

GEORGIA POWER COMPANY
HATCH NUCLEAR PLANT
PROCEDURE

Personnel Dosimetry Program
PROCEDURE TITLE

HNP-8004
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X)

NON-SAFETY RELATED ()

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
13	Pages 8, 11, 12, & 19	<i>W.H. Rogers</i>	<i>Jim Grene</i>	3/15/82
14	Pages 1 - 7 & 9 - 22	<i>W.H. Rogers</i>	<i>C.F. Jones</i>	10/22/82

PROCEDURE REVISION REQUEST

NEED PRD
9/9/82

PROCEDURE NO. HNP- 8004

Revision No. 13

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature: ...	Date:
M. Wright / M. Link	8-2-82	[Signature]	8-23-82

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).

Safety Related (X) Non-Safety Related ()

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

Attach marked up copy of procedure to this form.

REASON FOR REQUEST pg. 8 incorporate NOTE about action to be taken if an unacceptable difference between dosimeter and TLD results occurs.

pg. 10 Change weekly to tri-weekly

pg. 19 Change "Radiation Exposure Report" to "Reply To Request For Radiation Exposure Report"

pg. 20 Add "form 10 to record dose discrepancy investigation. Add Form 11 Neutron Dose Estimator to record neutron dose

Delete Add Cover Letter (New Form 9)

page 1 para C.1 change "exposure" to "exposure"

page 2 para 4 change "neutron-probed chamber" to "TLD brachytherapy"

page 3 para F4 "finger ring to extremity device"

PRD RECOMMENDS APPROVAL: (X) Yes () No

[Signature] PRD Secretary

9/16/82
Date

82-163
PRD Number

Reference Only

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manual-set

PROCEDURE REVISION REQUEST

We

Safety Related Form

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Revision No. 13

7/15/82
Add change to make no. 9-11-82
we

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
Don Philpot's	4/30/92	RC Hand	7-14-82

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).

Safety Related (X) Non-Safety Related ()

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

Attach marked up copy of procedure to this form.

REASON FOR REQUEST Page 2, change neutron chambers to TLD brackets; page 3
change Finger Ring to Extremity Badge; page 4 change 80 mR/hr
to 80 mR; page 6 delete phrase beginning with "except on
Saturday"; change Figure 3 to Form 5; page 7 change "Finger
Ring to Extremity Badge, change Figure 1 to Form 6; change
Figure 2 to Form 7; page 10 change Figure 4 to Form 9,
change last para. to mean nominally weekly; page 11 add
additional categories and combinations as indicated; change
"within the last three months" to "during the current quarter"
ask what facility; page 12 delete "color of badge"; page 13
add TLD# to Form 3; replace page 14 with new page; page 15
add columns as indicated to Form 5; pages 16, 17, 18, & 19 change
Figure Numbers to Form Numbers.

PRD RECOMMEND APPROVAL: (X) Yes () No

J. J. Elt
PRD Secretary

82-127
PRD Number

7/27/82
Date

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PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP- 8004

Revision No. 13

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
<u>M. Wright / M. Link</u>	<u>8-2-82</u>		

REVISION CHANGES MODE OF OPERATION OR INTENT AS DESCRIBED IN FSARS:
 Yes No

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

Safety Related Non-Safety Related

Safety/Non-safety Status Change Yes No

Attach marked up copy of procedure to this form.

REASON FOR REQUEST Pg. 2, Para E delete "It is required that"
and change sentence beginning to read "Each individual
should ---, Pg. 3, Para G.1 add "Form 11, Neutron Dose
Estimates will be used to record neutron dose."
Pg. 4, Para G.1.d, change "80 mR/hr" to "80 mR,"
Pg. 5, Para. I, delete subline #(4). Pg. 7, Para I. 8, change
sentence beginning "The report (Form 7) shall be ---" as
indicated. Pg. 8 add NOTE as shown. Pg 11 change
TLD issue form as shown, Pg 13 change Dosimeter
Re-zero Record as shown. See also other changes
as indicated on previous mark-up.
This additional cover sheet to address remarks
of PRB # 87-150.

PRB RECOMMENDS APPROVAL: Yes No

PRB Secretary

PRB Number

Date

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SAFETY EVALUATION

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

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

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

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

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PERSONNEL DOSIMETRY PROGRAM**A. PURPOSE**

To describe a procedure for the issuance and use of personnel dosimetry equipment for plant personnel, visitors, and construction workers while within the operating buildings.

