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

March 7, 1983

50-321/366 Hatch

MEMORANDUM FOR: Chief, Document Management Branch, TIDC

FROM: Director, Divison of Rules and Records, ADM

SUBJECT: REVIEW OF UTILITY EMERGENCY PLAN DOCUMENTATION

The submitter of the attached document has expressed no desire to withhold any information contained therein. Therefore, this material may now be made publicly available.

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

Attachment: As stated

Georgia Power Company
Post Office Box 442
Baxley, Georgia 31513
Telephone 912 367-7781
912 537-9444

Edwin I. Hatch Nuclear Plant

Georgia Power
the southern electric system

January 18, 1984
GM-84-53

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

HCN/ECS/car

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

file

X005
1/1

DOCUMENT TRANSMITTAL

TRANSMITTAL NO: DCD-84-53

DATE: 1-18-84

TRANSMITTED TO: [illegible]

DESCRIPTION OF DOCUMENT(S) TRANSMITTED:

HNP-8161 Rev 0

RECEIVED BY _____ DATE: _____

RETURN THIS TRANSMITTAL AND ANY DOCUMENTS REQUIRED TO BE RETURNED, TO THE DOCUMENT CONTROL DEPARTMENT.

DESCRIPTION OF DOCUMENT(S) TO BE RETURNED:

N/A

DATE RETURN REQUIRED 2-22-84

E. Conner/CAK

DOCUMENT CONTROL SUPERVISOR

HNP-O-ADM-00010 R13

DOCUMENT TRANSMITTAL

TRANSMITTAL NO: DCD-84-49

DATE: 1-18-84

TRANSMITTED TO: _____

DESCRIPTION OF DOCUMENT(S) TRANSMITTED:

HNP-8001 Rev 17

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RETURN THIS TRANSMITTAL AND ANY DOCUMENTS REQUIRED TO BE RETURNED, TO THE DOCUMENT CONTROL DEPARTMENT.

DESCRIPTION OF DOCUMENT(S) TO BE RETURNED:

HNP-8001 Rev 16

DATE RETURN REQUIRED 2-1-84

E C Sowell/cmc

DOCUMENT CONTROL SUPERVISOR

HNP-0-ADM-00010 R13

MANUAL SET

GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Eberline Model PCM-1 Portal Monitor
PROCEDURE TITLE

HNP-8161
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X) NON-SAFETY RELATED ( )

REV.	DESCRIPTION	APPROVED DEPT. MANAGER	APPROVED GENERAL MANAGER	DATE
0	New Procedure	W. D. Rogers for D. J. Vick	Harry Nix	1/17/84

HNP 9

8216A

NEED BY DATE: ~~1/16/84~~ NLT 1-10-84

PROCEDURE REVIEW REQUEST FOR NEW PROCEDURES

PROCEDURE NO. HNP- 8161 SHEET 1 OF 3

REQUESTED BY :	E Barth SIGNATURE	11 5 84 DATE
DEPARTMENT MANAGER APPROVAL :	W Zwadski SIGNATURE	11 6 84 DATE
(✓) SAFETY RELATED ;	( ) NON-SAFETY RELATED	
IF SAFETY RELATED, QA REVIEW :	Carl E. Bellflower SIGNATURE	11 6 84 DATE
COPY OF PROCEDURE MUST BE ATTACHED TO THIS FORM!		
REVIEW BY DOCUMENT CONTROL CLERK :	Wanda Tilton SIGNATURE	11 6 84 DATE

REASON FOR REQUEST : To provide an operation and calibration procedure covering the PCM-1 portal monitor.

PRB RECOMMENDS APPROVAL: (✓) YES ; ( ) NO

PRB SECRETARY's SIGNATURE

PRB NUMBER : 84-7 ; DATE : 11 7 84

manual set

SAFETY EVALUATION

TYPE OF DOCUMENT TO WHICH THIS EVALUATION APPLIES : (✓) NEW PROCEDURE

( ) PROCEDURE REVISION

DOES THIS DOCUMENT CHANGE THE MODE OF OPERATION OR INTENT AS DESCRIBED IN THE FSAR? ( ) YES ; (✓) NO

DOCUMENT INVOLVES :
( ) AN UNREVIEWED SAFETY QUESTION , ( ) TECH. SPECS. , (✓) NEITHER

DOES THE IMPLEMENTATION OF THIS DOCUMENT REPRESENT AN UNREVIEWED SAFETY QUESTION : ( ) YES ; (✓) NO

GIVE THE BASIS FOR FOR THE DETERMINATION OF WHETHER OR NOT THE THE IMPLEMENTATION OF THIS DOCUMENT REPRESENTS AN UNREVIEWED SAFETY QUESTION :

The implementation of this procedure does not represent an unreviewed safety question because: The use of personnel monitoring equipment has been previously evaluated. (FSAR 12.5.2.6)

SAFETY EVALUATION
(CONTINUED)

THE IMPLEMENTATION OF THIS DOCUMENT (DOES / (DOES NOT) CONSTITUTE AN UNREVIEWED SAFETY QUESTION AS EXPLAINED BELOW:

1. THE PROBABILITY OF OCCURRENCE OR THE CONSEQUENCES OF AN ACCIDENT OR MALFUNCTION OF EQUIPMENT IMPORTANT TO SAFETY (ARE / (ARE NOT) INCREASED ABOVE THOSE PREVIOUSLY ANALYZED IN THE FSAR DUE TO THE IMPLEMENTATION OF THIS DOCUMENT BECAUSE:

~~SAM~~ See pg 1

2. THE POSSIBILITY OF AN ACCIDENT OR MALFUNCTION OF A DIFFERENT TYPE THAN ANALYZED IN THE FSAR (DOES / (DOES NOT) RESULT FROM THE IMPLEMENTATION OF THIS DOCUMENT BECAUSE:

See pg 1

3. THE MARGIN OF SAFETY AS DEFINED IN THE BASIS FOR ANY TECHNICAL SPECIFICATION (IS / (IS NOT) REDUCED DUE TO THE IMPLEMENTATION OF THIS DOCUMENT BECAUSE:

See pg 1

SAFETY EVALUATION PERFORMED BY: _____ (SIGNATURE) _____ / / (DATE)

DEPARTMENT MANAGER APPROVAL : _____ (SIGNATURE) 11/6/24 (DATE)

APPROVAL	
See Title Page	
DATE	—
See Title Page	

E. I. HATCH NUCLEAR PLANT

Georgia Power

PROCEDURE NO	
HNP-8161	
REVISION NO	
0	
PAGE NO	
1 of 15	

EBERLINE MODEL PCM-1 PORTAL MONITOR

A. PURPOSE

To ensure that the instrument is calibrated properly and to provide operation guides to the user.

B. SAFETY

Observe Radiation Protection procedure.

