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PSEG NUCLEAR
ONSITE IMPLEMENTING PROCEDURES
March 19, 2002

CHANGE PAGES FOR
REVISION #22

The Table of Contents forms a general guide to the current revision of each section of the Onsite EPEPs. The changes that are made in this TOC Revision #22 are shown below. Please check that your revision packet is complete and remove the outdated material listed below:

ADD			REMOVE		
Page	Description	Rev.	Page	Description	Rev.
ALL	TOC	22	ALL	TOC	21
NC.EP-EP.ZZ-0304		05	NC.EP-EP.ZZ-0304		04

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EMERGENCY PLAN ONSITE IMPLEMENTING PROCEDURES
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STATION PROCEDURES

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PSEG NUCLEAR LLC

NC.EP-EP.ZZ-0304 (Q) Rev. 05

OPERATIONAL SUPPORT CENTER (OSC) RADIATION PROTECTION RESPONSE

USE CATEGORY: II

PSE&G CONTROL COPY # EDIP059

REVISION SUMMARY:

1. This revision satisfies the requirement for a biennial review.
2. Added clarification to the instructions in Attachment 1 (Steps 1.1 and 1.2) by identifying the primary phone number is a DID phone number and the backup phone number is a NETS number.

IMPLEMENTATION REQUIREMENTS

Implementation Date: 3/19/2002

APPROVED: Raymond Pierce (R. Pierce) for D. Burgin — Emergency Preparedness Manager — 03/15/2002 Date

APPROVED: N/A — Vice President – Operations — N/A Date

OPERATIONAL SUPPORT CENTER (OSC) RADIATION PROTECTION RESPONSE

TABLE OF CONTENTS

1.0 PURPOSE

- To outline and describe the duties Radiological Protection Supervisor – Exposure Control (RPS-EXP).
- To provide guidance to emergency response personnel for administration of Radiation Protection Team Response for the Operational Support Center (OSC) during an emergency at Hope Creek or Salem Nuclear Generating Station.

2.0 PREREQUISITES

2.1 Prerequisites To Be Followed Prior To Implementing This Procedure.

Implement this procedure at:

- The OS' discretion.
- The manning of the OSC.
- The declaration of an Alert.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Precautions and Limitations To Be Followed Prior To Implementing This Procedure.

3.1.1 **SALEM ONLY**

Dose Rates in the 78' Electrical Penetration Area could be higher than what is indicated on the R47 ARM. The R47 ARM is located across the room from the PASS lines. **CAUTION** should be exercised when entering this area.

3.1.2 It is recommended that initials be used in the place-keeping sign-off, instead of checkmarks, if more than one person may implement this procedure.

3.1.3 Personnel who implement this procedure shall be trained and qualified in accordance with (IAW) the Emergency Plan.

4.0 EQUIPMENT REQUIRED

As provided In the Emergency Response Facility.

5.0 PROCEDURE

5.1 The Radiation Protection Supervisor – Exposure Control Should Perform The Following:

5.1.1 DIRECT habitability to be performed every 30 minutes and the results logged on Form 2, Habitability Log. _____

5.1.2 COMPARE habitability results to Attachment 4, Onsite Protective Action Guidelines, and perform appropriate actions. _____

5.1.3 OBTAIN current status of the emergency from the OSCC. _____

NOTE

- An individual's yearly dose limit is to be automatically raised to 4500 mrem upon the declaration of an Alert or higher classification. The dose extension to 4500 mrem may be entered into the PRORAD system, but is not required.
- An authorization needs to be placed into the system before a person's dose can be raised to 4500 mrem in PRORAD. Refer to Attachment 1 for instructions on how to accomplish this task and return a person's dose limit to normal upon the termination of an Emergency.
- No dose extension shall be allowed, if a person does not have a completed NRC Form 4 on record. The person's dose limit will be 400 mrem.