B. REFERENCES

Code of Federal Regulations, 10CFR20

A.P.T. Computer Exposure Records System

C. DESCRIPTION OF DOSIMETRY EQUIPMENT**1. Thermoluminescent Dosimeter (TLD Badge)**

The TLD Badge is a small badge containing two or more lithium fluoride TLD chips for measuring external beta gamma radiation. These badges are supplied by a TLD badge vendor and will be processed at monthly intervals during normal operations, and at more frequent intervals during maintenance outages or when conditions require. The TLD badge vendor will read and evaluate the badges and report the results to the Health Physics/ Laboratory Foreman. The record of accumulated external radiation exposure received by individuals is obtained principally from the interpretation of the TLD badge.

2. Direct reading pocket dosimeter

The direct reading pocket dosimeter is a pencil shaped ion chamber used primarily to provide day-by-day indication of external gamma radiation exposure. A dosimeter with a range of 0-200 MR is provided for normal use. For special requirements higher range dosimeters will be issued as necessary by the Health Physics staff.

3. Neutron Dosimetry

The Health Physics staff will review the R.W.P.'s each dosimetry period for personnel who may have become exposed to neutron radiation. The TLD badges for these individuals will be mailed to the TLD badge vendor requesting that the badges be read both for beta-gamma exposure and neutron exposure. The report for these badges will be handled the same as in paragraph c.1.

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4. Other

As deemed appropriate the Health Physics staff will issue other personnel monitoring devices, i.e. finger rings, TLD bracelets, chirpers, etc. for monitoring personnel radiation exposure.

D. ISSUANCE OF TLD BADGES AND POCKET DOSIMETERS

1. Prior to issuance on any TLD badge or dosimeter Form 1, TLD BADGE AND DOSIMETER ISSUE must be completed. See Section C. for details.
2. Issuance of any TLD badge may be made only by a member of the Health Physics staff.
3. Issuance of pocket dosimeters may be made only by a member of the Health Physics staff.
4. Prior to entering the operating buildings where radiation exists all individuals assigned TLD badges and dosimeters will pick them up and wear the devices as in Section E. Daily dosimeter reading will be logged as in Section G.

NOTE

Dosimeters that have been used, and then placed in the "OUT" rack, will be re-zeroed prior to the start of the next work day, if a reading of 40 mRem, or greater, has been reached.

E. WEARING AND USE OF TLD BADGE AND DOSIMETER

The TLD Badge and dosimeter are to be worn adjacent to each other between the waist and neck on the front part of the body. As per Health Physics discretion, an individual may be instructed to wear the dosimeter and TLD on another part of the body, if it is determined the dose rate at that part of the body is likely to be higher than that between waist and neck. When wearing protective clothing, the TLD badge and dosimeter are clipped inside the breast pocket (Outside pocket) of the coveralls and pocket closed. The TLD badge shall always be worn with the face of the badge facing out. Each individual should examine his dosimeter periodically while in a radiation controlled area. No individual should allow the dosimeter reading to exceed 150 mR or 75% of full scale regardless of any prescribed exposure allowance, without having his dosimeter recharged and reading recorded. Personnel finding self reading dosimeters off-scale shall immediately leave a Radiation Control Area unless involved in controlling an emergency and shall notify the Health Physics

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Staff. The loss of any personnel monitoring device requires the immediate notification to 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 can be issued if deemed necessary.

F. WEARING AND USE OF EXTREMITY DOSIMETRY

The following criteria should be used for the use of extremity dosimetry:

1. Extremity dosimetry is defined as finger rings, or as per H. P. discretion, TLDs taped to one of the extremities. The extremities of the body are hands, forearms, feet, and ankles.
2. Health Physics shall determine the need for extremity monitoring on an individual job basis. Factors involved in making this determination are dose rates, stay times, etc. Extremity dosimeters will be provided for those individuals requiring this coverage.
3. Guidelines for using extremity dosimetry are as follows:
 - a. When the extremity exposure rate is likely to be four times the whole body exposure rate AND the extremity exposure rate is likely to be > 400 mrem/hr.
 - b. When performing primary systems sampling, manipulating high-intensity calibration sources, or performing any task for which extremity dosimeters are required by H.P.
4. Extremity dosimetry will be issued and returned on a daily basis, unless specified differently by H.P. If personnel need extremity dosimetry more than once a month, they will be issued the same extremity dosimeter (finger ring, etc.) for the duration of the month. Form 5, Extremity Badge Issue Log will be completed as needed.

G. ESTIMATING NEUTRON EXPOSURE

1. Until an individual's TLD is read and the actual neutron exposure determined, an estimate will be generated in the following manner: Form 11, NEUTRON DOSE ESTIMATES will be used to record neutron dose.

