

I-131 Source Original Activity_____uci Source Ser. No._____

Dated_____

$A = A_o e^{-\lambda t}$

Where λ = $\frac{.693}{\text{source half-life (days)}}$

t = decay time (days)

DPM = calculated activity (uci) x 2.22 E6 dpm/uci

SOURCE CPM	BKG CPM	EFF. FACTOR	% EFF.	COMPLETED BY	DATE

A = (_____)(e- _____)

A = _____uci

DPM = _____uci x 2.22 E6/uci

DPM = _____

EFF. FACTOR = $\frac{\text{Observed counts (cpm)}}{\text{source activity calculated (dpm)}}$ = _____

EFF. % = EFF FACTOR x 100 = _____

FIGURE 3
Page 2 of 2

MANUAL SET

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8154-4

SERIAL NO: R01-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 3

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: _____

FIGURE 4
Page 1 of 3

MANUAL SET

DATA PACKAGE 4
H. P. WELL COUNTER CHI - SQUARE TEST

DATE_____ MPL_____

SOURCE_____ COUNT TIME_____MIN.

COARSE GAIN_____ FINE GAIN_____ DISC_____ H.V._____

RUN NO.	n	$n-\bar{n}$	$(n-\bar{n})2$
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
SUM (Σ)			

NOTE: If $\bar{n}$ is a fractional number, this fractional number must be used to calculate $n-\bar{n}$ (and $n-\bar{n}^2$) or the sum of $n-\bar{n}$ will not be equal to or approach zero.

FIGURE 4
Page 2 of 3

DATA PACKAGE 4 (CONT)

H. P. WELL COUNTER CHI-SQUARE TEST

$\bar{n} = \frac{\Sigma n}{\text{no. counts}} =$ _____ CHI-SQUARE = $\frac{\Sigma(n-\bar{n})}{\text{no. counts}}^2 =$ _____

$\Sigma(n-\bar{n})$ must be equal to or approach zero

X^2 must be between 7 and 35

$\bar{n} + 1\%$ _____

$\bar{n} - 1\%$ _____

Enter these on Data Package as the Daily Calibration Count Rate Guides.

COMPLETED BY	DATE

FIGURE 4
Page 3 of 3

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8154-5

SERIAL NO: R01-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 3

FREQUENCY: Annually

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: _____

FIGURE 5
Page 1 of 3

MANUAL SET

DATA PACKAGE 5

H. P. WELL COUNTER GAIN/DISCRIMINATOR CALIBRATION

DATE_____ MPL NO._____

Coarse Gain 32 Co 57 Source No._____

Fine Gain Setpoint 8.5 Co 57 Source_____DPM (corr.)

Disc. Settings: High to Low Cd 109 Source No._____

Count Time 1 min. Cd 109 Source_____DPM (corr.)

Co-57 SOURCE		Cd-109 SOURCE	
DISC.	COUNTS	DISC.	COUNTS
10.0		8.5	
9.5		8.0	
9.0		7.5	
8.5		7.0	
8.0		6.5	
7.5		6.0	
7.0		5.5	
6.5		5.0	
6.0		4.5	
5.5		4.0	
5.0		3.5	
		3.0	

COMPLETED BY	DATE

DATA PACKAGE 5 (CONT)

H. P. WELL COUNTER GAIN/DISCRIMINATOR CALIBRATION

DATE_____ MPL NO._____

Coarse Gain 16 Co 57 Source No._____

Fine Gain Setpoint 8.5 Co 57 Source_____DPM (corr.)

Disc. Settings: High to Low Cd 109 Source No._____

Count Time 1 min. Cd 109 Source_____DPM (corr.)