C. REFERENCES

TDC-6002M, Model PCM-1 Technical Manual

D. TEST EQUIPMENT

1. P-10 Gas (10% methane, 90% argon)
2. Electrostatic voltmeter
3. Assorted check sources

E. DESCRIPTION - GENERAL

The Eberline Personnel Contamination Monitor, Model PCM-1, is a microprocessor-based radiation detection system which provides a quick indication of beta-ganna contamination on personnel.

The microcomputer provides a sophisticated and flexible means of acquiring and manipulating data and presenting operational conditions and alarms on the alphanumeric gas-discharge display and status indicator lights.

The PCM-1 has an operate and a test mode. While in the operate mode the monitor will run in its main routine, measuring and storing background for all channels, checking for high background alarm levels, low or high count failure, and low gas pressure conditions until the ultrasonic motion sensor detects the movement of a person into the monitor. This causes the personnel monitoring routine to be executed. This routine checks all channels for high activity alarm conditions with automatic background subtraction, according to the protocol of one of the three operating modes in which the monitor has been set to operate. The test mode is used to run detector plateaus, determine counting efficiencies, etc.

The PCM-1 has fifteen (15) independent gas-flow proportional detectors. Maximum detector sensitivity is achieved through the use of an input preamplifier for each channel which interfaces each detector to the microcomputer. Each channel has adjustable gain and discriminator to permit the operating point to be optimized for each detector.

Each group of five channels has an independently adjustable high voltage power supply, with a nominal range of 500 to 2500 Vdc.

The outputs from the fifteen discriminators are fed to a counter board, and then to a central processing unit (CPU) module which includes an Intel 8085 microprocessor, memory, and input/output lines. A non-volatile memory is used to preserve system parameters during periods of power outage.

All electronics for the PCM-1 are located in the rear of the unit requiring no external cabling or additional installation. Electronics components are mounted on plug-in modules providing easy access. Troubleshooting and maintenance are facilitated by the computer's systems diagnostics routine which self-tests the display, keyboard, lights and memory.

F. DESCRIPTION OF CONTROLS AND INDICATORS

1. External

a. Ultrasonic sensing unit; Senses ones approach to the monitor and causes background counting to stop and the display to read STEP UP--INSERT RIGHT ARM, accompanied by a short beep.

b. Alphanumeric display; Indicates appropriate messages to users and operating conditions and parameters when the monitor is in the test mode.

c. Display lights; Alarm, Counting, Ready and Trouble lights that assist in indicating appropriate messages to users.

d. Photoelectric sensor; Indicates to the monitor that it is occupied or if the occupant has excited the monitor before the count cycle has been completed.

e. Operate/Test switch; A key operated switch that controls the operation of the monitor between the normal operation mode and its test and maintenance routines.

f. Keyboard; A 16 key control board that serves as the interface for communication between the operator and the monitor.

g. Alarm acknowledge; not functional.

2. Internal

a. Power Switch; provides on-off capabilities for 110 volt AC power.

b. Flow gauges; (3) indicate inlet flow rates in cc/minute for flow groups A, B, & C.

c. Pressure Regulators; (2) a dual guage fully adjustable control for the P-10 gas used in the detectors. They are mounted on type 1A gas cylinders and are connected to the instrument by a 3/16" id Tygon Tubing.

d. HU Switches; (3) switches that provide on-off capabilities for each of the three high voltage sections.

e. HU Adjust; (3) potentiometers that provide a reference voltage to each of the high voltage power supplies enabling control of the HU setting.

G. OPERATION OF INSTRUMENT

1. Initial Set-up

a. P-10 gas hook up: Install the P-10 gas bottles in both sides (bottle #1 is on the left, bottle #2 is on the right) connect the pressure regulators on bottles 1 & 2 and connect the 3/16" tygon tubing to the outlet side of the regulators.

b. Gas Flow and Pressure Adjust: Adjust the pressure regulators to 5 psig and the flow regulator to 50cc/minute.

CAUTION

Do not exceed 50 cc/minute or 5 psig or damage to the detectors may occur.

c. Initial Purge: Allow approximately 4 to 5 hours purge time at 50cc/minute to insure that the system is completely purged of outside air and moisture. The flow rate can then be adjusted to 25cc/minute for normal operation.

manual set

d. Power Connection: The instrument uses 110 volt AC power. It may be plugged and turned on at this time.

2. Normal Use

OPERATE vs. TEST

If the OPERATE/TEST switch next to the keyboard is set to OPERATE, the monitor will run in its main routine, measuring and storing background for all channels, checking for high background alarm levels, low count failure, and low gas pressure conditions until the actuation of sensing switches calls the personnel monitoring routine. This routine causes all channels to check for high activity alarm conditions with automatic background subtraction, according to the protocol of one of the three operating modes in which the monitor has been set to operate:

Mode 1	Preset All
Mode 2	Maximum Sensitivity
Mode 3	Minimum Count Time

If the OPERATE/TEST switch S1 is set to TEST, the monitor runs in its test and maintenance routines. In this mode, the keyboard is active and the other sensors are inactive. Background measurements and related computations are suspended while in TEST, and all parameters are available for display and/or modification as listed in Table II-1. The display prompts the operator with the name of the parameter list ready for examination or, within a list, the name of the variable being displayed and its present value. The keyboard protocol is such that touching the "+" key causes an increment to the next item, the "-" key causes a decrement to the prior item and the ENTER key causes entry to that list. EDIT and ENTER allow modification of appropriate items as indicated by E in the table.

a. Routine Monitoring (OPERATE)

The ultrasonic unit will sense an individuals approach to the monitor. All background counting will cease and the display will read STEP UP--INSERT RIGHT ARM.

The individual then inserting their arm in the detector cavity will break a light beam and the monitor will initiate counting. The display will read COUNTING RIGHT SIDE for the duration of the specified counting time. If no alarm levels are exceeded, the unit beeps

and displays RIGHT SIDE OK--INSERT LEFT ARM. The display will indicate COUNTING LEFT SIDE when the left arm interrupts the light beam in the detector cavity. AT the end of the counting time the unit displays COUNT COMPLETE, YOU MAY PASS, accompanied by a chime if no alarm levels are exceeded.

Contamination in excess of alarm levels is signaled at the end of Right or Left side counting, or both, as appropriate by the alarm sonalert and display messages indicating the contaminated area as ALARM: ZONE 1--ZONE 2--ZONE 3--ETC.