5.1.4 IF persons in the OSC do not have a TLD,
THEN ensure one is issue and log it on Form 1, TLD Log. _____

NOTE

Dose Tracking may be performed using the PRORAD System instead of Attachment 1, Individual Radiation Exposure Record, if PRORAD is operational

5.1.5 ENSURE 1.0 of Attachment 1 is completed for the onsite emergency response personnel assigned to the OSC and Control Point. _____

5.1.6 ENSURE control of Attachment 1 is maintained in order to expedite and provide a tracking mechanism for OSC/CP personnel activities and exposures. _____

5.1.7 NOTIFY the OSCC prior to any CP teams being sent out into the plant and ensure they are tracked on the OSC Team Status Board. _____

NOTE

An individual, in lieu of a team, may be dispatched by the OSCC. The individual should be in contact with the Control Point or OSC via some type of audio communications (page, radio, or telephone) and should check-in every 15 to 30 minutes with the OSC or Control Point.
An individual should not be dispatched under the following circumstances:

- An individual's exposure is expected to exceed 1000 mrem External Dose Equivalent (EDE).
- The task would require entry into a "Harsh Environment Area", (i.e., steam atmosphere, a heat stress area, etc.).
- Acts of sabotage or suspected sabotage.

5.1.8 DIRECT all OSC and CP teams to be made up of at least two people, unless a task meets the criteria from the note above for dispatching an individual. _____

5.1.9 IF travel path dose rates, or dose rates at destination are ≥1000 mR/hr EDE,
THEN **COMPLETE Attachment 2, ALARA Analysis Form.** _____

5.1.10 IF travel path dose rates, or dose rates at destinations are ≤1000 mR/hr EDE,
THEN **Attachment 2 does NOT have to be completed.** _____

5.1.11 PROVIDE job status information to the Radiological Assessment Coordinator (RAC) concerning completed and ongoing jobs. _____

NOTE

- Radiological briefings of teams should take place during pre-job briefing. Two separate briefings (pre-job and radiological) is not the proper method of performing OSC briefings, in the majority of cases. No duplicate radiological briefings should take place at the Control Point prior to the OSC team entering the Radiological Control Area (RCA).
- Pre-job briefings should try to meet a goal of not going longer than 20 minutes. Circumstances may arise that make meeting this goal impossible, but the 20 minute target should tried to be met.

5.1.12 BRIEF all team members on appropriate radiological conditions. _____

5.1.13 DEBRIEF all teams and ensure 2.0 of Attachment 1 is completed. _____

5.1.14 OBTAIN plant status updates from the OSCC. _____

5.1.15 OBTAIN current RMS status from the most appropriate location listed below:

(HOPE CREEK ONLY)

- the VAX LA120 utilizing Attachment 5, Operation of the VAX LA120. _____
- Control Point personnel. _____
- TSC Radiological Assessment personnel. _____

(SALEM ONLY)

- Shift Radiation Protection Technician (SRPT) _____
- TSC Radiological Assessment personnel. _____

NOTE

Noble Gas Technical Specification Radiological Release Limits are:

- Hope Creek = 1.20E+04 uCi/Second
- Salem = 2.42E+05 uCi/Second

5.1.16 ESTABLISH contamination controls (no eating, no drinking, no smoking, proper postings, setting up step off pads and friskers) when any of the following have occurred. _____

- A radiological release ≥ Noble Gas technical specification limits is in progress. _____
- The potential of a radiological release ≥ Noble Gas technical specification limit is in progress. _____
- Normal RCA boundaries have been breached. _____
- At the RAC's discretion. _____

5.1.17 NOTIFY the RAC or SRPT of the changing conditions as determined from step 5.1.16. _____

NOTE

It is part of the RAC's responsibilities to establish best routes and ways in and out of the Owner Controlled Area if step 5.1.17 has been implemented.

HOPE CREEK ONLY

Movements of teams outside the Emergency Response facilities (ERFs) and Power Block should be coordinated with the RAC.

SALEM ONLY

Movements of teams outside the ERFs and Turbine Buildings, Auxiliary Buildings, Containments, Diesel Buildings, and the Main Guard House should be coordinated with the RAC.