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- a. As per survey data, calculate a neutron-to-gamma ratio by dividing the neutron dose rate by the gamma dose rate.
- b. Multiply the neutron-to-gamma ratio times the gamma dose recorded by the pocket dosimeter.
- c. Add this product to the gamma dose to obtain the total whole body exposure.
- d. Example of above method:
 - (1) Gamma dose rate: 60 mR/hr
Neutron dose rate: 30 mR/hr
Dosimeter reading: 80 mR
 - (2) Neutron-to-gamma ratio: $30/60 = 0.5$
 - (3) Estimated neutron dose: $(80 \text{ mR})(0.5) = 40 \text{ mR}$
 - (4) Total whole body dose: $80 \text{ mR} + 40 \text{ mR} = 120 \text{ mR}$
- e. Input the total whole body dose to the computer via DDUDAT Program or use Form 2 of this procedure if the computer is disabled.

H. RADIATION PROTECTION ORIENTATION

All new employees shall receive a radiation protection orientation prior to their assignment of work in Radiation Control Areas or have an escort by someone who has demonstrated understanding of radiation protection practices and procedures. See HNP-8018. The orientation will cover all pertinent radiation protection practices and procedures to a degree sufficient to allow an employee to perform his assignment without incurring unnecessary radiation exposure or contamination. Each employee will be required to demonstrate an understanding of these procedures prior to being allowed to enter a Radiation Control Area unescorted.

I. PERSONNEL DOSIMETRY RECORDS

1. Form 1, TLD Badge and Dosimeter Issue
 - a. The preparation of this form is the responsibility of the Health Physics Department. The purpose of the form is to record all information required by 10CFR20 for personnel wearing monitoring devices.
 - b. Procedure for recording information on Form 1.

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- (1) The individual shall complete the upper part of the form down to the heavy black line.
- (2) Health Physics Department shall complete the bottom part of the form.
- (3) The form shall be filed and maintained in the dosimetry office until termination.

2. Form 2, Weekly Pocket Dosimeter Record

- a. This form provides a means for recording personnel pocket dosimeter results daily and will assist in evaluating each person's integrated dose to keep exposures as low as reasonably achievable and below exposure limits of 10CFR20.

The form will be used if the computer exposure record system described in I.9 becomes disabled and when visitors are issued dosimeters and TLD's.

b. Procedure for recording information of Form 2

- (1) Form 2 for the current week will be maintained by the Health Physics Staff.
- (2) Separate sheets of Form 2 will be kept for each type of personnel.
- (3) The individual whose name appears on Form 2 will record or have recorded his dosimeter reading on entering the operating buildings (IN BLOCK) and on exiting the operating buildings (OUT BLOCK) at the end of the work day. It will then be calculate or have calculated the indicated exposure by determining the difference between the IN and OUT blocks and will log the result in the NET block.
- (4) The Health Physics staff will log each individual's accumulated quarterly exposure in the QTR block at the beginning of each week.
- (5) The Health Physics staff will determine total daily exposure by adjusting the indicated exposure with exposures determined from Form 3, Dosimeter - Re-zero Record and other methods as necessary. These adjustments will be logged in the ADJ. block and will be added to the NET exposure to determine

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the total exposure for the day and recorded in the TOT block.

- (6) The Health Physics staff will determine the accumulated weekly exposure for each individual by summing the TOT block for the day and the WK block for the previous day.
- (7) The Health Physics staff will adjust the quarterly (QTR) exposures to reflect official exposures as determined from the processing of TLD badges during the current quarter.

3. Form 3, Dosimeter Re-Zero Record

This form is used when an individual's pocket dosimeter is re-zeroed while within the operating buildings. DOUDAT cards may be used in lieu of Form 3. The form will be located at each dosimeter charger station. It shall also be used when zeroing special pocket dosimeters as issued by the Health Physics staff (Indicate special in the Remark Column). Exposure data from Form 3 shall be entered on Form 2 or in the computer record system from each individual. See I.2 or I.9 of this procedure.

4. Current TLD Occupational Radiation Exposure Report

- a. This report will be furnished by the TLD vendor at a frequency based on badge exchange intervals. The report is approved for use in lieu of NRC Form 5.
- b. Results of TLD exposure analysis will be entered into the computer exposure record system on a monthly basis or with greater frequency, as this data is provided by the vendor. Current NRC Form 5 information may be obtained from the computer system at any time on an individual or departmental basis by using the INDDRP or the DDLIST program respectively.

5. Form 4 Replacement Exposure for Lost or Damaged TLD Badge

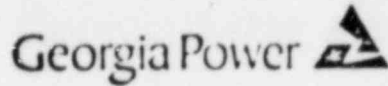
This form will be completed as necessary to estimate personnel exposure during a period when a TLD badge has been lost or damaged. Exposure determined on this form will be entered on the Current TLD Occupational Radiation Exposure Report through the use of a letter to the TLD vendor as shown in Form 8 and into the computer exposure record system.