Premature arm withdrawal will cause the alarm sonalert to sound and COUNT INCOMPLETE **RECOUNT**to be displayed. Reinsertion restarts the count.

b. TEST MODE

TABLE 1

TEST MODE MENU

Parameter List and Item	Operating Mode: Mode 1 Preset All	Mode 2 Max. Sens.	Mode 3 Min Ct Time	Default Value
DISPLAY SYSTEM PARAMETERS				
Identification and type	H	H	H	-
Program Name and Version	H	H	H	-
Mode (1,2 or 3)	E	E	E	2
Sigma Factor (SF)	E	E	E	3.5
Weighting Factor (W)	E	E	E	10
Alarm Hold Time (seconds)	E	E	E	1
Count Time, Test (seconds)	E	E	E	1
Count Time (T, seconds)	E	E	C	1
Min. Count Time (Mode 1 only)	C	NA	NA	-
Max. Count Time (Mode 3 only)	NA	NA	E	1
Units	E	E	E	Cps
DISPLAY CHANNEL PARAMETERS				
Zone or Channel Identification				
Average Background cps (R_B)	M	M	M	-
Alarm Setting cps (R_A) (Mode 1 and 3 only)	E	NA	E	1000
Min. Alarm Limit (Mode 1 only)	C	NA	NA	-
Max. Alarm Limit (Mode 2 only)	NA	E	NA	1000
Alarm Level (Mode 2 only)	NA	C	NA	-
(Repeats for each zone or channel)				

manual set

TABLE 1 (CONT)

Parameter List and Item	Operating Mode: Mode 1 Preset All	Mode 2 Max. Sens.	Mode 3 Min Ct Time	Default Value
COUNT RATE MODE				
Zone or Channel cps	M	M	M	-
(Repeats for each zone or channel)				
DISPLAY TROUBLE LIST				
(available only if trouble light is on)				
Zone or Channel Identification				
High Background	M	M	M	-
High Count Fail	M	M	M	-
Low Count Fail	M	M	M	-
Bottle 1 Empty	M	M	M	-
Bottle 2 Empty	M	M	M	-
Failure** Out of Gas!	M	M	M	-
SYSTEMS DIAGNOSTICS				
Display Test	A	A	A	-
Keyboard Test	OI	OI	OI	-
Alarm Ack	A	A	A	-
Light Test	A	A	A	-
Chime Test	A	A	A	-
Read/Write Memory Test	A	A	A	-
Program Memory Test	A	A	A	-
USAGE				
Personnel Counter/Elapsed Time	M	M	M	-
RESET				
Re-initialize system parameters and background averages	E	E	E	-

LEGEND
H - Fixed by hardware/firmware configuration
E - Edit/Enter via keyboard - (value must be between 0.25 and 600)
C - Computed variable
M - Measured variable
NA - Not available
A - Auto sequence
OI - Operator Input

Manual set

(1) Operating Mode

(a) Preset All, Mode 1

In this mode the alarm setpoint R_A for each channel, and the counting time T and sigma factor SF for all channels, are entered via the keyboard. A personnel alarm occurs if the count N in the counting time T is such that

$$N \geq R_B T + R_A T$$

The high background alarm occurs if

$$SF \sqrt{R_B T} \geq R_A T$$

(b) Maximum Sensitivity, Mode 2

In this mode the maximum alarm limit $R_{A max}$, counting time T, and SF are entered via the keyboard. Each time the background is updated a new alarm setting R_A is computed for each channel.

$$R_A = SF \sqrt{R_B / T}$$

A personnel alarm occurs if

$$N \geq R_B T + R_A T$$

The high background alarm occurs if

$$R_A \geq R_{A max}$$

(c) Minimum Count Time, Mode 3

In this mode, R_A, SF and maximum count time T_{max} are entered. Each time background is updated a new count time is computed from

$$T = (SF)^2 \; RB/(R_A)^2$$

based on the channel with the highest R_B

Personnel alarm occurs if

$$N \geq R_B T + R_A T$$

The high background alarm occurs if

$$T \geq T_{max}$$

manual set

(2) Simga Factor (SF): A user entered variable that is a multiplier of the background standard deviation used in determining alarm setpoints.

(a) Mode 1, the SF is used in determining the alarm setpoint for the high background alarm when

$$SF\sqrt{R_B\,T} \geq R_A\,T$$

the alarm will occur

(b) Mode 2, the SF is used in determining the personnel alarm setpoint - R_A

where $R_A = SF\sqrt{R_B/T}$

(c) Mode 3; the SF is used in determining the minimum count time, where the alarm setpoint R_A is preset and the highest average background R_B is used where count time $T = (SF)^2 RB/(R_A)^2$.

NOTE

The value of the Sigma Factor will vary based on which of the 3 modes of operation is to be used. Determine values for the variable represented in the formulas based on the location and operating conditions of the monitor. Use these to arrive at an acceptable value for the SF that will produce the most sensitive operation with the least amount of false alarms.

(3) Weighting Factor (W): A number that is used in compensating for background variation. An increase in the W value results in an increased confidence level for false alarms, but at the same time it increases the amount of time it takes to respond to real changes in the ambient background. A value between 10 and 20 is recommended.

(4) Alarm Hold Time: The length of time the sonar alert and the display module remain activated during an alarm condition. (Operator determined 1 to 9 seconds).

(5) Count Time, Test: The length of time that the system counts in the "Count Rate" mode, normally used for source checking individual channels. (Operator determined 1 to 900 seconds).

[illegible] set

(6) Count Time (T): (Modes 1 & 2) A predetermined period of time for the count duration of the background update and the personnel count. (Operator determined 1 to 10 seconds).

(7) Maximum Count Time (T_{max}); (Mode 3 only) - The maximum amount of counting time, (T) allowable before a high background alarm will occur when $T \geq T_{max}$.

(8) Units: The units displayed can be in seconds or minutes which ever is desired.

(9) Alarm Setting (R_A): (Operator determined - Modes 1 and 3). The maximum amount of counts (N) collected before a contamination alarm will occur when $N = R_A + R_B$. R_A can be solved for given T, R_B, R_b, Z and W. R_b is taken to be equal to R_B as it is the best estimate of R_b.

$$R_A = R_a - Z\sqrt{\frac{R_a + R_b}{T} + \frac{R_b}{T(2W+1)}}$$

Z is determined by choosing the desired confidence level that will produce an acceptable false alarm rate, and still maintain the confidence level as high as possible. This determination should be based on the location of the monitor and the conditions under which it is to be used.

For 99.9 percent confidence level, F(z) = .999, z = 3.090
For 99.0 percent confidence level, F(z) = .990, z = 2.326
For 95.0 percent confidence level, F(z) = .950, z = 1.645
For 90.0 percent confidence level, F(z) = .900, z = 1.282
For 75.0 percent confidence level, F(z) = .750, z = 0.674
For 50.0 percent confidence level, F(z) = .500, z = 0

(10) Max Alarm Limit ($R_{A\,max}$): (Mode 2) Preset amount of counts that will cause a high background alarm if the setpoint is exceeded.