5.1.18 COORDINATE with the OSCC and the RAC, transportation of injured person(s) or person(s) receiving exposures of 5 rem acute EDE dose, or greater to appropriate medical facilities. _____

5.2 **Perform The Following Steps If Emergency Exposure Is Required**:

NOTE

- Voluntary consent, pre-job briefings, and EDO authorization for Life Saving Tasks, that require Emergency Exposure, should done verbally prior to, or during, the OSC Team being dispatched.
- Attachment 3 should be completed as soon as possible, after the return of the OSC Life Saving Team's return.
- Attachment 3 contains instructions for making Emergency Exposure Authorizations and filling out necessary documentation.

5.2.1 IMPLEMENT Attachment 3, Selection and Authorization for Emergency Exposures. _____

6.0 **RECORDS**

Return completed procedure, original copies of Attachments to the Emergency Preparedness Manager.

7.0 REFERENCES

7.1 References

7.1.1 EPA 400-R-92-001: October 1991
7.1.2 Roger E. Linneman, M.D., Correspondence Dated November 24, 1993
7.1.3 10CFR20, Standards for Protection against Radiation, December 31, 1992.
7.1.4 Nuclear Business Unit Emergency Plan

7.2 Cross References

7.2.1 NC.EP-EP.ZZ-0302(Q), Radiological Assessment Coordinator Response

7.2.2 NC.EP-EP.ZZ-0301(Q), Shift Radiation Protection Response

7.3 Closing Documents

Closing Document-027Z (CD-027Z) NRC Inspection Item 354/85-44-01

ATTACHMENT 1

INDIVIDUAL RADIATION EXPOSURE RECORD

DATE/TIME: ___ - ___ - ___ / ___:___

1.0 **INDIVIDUAL INFORMATION**

Name: _____ Badge Number: _____

> **NOTE**
>
> Dose tracking may be performed using the PRORAD system, if PRORAD is operational, instead of this attachment.

1.1 REQUEST the RAC for permission to contact the Nuclear IT Network Operations to execute the SQL script titled **"Emergency Exposure Limits – Increase"** to raise Emergency Responder's dose limits to 4500 mRem in PRORAD.

NUCLEAR "IT" NETWORK OPERATIONS PHONE NUMBERS

- PRIMARY PHONE NUMBER: DID x7008 [Located At Nuclear Administration Building (TB 2)]
- SECONDARY PHONE NUMBER: NETS x5009 (Located at EOF).

1.2 REQUEST the RAC for permission to contact the Nuclear IT Network Operations person to execute the SQL script titled **"Emergency Exposure Limits – Normal"** to return Emergency Responder's dose limits to normal in PRORAD upon termination of the emergency.

NUCLEAR "IT" NETWORK OPERATIONS PHONE NUMBERS

- PRIMARY PHONE NUMBER: DID x7008 [Located At Nuclear Administration Building (TB 2)]
- SECONDARY PHONE NUMBER: NETS x5009 (Located at EOF).

2.0 OBTAIN the following information and fill in the appropriate blanks if PRORAD is not being used.

2.1 NAME: _____ BADGE NUMBER: _____

2.2 CURRENT YEARLY DOSE: _____ (mRem)

ATTACHMENT 1
PAGE 2 OF 2

2.3 **Job Specific Information**

Team Number	Dose Rec'd (mRem)	Yr. Remaining Dose (mRem)*	Initial When Entered into PRORAD

*Year Remaining Dose (mRem) = [(4500 mRem – Current Year Dose) – Dose Received]

ATTACHMENT 2

ALARA ANALYSIS FORM

NOTE
Planned exposure to an individual that is projected to result in dose to an individual ≥ 4500 mrem(EDE) in this calendar year requires emergency exposure authorization and should meet the criteria of accident mitigation or life saving tasks as outlined in Attachment 3.