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6. Form 5, Extremity Badge Issue Log

Form 5 will be filled out as needed and completed by the end of each month. The extremity dosimeters will be mailed to the vendor at the end of the month for analysis, and the results are supplied by the vendor on the Current TLD Occupational Radiation Exposure Report.

7. Form 6, Request for Employee's Previous Radiation Exposure

A letter shall be written to an employee's previous employer(s) if the employee does not have his previous exposure record and indicates that he may have received occupational radiation exposure while employed there. The letter shall be provided on Georgia Power Company stationary and in the general format as shown on Form 6, Request for Previous Radiation Exposure.

8. Form 7, Report to Former Employees and Visitors of Exposure to Radiation.


On request by former employees a report showing exposure to radiation shall be furnished within 30 days from the time the request is made, or within 30 days after exposure of the individual has been determined, whichever is later. The report shall cover each calendar quarter of the individual's time within the Protected Area involving exposure to radiation or such lesser period as may be requested. The report (Form 7) shall be xeroxed from individual's file and shall be transmitted with a cover letter (form 9) on Georgia Power stationary and in the general format as shown on Employee and Visitor Radiation Exposure Report, Form 9.

When an individual terminates employment or an individual assigned to work in Radiation Control Areas at the Hatch Nuclear Plant, but not employed by Georgia Power, completes his work assignment the individual and the Nuclear Regulatory Commission will receive a report on his exposure to radiation and radioactive material incurred during the period of employment or work assignment. Such report shall be furnished within 30 days after the exposure of the individual has been determined or 90 days after the date of termination of employment or work assignment, whichever is earlier. The report shall be provided on Georgia Power stationary and in the general format as shown on Form 7, Employee and Visitor Radiation Exposure Report. The original report may be obtained by accessing the computer exposure record system using the TERMNS program, or from the Current TLD Occupational Radiation Exposure Report (para. I.4).

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9. Computerized Personnel Exposure Records

- a. A computer for up-dating-personnel exposure data on a day to day basis has been developed. Pocket dosimeters are read by a Health Physics technician and the reading entered in the computer. The computer updates the individual's exposure record to reflect the latest dosimeters reading. Daily, weekly, monthly, quarterly, yearly and life time exposure information is made available to the Health Physic staff, plant supervision, and the individual through the use of various computer printout formats. See APT Automated Personnel Dosimetry Records System Manual.

- b. Schedule of input and output of exposure information via the computer exposure records system.

- (1) Daily - Pocket dosimeter will be read on a daily basis.

Entries will be recorded by the computer on a daily basis using the DDUDAT program. Where dosimeters are re-zeroed in the Primary Protected Area, the dose recorded on Form 3 shall also be entered into the computer using the DDUDAT program.

- (2) Weekly - A listing of daily exposures for all personnel on site for each day of the week will be obtained at the end of each week using the DDPRNT program.

- (3) Monthly - The net dose indicated for each worker listed in the "Time Record" section of all Radiation Work Permits issue during a given month shall be entered into the computer exposure record system prior to entry of the TLD data for the respective period, using the CWPUOT program. TLD data will be entered into the computer exposure record system each month using the CLDUOT program as this information is provided by the vendor. Corrective or supplemental TLD data may be entered into the computer exposure record system using the HLDUOT program.

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NOTE

Programming has been established to determine the discrepancy between the TLD and pocket dosimeter. A discrepancy greater than 25% for exposures over 100 mR will be evaluated. An investigation shall be conducted and documented on Form 10, Dose Discrepancy Investigation. The TLD reading will be retained as the record exposure unless the investigation justifies use of pocket dosimeter totals.

Data files will be removed from the TMPDOS exposure record file each month for personnel terminating their stay at the plant whose final TLD data has been provided by the vendor. The TERMNS program will be used to accomplish this and will produce the original letter of notification of exposure for the individual, as well as a copy of his final dosimetry file contents.

- (4) Annual - The NRCRPT program will be run after the TLD results for each year has been entered into the computer. A compilation of information to satisfy 10CFR20 annual reporting requirements will be provided by the program after the exposure information for an entire year has been recorded.

- (5) As required The PDFMAK program is utilized to enter new personnel information into the computer exposure records, to add identification or prior exposure information.


The DELETE program is used to transfer a personnel record from the active files to the TMPDOS file at the end of his stay. The record is retained in this file pending receipt of final TLD data from the vendor.

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The HLDUDT program allows the entry of TLD information for individuals at times other than the regular monthly entry of TLD data on a plant basis.