Variable Legend

R_A	Alarm Setpoint (Limit)
R_a	Activity Count Rate
R_B	Average Background
R_b	Individual Background Count
N	Personnel Count
SF	Sigma Factor
T	Count Time
T_{max}	Maximum Count Time
Z	Confidence Level Value

3. Fail and Trouble Indications

a. High Background

If the background count rate, R_B, in any zone(s) should increase to such an extent that it and the selected sigma factor, SF, counting time, T, alarm level, R_A, max alarm limit, R_A max, and max count time, Tmax, relate so as to satisfy the inequalities of Section 2.C.2.b., 2.C.2.c., or 2.C.2.d.; the alarm light, trouble light, sonalert, and (CHANNEL DESIGNATION) HIGH BACKGROUND message will be activated for the duration of the alarm hold time. The trouble light will remain lighted when the unit automatically reverts to counting background, but the zone(s) involved will not update background or be capable of further alarm sensing until cleared through the DISPLAY TROUBLE LIST section of the test mode menu, which lists all the current trouble conditions and zones. After returning to the operate mode, any trouble which persists will cause reactivation of the alarm and message.

b. High Count Fail

If the 64K count capacity of any zone counter is exceeded during a background count interval, the alarm light, trouble light, sonalert, and (CHANNEL DESIGNATION) HIGH COUNT FAIL message are activated. The trouble light will remain on and the failed zone will remain inactive until cleared as in the case of the high background alarm. High count fail is more likely to be caused by electrical noise than by legitimate counts.

[redacted]

c. Low Count Fail

If a zone counter receives no counts within 256 consecutive background counting cycles, a (CHANNEL DESIGNATION) LOW COUNT FAIL message/alarm is activated in a manner identical to the previous ones. Any counts which occur between background counting cycles, during the overhead time of the computer, are not registered in the zone counters.

d. Loss of Gas Pressure

If both gas bottles have pressure when the PCM-1 is first turned on, gas will be drawn from bottle #1, through ports 2 and 3 of gas bottle select valve V1 (unactuated), to the input flowmeter. When bottle #1 runs out of gas, pressure switch S2 senses the loss of pressure, causing the computer to activate the alarm and message BOTTLE #1 EMPTY, and to actuate V1, drawing gas from bottle #2. The trouble light will remain on until bottle #1 is replaced. V1 will remain actuated until Bottle #2 runs out of gas, whereupon V1 switches back to Bottle #1, and the alarm and message BOTTLE #2 EMPTY is activated. If both bottles are out of gas, the alarm and message FAILURE ** OUT OF GAS! is activated, all counting stops, and the message remains on the display until pressure is restored to either or both pressure sensors.

e. All Zones Failed

If personnel counting is attempted while all zones have failed, the display will indicate FAILED, and no count will be attempted.

H. WEEKLY SOURCE CHECK

NOTE

Due to the frequency of the routine source check, other periodic calibration is unnecessary.

1. Observe and record the pressure in bottles 1 & 2 and the regulated pressures to the instrument. The regulated pressure should be 5 to -.5 psig. Adjust if necessary.

2. Observe and record on Data Package 1 gas flow on the gauges for both sides. The flow should be 25 ± 2.5 cc/minute. Adjust if necessary.

[illegible] set

3. Switch the Operate/Test switch to Test. Advance the display to "Display Channel Parameters" using the "+" key. Press "Enter" to gain access to the program list. The display will show the zone identification number. Press "Enter" to gain access to the individual Zone/Channel parameters. Use "+" to step through the list recording the "Average Background" and the "Alarm Level". Continue through the 11 Zone/Channels in the above manner recording the required data. If the instrument is being used in the "Maximum Sensitivity, Mode 2", also record the "Max Alarm" setting.

4. Advance the display using the "+" key to the "Count Rate Mode". Press "Enter" to gain access to Zone/Channel #1. Center the source against the detector screen. Allow 2 count cycles to occur before recording the results of the 2nd count. Continue through all 11 Zone/Channels using the "+" advance recording the data on Data Package 1.

5. Backup to the "Display System Parameter" list using the "-" key. Press "Enter" to gain access. Press "+" to increment through the list recording the parameters for the following: Mode (1, 2, or 3), Sigma Factor, Weighting Factor, Alarm Hold Time, Count Time, Test, and Count Time.

6. Return the Operator/Test Switch to Operate. Allow the monitor to background count momentarily. Place the source on Zone #1 while standing in the monitor. Indicate on the data package in the Alarm Acceptable Column whether or not the channel alarms. Step out of the monitor, allow the alarm to clear. Continue through the remaining zones in the above manner.

7. Calculate the efficiency for each Zone and Channel completing the Data Package. If the detector efficiency is below 20% it is not acceptable. Replace the detector or initiate repairs to return the efficiency to an acceptable level.

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8161-1

SERIAL NO: R00-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: _____

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
PCM-1 WEEKLY MONITOR CHECKS

Location:_____ MPL #_____ SERIAL # _____

Source #:_____ Source D.P.M. _____

Gas Pressures: 1._____ PSI _____ Regulator Gas Flow 1. _____cc/min
2._____ PSI _____ Regulator Gas Flow 2. _____cc/min

Source CPM-BKG Divided By Source D.P.M. X 100 = EFF.

Detector Zones	Source CK CPM	Average BKG. CPM	Net Source CPM	Detector EFFI	Alarm Setpoint	Alarm Acceptable
1						
2						
3						
4						
5						
6						
7						
8						
HEAD						
UPPERARM						
FOREARM						
PALM						
THIGH						
CALF						
FOOT						

Mode (1, 2, or 3) . . . . . _____
Sigma Factor . . . . . _____
Weighting Factor . . . . . _____
Alarm Hold Time . . . . . _____
Count Time Test . . . . . _____
Max. Alarm Limit Mode 2 . . . . . _____
Count Time . . . . . _____

COMPLETED BY: _____

DATE COMPLETED: _____

FIGURE 1
Page 2 of 2

[illegible]

GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Radiation Work Permit
PROCEDURE TITLE

HNP-8008
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X) NON-SAFETY RELATED ( )

REV.	DESCRIPTION	APPROVED DEPT. MENAGER	APPROVED GENERAL MANAGER	DATE
17	Pages 1,2,12,&19	W H Rogers for RDS	[signature]	4/13/84

MANUAL SECT 9

NEED BY DATE: 1/12/84

PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP- 8008 SHEET 1 OF 1

CURRENT REVISION NO. 16

REQUESTED BY : N.R Wright (SIGNATURE) 1/11/84 (DATE)

DEPARTMENT MANAGER APPROVAL : W.H Rogers for RWJ (SIGNATURE) 1/11/84 (DATE)

PRESENT STATUS : (X) SAFETY RELATED ; ( ) NON-SAFETY RELATED

THE ABOVE SAFETY/NON-SAFETY STATUS HAS CHANGED: ( ) YES; TO _____

LIST ANY APPLICABLE QA TRACER NUMBER's : N/A

IF QA TRACER IS APPLICABLE, INDICATE REVIEW BY REG. COMP. : _____

MARKED-UP COPY OF CURRENT PROCEDURE MUST BE ATTACHED TO THIS FORM!

REVIEW BY DOCUMENT CONTROL CLERK : Wanda Ellis (SIGNATURE) 1/11/84 (DATE)

REASON FOR REQUEST : To include the use of the ALARA computer system for processing RWP's.