1.0 **Projected Dose Analysis:**

1.1 Entry Route: _____

_____

1.1.1 Time Required to reach job site:_____ (hours)

1.1.2 Dose Rate(s) in areas that need to be traversed:_____ (rem/hr)

1.1.3 Calculated Dose (indiviual dose):_____ (rem)
(1.1.1 * 1.1.2 = 1.1.3)

1.2 Tasks to be Performed:_____

_____

1.2.1 Time required to perform job:_____ (hours)

1.2.2 Dose rate in job areas: _____ (rem/hr)

1.2.3 Calculated Dose (individual dose): _____ (rem)
(1.2.1 * 1.2.2 = 1.2.3)

1.3 Exit Routes: _____

_____

1.3.1 Time Required to exit area:_____(hours)

1.3.2 Dose Rate(s) in areas that need to be traversed: _____ (rem/hr)

1.3.3 Calculated Dose (individual dose):_____ (rem)
(1.3.1 * 1.3.2 = 1.3.3)

1.4 Total Individual External Dose Equivalent:_____ (rem)
[(1.1.3 + 1.2.3 + 1.3.3 = 1.4) Total Individual EDE]

ATTACHMENT 2 (cont)
Page 2 of 2

2.0 Team Briefing

2.1 Information Covered During Briefing:_____

_____

_____

_____

_____

_____

_____

_____

2.2 Personnel Attending Briefing:

Name	Signature	Badge #	Name	Signature	Badge #

ATTACHMENT 3

SELECTION AND AUTHORIZATION FOR EMERGENCY EXPOSURES

1.0 Effects Of Exposure To Radiation on the Human Body

1.1 The Following Information Is Based on ACUTE EDE Exposure to Radiation.

RANGE	0 to 100 (rem)	100 to 200 (rem)	200 to 600 (rem)	600 to 1000 (rem)	1000 to 5000 (rem)	1000 to 5000 (rem)
Vomiting	None	5 to 50%	> 300 rem 100%	100%	100%	100%
Delay Time	----------	3 hr.	2 hr.	1 hr.	30 minutes	
Leading Organ	None	Bone Marrow			GI Tract	Central Nervous Ststem
Character-istic Signs	None	Moderate leukopenia	Severe leukopenia, hemorrhage, infection, purpura, epilation at > 300 rem		Diarrhea, fever, electrolyte loss	Convulsions tremor, ataxia
Therapy	Reassur-ance	Blood Monitoring	Blood Transfusion Antibiotics	Marrow transplant? Growth factors?	Maintain electrolytes	Sedatives
Prognosis	Excellent	Excellent	Good	Guarded	Grave to Hopeless	
Incidence of Death	None	None	0 to 80%	80% to 90%	90 to 100%	

Leukopenia – drop in leukocyte (white blood cell) count.

Purpura – formation of small splotchy red or purple spots on the skin caused by rupture of a capillary with leakage of a small amount of blood under the skin layers.

Epilation – loss of hair. Will generally grow back within a month.

Ataxia – loss of muscular coordination.

2.0 GENERAL INFORMATION

- Voluntary consent, pre-job briefings, and EDO authorization for Life Saving Tasks, that require Emergency Exposure, should done verbally prior to, or during, the OSC Team being dispatched.

- This attachment (Attachment 3) should be completed as soon as possible, after the return of the OSC Life Saving Team's return.

- Emergency exposure should only be authorized by the Emergency Duty Officer (EDO) and cannot be delegated. The OS has this responsibility until the EDO assumes his responsibilities.
- Emergency exposure authorization may be done via telephone.
- Emergency exposure should be voluntary.
- Individual who do volunteer should:
  - Have attended and passed Radiation Worker Training
  - Be above age 45 if available and physically qualified for the task
  - Not have previously received Emergency exposure.
- Emergency exposures received should be added to the individual's current occupational radiation exposure history.
- An individual's exposure is not considered to be an Emergency exposure if his/her total exposure for the year is 4.5 rem or less upon finishing an accident mitigation or life saving task and may still volunteer to receive Emergency exposure.
- Declared pregnant women **SHALL NOT** be allowed to volunteer for Emergency exposure.