The individual dose reports covering all NRC Form 5 information can be obtained using the INDDRP program.

The DDLIST program can be used to provide on a plant basis the same information that the INDDRP program supplies for a particular individual.

Whenever required, particularly during an outage, the DDPRT program may be utilized to obtain a listing of dose for each day of the current week and the margin between the cumulative exposure and the most restrictive exposure limit, for each person on site.

The Applied Physical Technology Automated Personnel Dosimetry System Instruction Manual may be referenced for information on organization of data files and operation of programs.

10. Form 9, Reply to Request for Previous Radiation Exposure

When a request is received by Georgia Power Company from a previous employee or visitor for the purpose of providing his new employer (or facility being visited while in the employment of his new employer) with a record of occupational radiation exposure received at Plant Hatch, Form 9, Reply to Request for Previous Radiation Exposure, shall be used to supply this information.

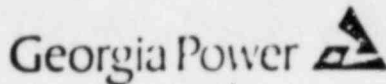
J. MANAGEMENT REVIEW OF RADIATION EXPOSURE DATA

The H.P. Superintendent will be responsible for preparing a Radiation Exposure Report for the management meeting. As a minimum, the report will consist of a tabulation of exposures by department, including the average dose received per worker and the maximum dose. Also to be included will be a tabulation of exposures on specific maintenance work during the month, if significant work has been performed. Other significant exposure information will be discussed during the meeting as appropriate.

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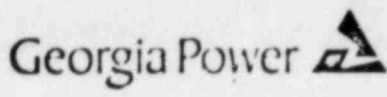
Bi-Weekly (every two weeks) updates of personnel exposure are provided to each department. These records provide supervisors as well as workers information on radiation exposure accumulation and will aid in minimizing exposure to individuals by more efficient worker utilization.

In case of some problem, such as a computer malfunction, when the Bi-weekly update listing cannot be made then H.P. supervision will be informed. As soon as the problem is resolved the computer listing will be updated and the distribution to the different departments will be resumed.

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FORM 1

TLD BADGE AND DOSIMETER ISSUE

TLD BADGE AND DOSIMETER ISSUE

DATE: _____ 19____ I.D. BADGE NO. _____

NAME IN FULL (PRINT) _____
 FIRST MIDDLE LAST

SOCIAL SECURITY NO. _____ BIRTH DATE: _____
 MONTH DAY YEAR

HOME ADDRESS: _____ HOME PHONE: () _____
 STREET

CITY STATE ZIP

JOB CATEGORY	INTRA. PLANT DEPT.	COMPANY
SUPERVISOR & OFFICE STAFF ()	ENGINEERING ()	GA. PWR CO. PLANT HATCH ()
ENG. STAFF ()	MAINT. MECH. ()	GA. POWER COMPANY ()
OPERATIONS ()	MAINT. ELECT. ()	SOUTHERN SERVICES INC. ()
LAB/HP ()	TEST DEPT. ()	A.D.A. ()
MAINTENANCE ()	OPERATIONS ()	T & B ()
* OTHER ()	LABORATORY ()	C B & I ()
* PLEASE DESCRIBE:	OFFICE ()	* OTHER ()
		* CONTRACTOR ()
		* GIVE NAME OF COMPANY:

* Have you worked at or visited a Nuclear Facility other than Hatch in the last three months? * YES () NO ()

* If YES, what facility _____

SIGNATURE _____

Have you been at Plant Hatch in the last three months? YES () NO ()

If visitor, escort's name _____

TLD Badge No. _____ NRC Form A completed _____

Authorized Quarterly Exposure _____ mRem

Issued By _____

Reviewed By _____

NOTE

If 18 years old limit exposure to 750 mRem/quarter.

* If current quarter exposure is unknown, limit is 300 mRem.

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 FORM 1

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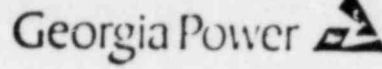
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FORM 2

WEEKLY POCKET DOSIMETER RECORD

FORM 2

WEEKLY POCKET DOSIMETER RECORD

Type of Personnel

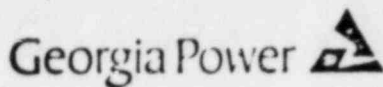
Dates: _____ 19____ thru _____ 19____

TLD cr. ID. Excess No.	NAME	CODE	FRIDAY	SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY
		ADJ							
		OTk							
		OTR							
		OTk							
		OTR							
		OTk							
		OTR							
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FORM 3