DESCRIPTION OF CHANGES : Pg 1, Para C and Operator's Manual for reference, para C.3.a. NOTE change "A" to "An" and "CM" to "CM²", Pg 2 para D add NOTE below heading to see section L for computer RWP's. Pg. 12, add section L to allow use of computer to process RWP's

PRB RECOMMENDS APPROVAL: (X) YES ; ( ) NO Steve Jones (PRB SECRETARY's SIGNATURE)

PRB NUMBER : 84-8 ; DATE : 1-12-84

HNP - 9

MANUAL SET

SAFETY EVALUATION

TYPE OF DOCUMENT TO WHICH THIS EVALUATION APPLIES : ( ) NEW PROCEDURE
(✓) PROCEDURE REVISION

DOES THIS DOCUMENT CHANGE THE MODE OF OPERATION OR INTENT AS DESCRIBED IN THE FSAR? ( ) YES ; (✓) NO

DOCUMENT INVOLVES :
( ) AN UNREVIEWED SAFETY QUESTION , ( ) TECH. SPECS. , (✓) NEITHER

DOES THE IMPLEMENTATION OF THIS DOCUMENT REPRESENT AN UNREVIEWED SAFETY QUESTION : ( ) YES ; (✓) NO

GIVE THE BASIS FOR FOR THE DETERMINATION OF WHETHER OR NOT THE THE IMPLEMENTATION OF THIS DOCUMENT REPRESENTS AN UNREVIEWED SAFETY QUESTION :

The implementation of this change to the procedure does not constitute an unreviewed safety question because the complete R.W.P. program is still in place as it was the major change is being that now we can use the computer to help generate and track information for the R.W.P.'s

HMP - 9

MANUAL SET

SAFETY EVALUATION
(CONTINUED)

THE IMPLEMENTATION OF THIS DOCUMENT (~~DOES~~ DOES NOT) CONSTITUTE AN UNREVIEWED SAFETY QUESTION AS EXPLAINED BELOW:

1. THE PROBABILITY OF OCCURRENCE OR THE CONSEQUENCES OF AN ACCIDENT OR MALFUNCTION OF EQUIPMENT IMPORTANT TO SAFETY (~~ARE~~ / ARE NOT) INCREASED ABOVE THOSE PREVIOUSLY ANALYZED IN THE FSAR DUE TO THE IMPLEMENTATION OF THIS DOCUMENT BECAUSE:
   see explanation on pg 1 of 2

2. THE POSSIBILITY OF AN ACCIDENT OR MALFUNCTION OF A DIFFERENT TYPE THAN ANALYZED IN THE FSAR (~~DOES~~ DOES NOT) RESULT FROM THE IMPLEMENTATION OF THIS DOCUMENT BECAUSE:
   see explanation on pg 1 of 2

3. THE MARGIN OF SAFETY AS DEFINED IN THE BASIS FOR ANY TECHNICAL SPECIFICATION (~~IS~~ IS NOT) REDUCED DUE TO THE IMPLEMENTATION OF THIS DOCUMENT BECAUSE:
   see explanation on pg 1 of 2

SAFETY EVALUATION PERFORMED BY: W.R. Wright (SIGNATURE) 1/4/84 (DATE)

DEPARTMENT MANAGER APPROVAL: W.A. Rogers for RWJ (SIGNATURE) 1/4/84 (DATE)

MEP - 9

MANUAL SET

APPROVAL	
See Title Page	
DATE	
See Title Page	

E. I. HATCH NUCLEAR PLANT

Georgia Power

PROCEDURE NO	
HNP-8008	
REVISION NO	
17	
PAGE NO	
1 of 19	

YB

RADIATION WORK PERMIT

A. PURPOSE

To provide instructions for the issuance of and implementation of Radiation Work Permits (RWP).

The Radiation Work Permit procedure is designed to provide a capability to control and minimize radiation exposure that is received from work performed in radiation areas, high radiation areas, contaminated areas, and airborne radioactivity areas.

B. REFERENCES

1. 10 C.F.R 20
2. Reg. Guide 1.16
3. Operators Manual for RWP/1000 TDC 6002 M

C. CONDITIONS REQUIRING RADIATION WORK PERMITS

1. Entry into a High Radiation Area, Airborne Radioactivity Area, (as required by Health Physics), or any area posted with a "KEEP OUT - Radiation Work Permit Required" sign.
2. Entry to the drywell.
3. Maintenance or inspection of contaminated or radioactive equipment in excess of the following limits:
   a. Smearable contamination in excess of 1000 dpm/100 cm2 beta-gamma.

NOTE

THE HEALTH PHYSICS SUPERVISOR OR DESIGNATED ALTERNATE MAY DETERMINE THAT A R.W.P. IS NOT NECESSARY TO DO INSPECTION OR MAINTENANCE ON EQUIPMENT WITH CONTAMINATION LEVELS IN EXCESS OF 1000 DPM/100 CM^2 IF THE JOB IS OF A NATURE THAT CAUSES NO MEASURABLE CONTAMINATION TO THE INDIVIDUALS PERFORMING THE JOB.

   b. Radiation levels at 18 inches in excess of 100 mR/hr or where a whole body exposure of 100 mR/hr is likely.
4. Entry into areas with measurable neutron exposure.

5. Entry into an area of unknown condition.

6. Breaching of contaminated or potentially contaminated system.

D. ISSUANCE OF THE RWP (Refer To Figure 1)

NOTE

If a computer generated RWP is to be used, see Section L.

1. A supervisor responsible for work requiring an RWP should originate the permit. The originator should enter the date, location, Unit number, job description, and names of personnel expected to require access to the controlled area. He should provide an estimation of man hours required for work in the controlled area and enter his signature in the Requested By section. The RWP should then be forwarded to the Health Physics Supervisor or his designated alternate.

2. The Health Physics Supervisor or his alternate will review the work to be performed for any conditions which may adversely affect the safety of the plant or personnel involved. He will log the required information into the Radiation Work Permit Log Book and enter the permit number from the log book on the RWP. He will determine the appropriate work category using Section K and check off the appropriate block on the RWP.

NOTE

The Radiation Work Permit Log Book is a notebook kept in the Health Physics office and contains Form 3, Radiation Work Permit Log.

The Shift Supervisor may complete the RWP for Health Physics provided the following criteria are met:

a. A qualified member of the Health Physics staff is not on site, AND

b. The safety of the plant warrants immediate action which would preclude calling in a Health Physics staff member from off site, OR

c. Authorization is received from the Health Physics Supervisor or his designated alternate.

3. The RWP should be reviewed by the Health Physics staff to determine appropriate actions and controls to be implemented to preclude exceeding exposure limits and to maintain exposures as low as is reasonably achievable (ALARA). Also refer to paragraph D.6. The area should be adequately surveyed prior to entry or be surveyed at the time of entry, items of protective clothing required should be identified, the type of monitoring required should be specified and exposure records of personnel involved should be reviewed to assure exposures will remain ALARA and within permissible limits.