Co-57 SOURCE		Cd-109 SOURCE	
DISC.	COUNTS	DISC.	COUNTS
6.0		4.0	
5.5		3.5	
5.0		3.0	
4.5		2.5	
4.0		2.0	
3.5		1.5	
3.0		1.0	
2.5			
2.0			

COMPLETED BY	DATE

FIGURE 5
Page 3 of 3

MANUAL SET

GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Emergency Call List
PROCEDURE TITLE

HNP-4862
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X) NON-SAFETY RELATED ( )

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
2	Page 1	W.H. Rogers R.W. Zawadzki	J.T. Greene	10/19/83

WE 9/22/83

PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP-4862 SHEET 1 OF 1

Revision No. 1

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
T. J. Kirkham	8-5-83	R. B. Zavadoski for W. R. Rogers	8-31-83

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

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

PRESENT STATUS: Safety Related (X) Non-Safety Related ( )

The above Safety/Non-Safety Status has changed ( ) Yes to _____

Attach marked up copy of procedure to this form.

REASON FOR REQUEST: _____

- To relieve the Plant Review Board from the duty of approving the Emergency Call List. There is no requirement for PRB review in either the Tech Specs or the Emer. Plan.
- Also to eliminate the need for storing old call lists in documentation

DESCRIPTION OF CHANGES: _____

Sect 5 Replaced PRB with Health Physics Superintendent.

Sect 6 Delete entire section

PRB RECOMMENDS APPROVAL: ( ) Yes ( ) No _____
PRB Secretary

83-185
PRB Number

_____
Date

HNP-9

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SAFETY EVALUATION

This revision 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 this revision 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 revision because the system responds and is operated as before the revision.

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 allow a limiting condition for operations to be exceeded as stated in Technical Specifications.

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APPROVAL	
See Title Page	
DATE	
See Title Page	

E. I. HATCH NUCLEAR PLANT

Georgia Power

PROCEDURE NO.	
HNP-4862	
REVISION NO.	
2	
PAGE NO.	
1 of 1	

EMERGENCY CALL LIST

A. PURPOSE

To describe the requirements for distribution and updating of an emergency call list for Plant Hatch.

B. FREQUENCY OF UPDATE AND DISTRIBUTION

At least quarterly, in the first month of each quarter.

C. RESPONSIBILITY

The Health Physics Superintendent is responsible for updating the call list at least quarterly.

D. DISTRIBUTION

A distribution list is attached to each copy of the call list. Each person or title having responsibility for notification in the call list will be issued a copy.

E. REVIEW

The Health Physics Superintendent will review each updated call list prior to distribution.

F. MINOR CHANGES

Minor changes (i.e. telephone numbers, title changes, and name changes), to the Call List may be made by the Health Physics Superintendent between quarterly updates by written notification to persons on the distribution list.

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Georgia Power Company
Post Office Box 439
Baxley, Georgia 31513
Telephone 912 367-7781
912 537-9444

Georgia Power

Edwin I. Hatch Nuclear Plant

October 31, 1983
GM-83-1062

PLANT E.I. HATCH
Emergency Implementing Procedures

Docket Nos. 50-321/50-366

United States Nuclear Regulatory Commission
Director of Nuclear Reactor Regulation
Washington, DC 20555

Gentlemen:

Pursuant to Appendix E, Section V of 10 CFR 50, please find enclosed ten (10) copies of the latest revisions to the Plant E.I. Hatch Emergency procedures. Three (3) copies of these procedures are also being forwarded to the Region II office in Atlanta, Georgia.

H.C. Nix
General Manager, Plant Hatch

HCN/ECS/car

XC: U.S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II
Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

file

X005
1/1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

July 9, 1984

50-321/366 Hatch

MEMORANDUM FOR: Chief, Document Management Branch, TIDC

FROM: Director, Division of Rules and Records, ADM

SUBJECT: REVIEW OF UTILITY EMERGENCY PLAN DOCUMENTATION

The Division of Rules and Records has reviewed the attached document and has determined that it may now be made publicly available.

J. M. Felton, Director
Division of Rules and Records
Office of Administration

Attachment: As stated