DOSIMETER RE-ZERO RECORD

DOSIMETER RE-ZERO RECORD

DATE	T.I.D. #	NAME	DOSIMETER READING BEFORE RE-ZERO	DOSIMETER READING AFTER RE-ZERO	REMARKS	PERFORMED BY

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FORM 4

REPLACEMENT EXPOSURE FOR LOST TLD BADGE

REPLACEMENT EXPOSURE FOR LOST TLD BADGE

Date: _____ I.D. Badge No.: _____

Name: _____ TLD No.: _____

Sec. Sec. No.: _____

TLD Badge Was: Lost () Damaged () *Other ()

* If "Other" Explain: _____

First Day of Current TLD Period: _____ TLD Last Worn: _____

DOSE ASSESSMENT

Did Individual enter a radiation area today? Yes () No ()

If "No" complete items 1, 2 and 9; If "Yes" complete all items.

1. Sum of Dosimeter readings recorded during period: _____ mR

2. Source of above Dose Data: HNP-8004, Form 2: _____

DDPRNT: _____ DOUDAT: _____ COMPUTER _____

3. What Radiation areas did the individual enter today?

4. How long was the individual in each area? _____

5. What were the Dose Rates in these areas? _____

6. What RVP No. was the individual working under? _____

7. What exposures were received by others in the area?

Name: _____ Dose: _____ Time in area: _____

Name: _____ Dose: _____ Time in area: _____

8. Based on the above information, what is the individual's estimated exposure for today? _____ mR.

Employee

H.P. Representative

HNP-8004 R14
FORM 4

Reference Only

manual set

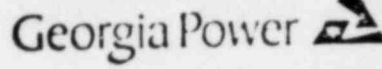
APPROVAL

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DATE

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E. I. Hatch Nuclear Plant



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FORM 5

EXTREMITY BADGE ISSUE LOG

EXTREMITY BADGE ISSUE LOG

MONTH:		YEAR:				
INVEST. FILE#	T.O. #	ORIG. #	DATE OF ISSUE	REMARKS	WHERE WORN	ISSUED BY

* Location of where Dosimetry was worn

- L.H. denotes Left Hand
- R.H. denotes Right Hand
- L.F.A. denotes Left Forearm
- R.F.A. denotes Right Forearm
- L.F. denotes Left Foot
- R.F. denotes Right Foot
- L.A. denotes Left Ankle
- R.A. denotes Right Ankle

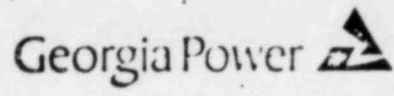
HNP-8004 R14
Form 5

Reference Only

manual set

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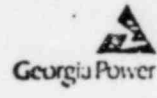
PROCEDURE NO
HNP- 8004
REVISION NO
14
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FORM 6

REQUEST FOR PREVIOUS RADIATION EXPOSURE

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



Edwin S. Hatch Nuclear Plant

DATE: _____

Subject: Radiation Exposure Record

Gentlemen:

The following individual has indicated that he received radiation exposure while working for your organization. We would appreciate receiving copies of your exposure records for this employee.

Name of Employee _____ SS/No _____

Dates: _____ (From) _____ (To)

Very truly yours,

Laboratory Foreman

I hereby authorize the release of the above information.

(Signature of Employee)

(Date)

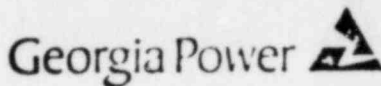
HNP-8004 R14
Form 6

Reference Only

manual set

APPROVAL
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DATE
See Title Page

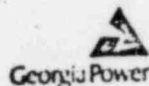
E. I. Hatch Nuclear Plant



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FORM 7

Georgia Power Company
 Post Office Box 522
 Albany, Georgia 31703
 Telephone 912 307-7781
 912 537-9444



Edwin I. Hatch Nuclear Plant

NAME: _____ DATE: _____
 ADDRESS: _____ SS/NO: _____
 SUBJECT: RADIATION EXPOSURE REPORT DATE OF BIRTH: _____
 DEAR SIR:

PLEASE BE ADVISED THAT WHILE EMPLOYED OR VISITING AT THE EDWIN I. HATCH NUCLEAR PLANT DURING THE FOLLOWING WORK PERIOD(S), YOU RECEIVED THE FOLLOWING EXPOSURE TO IONIZING RADIATION.

DATES MONITORED		RECORDED EXPOSURE (REM)*		
FROM	TO	WHOLE BODY	SKIN	EXTREMITIES

* EXPOSURE DETERMINED BY TLD BADGE UNLESS OTHERWISE NOTED

REMARKS _____
 BIO-ASSAY RESULTS: _____

THIS REPORT IS FURNISHED TO YOU UNDER THE PROVISIONS OF THE NUCLEAR REGULATORY COMMISSION REGULATION 10 CFR PART 19. YOU SHOULD PRESERVE THIS REPORT FOR FURTHER REFERENCE.