4. Temporary shielding may be specified in order to reduce personnel exposure, to reduce background levels in frisking areas, or to bring radiations levels into compliance with plant and regulatory limits. This type of shielding should only be installed for specific time periods such as: for the duration of a job, until the next scheduled outage or as directed by plant management. Any shielding specification must be subjected to the applicable work controls and design reviews described in procedures HNP-8 Maintenance Request and HNP-809 Design Change Request.

5. The Health Physics Supervisor or designated alternate will review the RWP, enter the estimated Man-rem, expiration date and time, sign the RWP for Health Physics approval, and remove the Health Physics copy for filing. A Man-rem estimate will be made only for RWP's with work area dose rates of $>$ 10 Mrem/hr or hot spots $\geq$ 100 Mrem/hr.

NOTE

Estimated Man-rem = Estimated man hours x average dose rate in rems/hour.

6. Some Radiation Work Permits require an ALARA evaluation prior to issue. As Man-rem estimates increase further ALARA measures should be considered for implementation. For RWP's with Man-rem estimates of 1 or less, no formal ALARA evaluation is required. RWP's with estimates greater than 1 should be routed to ALARA coordinator for evaluation and processing. An ALARA review should also be performed in conjunction with any RWP which covers the use of a temporary radioactive liquid processing system or storage system. The review will determine the possibility of a release to the environment, the precautionary measures to prevent such a release, and the actions necessary to resolve a release if it should occur.

7. The Shift Supervisor will review the RWP for any operations or conditions which may adversely affect the safety of the plant, enter the approved date and time, and sign the RWP. The Control Room copy of the RWP will be placed on file in the Control Room.

NOTE

Approval to start work will be in effect after the RWP is signed by Health Physics and Shift Supervisor. See D.8 for exception.

8. The Supervisor requesting the RWP will review the RWP to familiarize himself with all requirements. The original RWP will then be taken to the jobsite and posted at the entrance to the jobsite on the clean side of the step-off pad. The supervisor should ensure that the workers have seen the RWP and are aware of its requirements.

9. In some situations where the plant needs immediate attention due to an emergency condition, a job may commence prior to the sign-off approvals of an R.W.P. by the Health Physics Supervisor or his designated alternate and the Shift Supervisor. The approval to work, in these situations, will be contingent on the policy that a Health Physics person will accompany the workers, will perform the necessary radiation monitoring at the work place to protect the workers, and will give the workers proper instruction in radiation protection. The approval to work will also be contingent on the proper clearance and tagging of the effected equipment by the Shift Supervisor and his staff.

E. ADDITION OF PERSONNEL NAMES TO RWP's

While an RWP is in force, the addition of names of personnel to the RWP may be made only on the approval by the Health Physics staff. The work assignment of the person being added must be directly related or associated with the job description on the RWP. When approval is granted, the person's name will be entered on the original RWP at the job site and on the Health Physics copy in the Health Physics Office.

F. PERSONNEL RESPONSIBILITIES

1. Supervisor responsible for work under RWP.

   a. The supervisor is responsible for assuring that personnel working on the job know the protection requirements.

b. If Health Physics monitoring is specified on the RWP, the work supervisor will notify Health Physics Staff when the job is to start.

c. The individual shares a responsibility to promote an awareness of good ALARA practices.

2. Personnel performing work

a. Each person entering and exiting the RWP area must enter data on the RWP Time Record (Figure 2) or on the dosimeter sign in sheet (Form 1), or ensure that this data is entered on the right sign in sheet, (i.e. by H.P. tech.).

b. Each person must be familiar with all requirements and instructions written on the RWP.

3. Health Physics Staff

a. The Health Physics staff will provide radiation surveying and monitoring as required by the RWP.

b. The Health Physics staff will assist the Supervisor-in-charge and personnel by providing guidance in radiation protection matters to minimize exposure.

c. The Health Physics staff shares the responsibility to promote an awareness of good ALARA policies.

G. TERMINATION OF THE RWP

1. When the job is to be terminated, the RWP with supplementary sheets attached, must be returned to the Health Physics Office by the Supervisor-in-charge of the work, or his alternate.

2. An RWP should be terminated for the following reasons:

a. Completion of the job.

b. Cancellation of the job or RWP.

c. Expiration of the RWP.

(1) Twenty-four hour limit.
(2) Time limit as noted on RWP.

d. Change in radiological conditions.

NOTE

No further work will be performed under the RWP once the permit is terminated or expired.

3. The Health Physics Supervisor or his alternate will mark the RWP as terminated by checking the appropriate reason for termination, entering the time and date of termination, and signing the RWP in the Terminated By section. He will then mark the time and date terminated in the Radiation Work Permit Log Book.

4. Prior to filing in documentation the original copy of the RWP, the Laboratory Supervisor (or alternate) should review the collective exposures associated with work in the controlled area. For jobs involving greater than 10 Man-rem collective exposure, or where the actual Man-rem exceeds the estimated Man-rem by 25%, a copy of the RWP data should be forwarded to the Alara Coordinator or his designate for an ALARA past job review. When the original copy of the RWP is filed, the Health Physics copy may then be removed and destroyed.

H. ROUTINE RADIATION WORK PERMIT

1. Jobs that continue for more than 24 hours such as in outages, (i.e. turbine overhauls, etc.) a routine R.W.P. may be issued. Routine RWPs will only be issued to areas with constant H.P. coverage or an H.P. assigned to the control point unless approved so by an H.P. Supervisor or Foreman. Routine RWPs will have "Routine" written at the top and bottom to distinguish them from RWPs that expire after 24 hours. Routine RWPs will be terminated at the end of the month.

2. Routine R.W.P.s will be issued according to section D. except it will be stapled to a folder with dosimeter sign in sheets and a recent survey. Each dosimeter sign in sheet must have the R.W.P. number, date, and work category filled out.

3. When airborne conditions exist in the work area involving routine RWPs, the following additional steps will be taken for completion of Form 1-A. Air sampling program will be followed as per HNP-8013. Weighted MPC values will be calculated and proper action taken for personnel entries into airborne radioactivity areas. The action requirements for weighted MPC values designated below are as follows:

a. Less than 0.25 weighted MPC.
No control of MPC-HR exposures required.

b. Greater than 0.25 weighted MPC but less than 1 MPC.
Use respirators and limit exposure to airborne radiation as far as practicable or keep track of MPC-HRs in the following manner:

(1) Enter the result of the air sample analysis on the MPC-HR log sheet (Form 1A).

(2) For each entry calculate the total time in hours, for those individuals who did not receive any respiratory protection for either particulate or iodine or both.

MPC-HOUR = MPC fraction x Total time in Hours

c. Greater than 1 MPC-HR but less than 10 total MPC-HR must be restricted to 35 per week. All steps in 3.b must be followed.

d. MPC-HR values should be transferred to Form 5 of HNP-8010 from Form 1-A for each individual on a daily basis. A daily margin of MPC-HR should be supplied to the control point Health Physics technician, and he will use this to control stay time.