3.0 EXPOSURE CRITERIA LIFE SAVING EMERGENCY

- Any and all actions necessary to preserve life, including, but not limited to:
  - Removal of injured personnel
  - Providing medical treatment/first aid
  - Providing ambulance service to injured personnel
- Planned Emergency Exposure Limit (PEEL) for life saving is 75 rem EDE.

4.0 ACCIDENT MITIGATION EMERGENCY EXPOSURE CRITERIA

- Any and all actions necessary to mitigate an accident, including, but not limited to:
  - Performance of actions to prevent immediate deterioration of the plant status.

ATTACHMENT 3

Page 3 of 5

- Performance of actions to cause significant reduction of onsite or offsite radiological hazards.

- Planned Emergency Exposure Limit (PEEL) for accident mitigation is 25 rem EDE.

5.0 TEAM BRIEFING

Information Covered During Briefing: _____

ATTACHMENT 3

6.0 VOLUNTARY CONSENT

I, the under signed, volunteer for Emergency Exposure:

PEEL (REM)	NAME	SIGNATURE	BADGE #

7.0 EMERGENCY EXPOSURE AUTHORIZATION

I hereby authorize the planned Emergency Exposure(s) for the individual(s) listed in Section 6 of (Voluntary Consent) of this Attachment.

Emergency Exposure Authorized by: (EDO) _____

DATE/TIME: _____ - _____ - _____ / _____: _____

ATTACHMENT 3

Page 5 of 5

8.0 **ACTUAL EDE DOSE RECEIVED**

Badge #	Name (Print)	Current Yr. Dose (REM)	Dose Received (REM)	Total Dose (REM)

Initial when entered into PRORAD: _____ DATE/TIME: ___-___-___/___:___

ATTACHMENT 4
Page 1 of 1
ONSITE PROTECTIVE ACTION GUIDELINES

1.0 RADIATION LEVELS

Dose Rate (mR/hr)	Location	Action
≥ 100	Onsite	Evacuation of all nonessential personnel. Consider evacuation of other personnel.

Dose Rate (mR/hr)	Location	Action
≥ 100	Control Room OSC TSC Control Point	Consider evacuation within one hour, and/or relocation as appropriate.

Dose Rate (mR/hr)	Location	Action
≥ 1000	Onsite	Evacuation of all nonessential personnel Consider immediate evacuation of remaining personnel.

Dose Rate (mR/hr)	Location	Action
≥ 1000	Control Room OSC TSC Control Point	Consider immediate evacuation, and/or relocation upwind of the plume.

2.0 RADIOIODINE

If the Iodine-131 equivalent is calculated or measured in concentrations greater than or equal to 5.0E-7 uCi/cc, consider the use of Potassium Iodide for thyroid blocking. This section is to be applied to areas, in which personnel are working or are planning to work. Refer to NC EP-EP.ZZ-0305(Q), Potassium Iodine (KI) Administration, for additional information.

ATTACHMENT 5

Page 1 of 3

OPERATION OF THE VAX LA120 TERMINAL

1.0 METEOROLOGICAL DATA

1.1 Perform The Following to Obtain Current 15 Minute Average Meteorological Data:

1.1.1 DEPRESS the RETURN key. (USERNAME should be displayed). _____

1.1.2 ENTER MET and depress the RETURN key _____

1.1.3 ENTER MET and depress the RETURN key. _____

NOTE

The most current meteorological data should be printed out followed by the Main Meteorological Menu. If no other keys are depressed, the current 15 minute average data will be printed out every 15 minutes

1.1.4 ENTER Option 3 (Disable Automatic Display of MET Data Every 15 minutes) and depress the RETURN key to stop the VAX LA120 from printing out meteorological data every 15 minutes. _____

1.1.5 ENTER Option 1 (Display Current Meteorological Data) and depress the RETURN key to receive the current 15 meteorological data print out. _____