LABORATORY SUPERVISOR

IC: DIRECTOR, MANAGEMENT AND PROGRAM ANALYSIS
 U.S. NUCLEAR REGULATORY COMMISSION
 WASHINGTON, D.C. 20555

FILE

HNP-8004 814
 Form 7

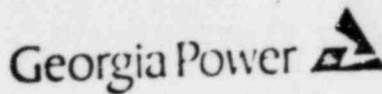
Reference Only

manual set

E. I. Hatch Nuclear Plant

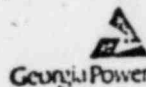
PROCEDURE NO	HNP- 8004
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FORM 8

Georgia Power Company
Post Office Box 474
Savannah, Georgia 31513
Telephone 912 367-7761
912 537-9444



E. I. Hatch Nuclear Plant

Eberline Instrument Corporation
P. O. Box 2108
Santa Fe, New Mexico 87501

Attention: Dosimetry Services

Gentlemen:

The Georgia Power Company Plant E. I. Hatch TLD Occupational Radiation Exposure Report does (or will) not reflect exposure received by the following person for the indicated period because of lost or damaged TLD badge.

Based on plant exposure records, we estimate the individual's exposure to be:

TLD NO	NAME	S.S. NO.	DATES COVERED	EST. EXPOSURE (REM)		
				W.B.	Skin	Ext
			From:			
			To:			

Please adjust this individual's record to reflect the above estimated exposure.

Yours truly,

Health Physics

cc: Individual's File

HNP-8004 R14
Form A

Reference Only

manual set

APPROVAL

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E. I. Hatch Nuclear Plant

Georgia Power

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REVISION NO

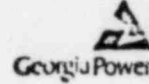
14

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FORM 9

Georgia Power Company
Post Office Box 473
Savley, Georgia 31512
Telephone 812 337-7781
812 537-9444



E. I. Hatch Nuclear Plant

SUBJECT: RADIATION EXPOSURE REPORT

DEAR SIR,

ATTACHED IS A COPY OF THE EXPOSURE REPORT FURNISHED (NAME) _____
(SSAN) _____ UPON TERMINATION OF VISIT OR EMPLOYMENT AT
PLANT HATCH.

ALL EXPOSURE IS DETERMINED BY TLD BADGE UNLESS OTHERWISE NOTED ON ATTACHED.

THIS REPORT IS FURNISHED TO YOU UNDER THE PROVISIONS OF 10 CFR 19.13.

sciFile

LABORATORY FOREMAN

HNP-8004 R14
Form 9

Reference Only

manual set

APPROVAL

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FORM 10

DOSE DISCREPANCY INVESTIGATION

DOSE DISCREPANCY INVESTIGATION

Period of Exposure _____ to _____

Reported TLD Dose _____ mr

Recorded Dosimeter Dose _____ mr

INVESTIGATION FINDINGS:*

Investigating Technician(s) _____

Record Exposure Accepted _____ mr

Individual's Supv. notified _____

Lab Foreman Review/Date approval _____

Exposure entered into computer by: _____
Name/Date

Eberline notified via Form 8 _____
Name/Date

* Investigation may include the following:

- a. Survey Results
- b. Exposure Time
- c. Cases of other performing similar work.
- d. Location of devices worn on the body.
- e. Type of Dosimeter, High Range or Low Range.
- f. RWP totals.

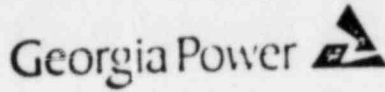
HNP-8004 R14
FORM 10

Reference Only

manual set

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FORM 11

NEUTRON DOSE ESTIMATES

NEUTRON DOSE ESTIMATES

DATE	SUP NO.	CAPPA DOSE RATE	NEUTRON DOSE RATE	NAME	TLD NO. 1 TO NO.	CAPPA DOSE RECEIVED	N-TD-R RATIO	NEUTRON DOSE REC'D	TOTAL DOSE REC'D	DOLOAT

HNP-8004 R14
FORM 11

Reference Only
manual set

GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Pocket Dosimeter Operation and Calibration
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	<i>W.A. Rogers</i>	<i>Wayne Pitt</i>	9/21/82
5	Pages 3, 4, 7 & 9	<i>W.A. Rogers</i>	<i>C. Jones for HCN</i>	10/23/82

Reference Only

HNP-9

manual set

719.
PROCEDURE REVISION REQUEST

Rec'd by
10-15-82

PROCEDURE NO. HNP- 8108

Revision No. 54

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
FREDERICK W ROSSER	10/13/82	W H PUGEN	10-13-82

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

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

Safety Related (/) Non-Safety Related (/) *with*

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

Attach marked up copy of procedure to this form.