4. In areas where work continues 24 hours a day the routine R.W.P. will be left at the control point for the duration of the job. At the end of each shift change the dosimeter sign in sheets will be pulled and new ones attached. The completed dosimeter sign in sheets will be sent to dosimetry for dose recording.

5. The minimum survey frequency for routine R.W.P.s is every 24 hours. The H.P. Supervisor or Foreman will review all routine R.W.P.s and may set a more frequent survey requirement, according to radiological hazards associated with certain areas and the type of work being performed. Once the survey is performed and is written it is sent to the H.P. office for review and a copy is made. The copy is sent back to the control point to be attached to the routine RWP.

NOTE

If a routine R.W.P. is not used, a current radiation survey will not be updated and attached until the R.W.P. is put back into effect.

I. BLANKET RADIATION WORK PERMIT

1. For certain routine or repetitive work, a Radiation Work Permit Form may be issued to Operations, Health Physics and Radiochemistry groups, Plant Supervisors and designated. inspection and surveillance groups, and marked BLANKET at the top and bottom of the form. The Blanket RWP must be approved by a Shift Supervisor, the Health Physics Supervisor or designated alternate and an appropriate member of supervision of the group to perform the work. The Blanket RWP will be valid until cancelled by Health Physics or until the last Friday in each month.

2. The approved permit is stored in a protective holder in a book in the Health Physics Office. Exposure rates and a log of personnel doing the work are not entered on the Blanket RWP form. Such records are kept on Form 2, Blanket Radiation Permit Entry Log. After personnel complete work under the Blanket Permit, the information required on Form 2 MUST BE recorded.

NOTE

Record information for each RWP area entered.

J. REQUIREMENTS FOR ENTRY INTO HIGH RADIATION AREAS

1. All personnel entering a High Radiation Area where the field dose rate* is expected to be greater than 1000 mr/hr must obtain a high range dosimeter from the Health Physics Office before entry.

2. All personnel entering any High Radiation Area (greater than or equal to 100 mr/hr) must notify the Health Physics Office before entry. This applies both to regular RWP holders and Blanket RWP holders.

3. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

   a. A radiation monitoring device which continuously indicates the radiation dose rates in the area.

   b. A radiation monitoring device which continuously integrates the radiation dose in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel have been made knowledgeable of them.

c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over activities within the areas and shall perform periodic radiation surveillance.

4. The purpose of these three options is to assure that adequate dosimetry is provided to assess radiation exposure, to assure that personnel entering these areas are properly informed as to the radiological conditions of the area, and to assure that the required equipment for entering has been provided.

NOTE

*Field dose rate is referred to as the dose rate approximately 18 inches from a point or line source, or any area dose rate greater than 1000 mr/hr.

K. EXPOSURE CATEGORY DEFINITIONS (REG. GUIDE 1.16)

The following is to be used for determining the work category of the RWP.

1. Routine Surveillance and Inspection (RSI)

All inspections or surveillance that is continuous or repetitive in nature.

a. Inspections of pumps, valves, systems, etc.

b. Routine observations in Radiation Controlled Areas.

c. Inspection of all mechanical or electrical components that does not involve physical work on that system.

d. All Blanket RWPs except in the case of work involved on special categories, i.e. R.O., W.P., S.P.M., I.S.I., or R.P.M.

2. Routine Plant Maintenance (R.P.M.)

All plant maintenance that is routine in nature. This includes all maintenance that is performed or can be performed during normal plant operation.

a. Repair of all valves.

b. Repacking of valves.

c. Rebuilding of pumps - RWCU, FPCU, etc.

d. Changing oil in system.

e. Repair of electrical motors and components - MOVs, Breakers, Motor Control Centers, etc.

f. Changing of filters in HVAC filter trains.

g. Greasing of pumps, valves, and motors.

h. Checking shaft voltage readings on components.

i. Welding, grinding, lapping of components associated with systems.

3. Special Plant Maintenance (S.P.M.)

Refers to special maintenance not usually performed during normal operations. Most major maintenance is associated with outages.

a. Removal of feed water spargers.

b. Radiographic examinations of all components.

c. Repair of major steam supply delivery components - MSRs, MSSVs, MSIVs, SRVs, FWHs.

d. Repair Turbine mechanical components - Main Turbine and RFPTs.

e. Removal and replacement of in-core monitors, TIPs, LPRMs, IRMs, SRMs, etc.

f. Installation of new electrical systems or maintenance on those systems outage related - pulling cable, removal of insulation, etc.

g. In RPV maintenance, i.e. Cladding Removal, Jet Pump Removal, etc.

4. Refueling Operations (R.O.)

All work performed that is directly related to the refueling done during a refueling and maintenance outage.

a. Removal of RPV Head, Dryer Separator, Moisture Separator, Drywell Head, etc.

b. Moving of new spent fuel from RPV to fuel pool or from fuel pool to RPV.

c. Fuel Sipping.

d. Gamma Scanning.

e. Inspection of new fuel.

f. Detensioning of RPV head.

5. Waste Processing (W.P.)

All work that is associated with radioactive waste processing.

a. Capping of drums in Radwaste drum capping room.

b. Compacting of trash.

c. Washing down of Drum Capping Rooms, Hopper Rooms, and Centrifuge Rooms.

d. Radioactive Waste Shipments - loading, surveying, and processing.

e. Maintenance personnel removing and replacing lids on shipping casks or operating cherry pickers (cranes).

6. In Service Inspection (I.S.I.)

All work associated with inspection of Reactor Vessel, Steam Supply or Delivery components that has been in service. All non-destructive testing and/or inspection of components to determine quality of that component and/or system. Inspection of components that have been in service and preventive inspection of equipment that has been in service. Outage-related inspection of reactor vessel or associated components.

a. Dye penetrant testing (PT).

b. Ultrasonic testing (UT).

c. Radiographic testing (RT).

d. Magna Flux testing.

L. COMPUTER RWP's

If a computer generated RWP is to be used, the information is first entered into the original handwritten RWP up to the point of the Shift Supervisor's approval. The handwritten copy is used to enter the information into the computer. The computer will print a copy of the RWP (Figure 7). This copy is then distributed for signature.

Once the RWP has been signed by the originator, the Health Physics Technician, the Health Physics Foreman or designee, and the Shift Supervisor, it should be approved on the computer. When this is done, it is ready for use.

All aspects of the computer RWP will be handled as in the previous sections of this procedure and/or the Operator's Manual for the RWP/1000 program.

FIGURE 1
RADIATION WORK PERMIT (FRONT SIDE)

PLANT E. I. HATCH
RADIATION WORK PERMIT

RWP NO.

DATE	ESTIMATED MAN HOURS	ESTIMATED MANREM	ACTUAL MANREM	ACTUAL MANHOURS	UNIT NO: 1 or 2

REPLACES RWP NO.