1.1.6 ENTER Option 1 (Display Current Meteorological Data) and depress the RETURN key to receive the current 15 meteorological data print out. _____

1.2 Perform The Following Steps to Obtain Archived Meteorological Data:

1.2.1 DEPRESS the RETURN key. (USERNAME should be displayed) _____

1.2.2 ENTER MET and depress the RETURN key. (The most current meteorological data should be printed out followed by the Main Meteorological Menu). _____

ATTACHMENT 5

1.2.3 ENTER Option 2 (Display Meteorological Data From Data Base) and depress the RETURN key. (Current system Date and Time will be displayed). _____

1.2.4 IF this is the data you want, THEN depress the RETURN key. (Your option will be printed out). _____

1.2.5 IF you want data from an another date and time, THEN go to Step 1.2.6. _____

1.2.6 ENTER start date and time as shown below and depress the RETURN key. (For December 27, 1989 at 0130 enter 27-DEC-1989 "depress the space bar once" and enter 01:30). _____

1.2.7 ENTER "Y" if the information is correct or "N" if the information is not correct and reenter it as shown in Step 1.2.6. _____

1.2.8 ENTER the end date and time as shown below and depress the RETURN key. (For December 28, 1989 at 0230 enter 28-DEC-1989 "depress the space bar once" and enter 02:30). _____

1.2.9 ENTER "Y" if the information is correct or "N" if the information is not correct and re-enter it as shown in Step 2.1.8. _____

2.0 RMS AND MET DATA (FOR HOPE CREEK ONLY)

2.1 Perform The Following Steps To Obtain Current Instantaneous RMS And MET Data:

2.1.1 DEPRESS the RETURN key. (USERNAME should be displayed). _____

2.1.2 ENTER EOF and depress the RETURN key. (A prompt should be displayed asking for PASSWORD). _____

2.1.3 ENTER EOFUSER and depress the RETURN key. (The EOF Plant Menu should be displayed.) _____

2.1.4 SELECT Option 1 for Hope Creek. _____

2.1.5 DEPRESS the RETURN key. (The EOF Report Options Menu will be displayed). _____

ATTACHMENT 5

2.1.6 ENTER Option 1 (Current RMS Status) and depress the RETURN key. (The most current instantaneous RMS and 15 minute MET data will be printed out.) _____

2.2 **Perform The Following Steps To Obtain 15 Minute Average RMS Data:**

2.2.1 DEPRESS the RETURN key. (USERNAME should be displayed). _____

2.2.2 ENTER EOF and depress the RETURN key. (A prompt should be displayed asking for PASSWORD). _____

2.2.3 ENTER EOFUSER and depress the RETURN key. (The EOF Plant Menu should be displayed). _____

2.2.4 SELECT option 1 for Hope Creek. _____

2.2.5 DEPRESS the RETURN key. (The EOF Report Options Menu should be displayed). _____

2.2.6 SELECT and enter option number 6 (15 Minute Historical Data). (Current system date and time should be displayed. A prompt should be displayed for start date and time) _____

2.2.7 DEPRESS the RETURN key for 15 minute average RMS and MET data. (Your selection will be printed). _____

FORM - 1

TLD LOG

Name_____

Date _____ TLD Number _____ Badge Number _____

To the best of my knowledge, my current annually exposure is _____mrem.

Signature_____

Date_____

****

Name_____

Date _____ TLD Number _____ Badge Number _____

To the best of my knowledge, my current annually exposure is _____mrem.

Signature_____

Date_____

****

Name_____

Date _____ TLD Number _____ Badge Number _____

To the best of my knowledge, my current annually exposure is _____mrem.

Signature_____

Date_____

****

FORM - 2

Page 1 of 1

HABITABILITY LOG

DATE: ____/____/____

TIME	LOCATION	DOSE RATE (mR/hr)	CONTAMINATION (CPM)	INITIALS

IF other means are used to ensure habitability, THEN list: _____

_____

_____