REASON FOR REQUEST TO INCREASE ACCEPTABLE RANGE OF

READINGS OF POCKET DOSIMETERS TO A MORE APPROPRIATE
LEVEL AND TO SIMPLIFY DATA SHEET NUMBER 1

page 6, 2, b & l - Change 10% to 15% *

page 7 (Data Sheet 1) Delete Date and Time columns and
add Date and Time lines at bottom

pg 9 - Add acceptance value to data sheet

* Change acceptable range to be within -10% + 15%

pg 9

PRB RECOMMENDS APPROVAL: (/) Yes () No

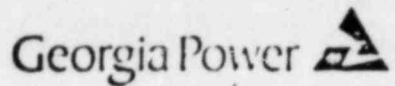
Steve Linn
PRB Secretary

92-197
PRB Number

10/11/82
Date
Reference Only

HNP-3

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PROCEDURE NO
HNP- 8108
REVISION NO
5
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POCKET DOSIMETER OPERATION AND CALIBRATION

A. PURPOSE

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

B. SAFETY

Observe radiation protection procedures.

C. REFERENCE

ANSI N13.5-1972

D. TEST EQUIPMENT

1. Dosimeter Calibration Board
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 relatively expensive.

1. Check that the dosimeter is not visibly damaged.

Reference Only

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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 using the knob on the charger.
- c. Remove dosimeter and check its zero by reading the scale with the dosimeter in a horizontal or slightly above horizontal position.

NOTE

It is not absolutely essential that the dosimeter read exactly zero, since the initial reading will be logged and subtracted from any final reading. The hairline must not be less than zero, however, and should be within 5% of the fullscale reading (0-10 mR for 200 mR dosimeters).

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 horizontally or slightly above horizontal.

4. Reading of dosimeter for dose.

Read the dosimeter as in step 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.

Reference Only

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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 between "0" and 1/4 fullscale. 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 24 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 rate of charge-leakage per 24 hours and enter the value on the data sheet.
- f. If the charge-leakage per 24 hours exceeds 2% of the fullscale reading, tag the dosimeter as being leaky, and mark the tag with the leakage rate, date of test and initials of tester.
- g. REPEAT STEPS a - f a second time. If the dosimeter does not meet the 2% criteria the second time, it is to be disposed of.

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.
- c. Adjust the hairline as in step G.1.a and log the reading in the Reading Before Exposure column.
- d. Place the dosimeter(s) in the Dosimeter Exposure Board.
- e. Determine the time required for an exposure of about three fourths the fullscale reading. Record in the appropriate column on Data Package 2 (Data Sheet 2).

Reference Only

manual set

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- f. Place a gamma source in the center of the board and start the timer.
- g. Read the dosimeter(s) and record in the Reading After Exposure column.
- i. Determine the net exposure.
- j. Determine the efficiency by dividing the net exposure by the calculated exposure.
- k. The dosimeter indication should be within -10%, +15% of the calculated exposure. If it is not, it is probably defective. Perform another complete exposure on the dosimeter.
- l. If the dosimeter does not meet the -10%, +15% 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.

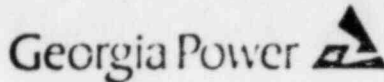
H. CARE AND MAINTENANCE OF INSTRUMENT

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

Reference Only
manual set

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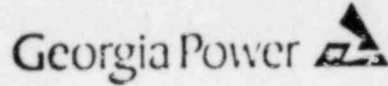


- e. Decontaminate and clean dosimeters as necessary by removing the clip and washing both the barrel and clip with soap and water. Observe applicable radiological safety practices and rules. Exercise care, particularly with the charging end of the dosimeter.
- f. Immediately replace dosimeters when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

Reference Manual set

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PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8108-1

SERIAL NO: ROS-

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: _____

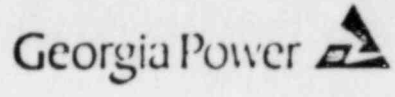
APPROVAL

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E. I. Hatch Nuclear Plant



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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

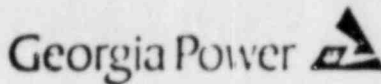
* - PUT DOSE UNITS IN () FIRST READING DATE _____ TIME _____
SECOND READING DATE _____ TIME _____

FIGURE 1
Page 2 of 2

Reference Only
manual set

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PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8108-2

SERIAL NO: ROS-

RPL NO: _____

RTYPE: G15.1A

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: _____

Reference Only

manual set