LOCATION | EXPIRATION DATE & TIME | TIME APPROVED CST

MPL NO: _____ WR NO: _____

DESCRIPTION OF JOB: _____

SPECIAL HAZARDS: _____

SURVEY MEASUREMENTS

LOCATION	RADIATION mrem/hr.	SURFACE CONTAMINATION DPM/100 cm²	AIR BORNE µ Ci/cc	MPC FRACTION P	I	TOTAL

GENERAL INSTRUCTIONS

1. Obtain permission of shift foreman before entry to control areas.
2. Obtain protection for cuts or abrasions from H.P. before start of job.
3. In case of injury or change of work conditions immediately notify H.P.
4. Tools and equipment must be monitored upon completion of job.
5. Make personnel survey before leaving control area.
6. Enter exposure and total time on back of RWP or Form 1.

PROTECTIVE EQUIPMENT REQUIRED

- ( ) ONE COVERALL
- ( ) TWO COVERALLS
- ( ) PLASTIC SUIT
- ( ) CLOTH HOOD
- ( ) CLOTH BOOTIES
- ( ) PLASTIC BOOTIES
- ( ) RUBBERS
- ( ) COTTON GLOVES
- ( ) RUBBER GLOVES
- ( ) GOGGLES
- ( ) FULL FACE MASK
- ( ) MSA AIR PACK
- ( ) CONSTANT FLOW AIR MASK
- ( ) FRESH AIR HOOD
- ( ) HIGH RANGE DOSIMETER
- ( ) FINGER RING
- OO TLD BADGE
- OO DOSIMETERS
- ( ) SEE SPECIAL INSTRUCTIONS

SPECIAL DISTRIBUTION

RADIOLOGICAL CONTROL FORM: ( ) YES ( ) NO

DWELDING REQUIRED: ( ) YES ( ) NO

ELEVATED H.P. COVERAGE: ( ) YES ( ) NO

NAME OF PERSONNEL PERFORMING WORK

REQUESTED BY:

APPROVALS:

SHIFT FOREMAN

HEALTH PHYSICS

TERMINATED BY:

TIME CST | DATE

( ) CANCELLATION ( ) EXPIRED
( ) COMPLETION ( ) CHANGED CONDITIONS

CONTROL

WORK CATEGORY

- ☐ REACTOR OPERATIONS & SURVEILLANCE
- ☐ ROUTINE PLANT MAINTENANCE
- ☐ SPECIAL PLANT MAINTENANCE
- ☐ REFUELING OPERATIONS
- ☐ WASTE PROCESSING
- ☐ INSERVICE INSPECTION

E. I. HATCH NUCLEAR PLANT

Georgia Power

FIGURE 2
RADIATION WORK PERMIT (BACKSIDE)

Signature Indicates Understanding and Compliance (NAME)	TLD BADGE NO.	TIME		DOSIMETER		TIME		DOSIMETER		TIME		DOSIMETER		TIME		DOSIMETER		TOTAL EXPOSURE (mrem)	TOTAL TIME (minutes)
		IN / OUT	NET	IN / OUT	NET	IN / OUT	NET	IN / OUT	NET	IN / OUT	NET	IN / OUT	NET	IN / OUT	NET	IN / OUT	NET		

E. I. HATCH NUCLEAR PLANT

Georgia Power

FIGURE 3

FORM 1

DOSIMETER SIGN IN SHEET (ROUTINE)

RWP NO: _____

LOCATION: _____

ELEVATION: _____

DATE: _____

- ☐ Reactor Operations Surveillance
- ☐ Routine Plant Maintenance
- ☐ Special Plant Maintenance
- ☐ Refueling Operations
- ☐ Waste Processing
- ☐ Inservice Inspection

Signature Indicates Understanding and Compliance (NAME)	TLD BADGE NO.	TIME IN	TIME OUT	TIME NET	DOSIMETER IN	DOSIMETER OUT	DOSIMETER NET	TIME IN	TIME OUT	TIME NET	DOSIMETER IN	DOSIMETER OUT	DOSIMETER NET	TIME IN	TIME OUT	TIME NET	DOSIMETER IN	DOSIMETER OUT	DOSIMETER NET	TOTAL EXPOSURE (mrem)	TOTAL TIME (min/hr)

E. I. HATCH NUCLEAR PLANT

Georgia Power

FIGURE 4

FORM 1-A

MPC-HR LOG SHEET

DATE:

LOCATION:

NAME	TLD BADGE NO.	TIME IN	TIME OUT	NET (HRS)	M.P.C. FRACTION P & I	MPC-HR	TIME IN	TIME OUT	NET (HRS)	M.P.C. FRACTION P & I	MPC-HR	TIME IN	TIME OUT	NET (HRS)	M.P.C. FRACTION P & I	MPC-HR	TOTAL MPC-HR

MANUAL SET

FIGURE 5

FORM 2
BLANKET RADIATION PERMIT ENTRY LOG

WORK CATEGORIES
Reactor Operations & Surveillance 1
Routine Plant Maintenance 2
Special Plant Maintenance 3
Refueling Operations 4
Waste Processing 5
Inservice Inspection 6

NAME	TLD NO.	DATE	AREA ENTERED	WORK PERFORMED (Circle only one)	TIME IN	TIME OUT	TOTAL	RWP DOSIMETER READING IN	RWP DOSIMETER READING OUT	RWP DOSIMETER READING TOTAL
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
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				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						
				1 2 3 4 5 6						

FIGURE 6

FORM 3
RADIATION WORK PERMIT LOG

UNIT NO. ISSUED DATE	TIME	RWP NO.	REPLACES RWP NO.	HEALTH PHYSICS	RWP LOCATION	JOB DESCRIPTION	REQUESTED BY	TERMINATED DATE	TERMINATED TIME	TERMINATED HEALTH PHYSICS

FIGURE 7

GEORGIA POWER COMPANY PAGE

Radiation Work Permit

Rwp Number: Task: Job Number: Status:

Job:
Location:
RWP Type:
Job Supervisor:
Estimated Man-hours: Start date-time:
Estimated Man-Rem: Completion date-time:

*** Component List ***

1)
2)
3)
4)
5)
6)
7)
8)
9)
10)

*** Radiological Conditions ***

Dose Rate survey date-time: Level: mRem/hr
Comment:

Contamination smear date-time: Level: DPM/100cm2
Comment:

Airborne sample date-time: Level: %MPC
Comment:

*** Protective Clothing ***

1)
2)
3)
4)
5)
6)
7)
8)
9)
10)

*** Dosimetry ***

1)
2)
3)
4)
5)

*** Respirators ***

1)
2)
3)

*** Special Instructions ***

1) _____
2) _____
3) _____
4) _____
5) _____
6) _____
7) _____
8) _____
9) _____
10) _____

Training: ALARA Review: H P Coverage:

Health Physics Comments:

REQUESTED BY Sign: _____ Date: __/__/__
H.P TECHNICIAN Sign: _____ Date: __/__/__
H.P FOREMAN/ALARA ENGINEER Sign: _____ Date: __/__/__
SHIFT SUPERVISOR Sign: _____ Date __/__/__