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245 - 245 - DOSE ASSESSMENT SUPERVISOR

REMOVE MANUAL TABLE OF CONTENTS DATE: 06/24/2003

ADD MANUAL TABLE OF CONTENTS DATE: 06/26/2003

CATEGORY: PROCEDURES TYPE: EP
ID: EP-PS-245
REMOVE: REV:4

ADD: REV: 5

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A045

PROCEDURE COVER SHEET

PPL SUSQUEHANNA, LLC	NUCLEAR DEPARTMENT PROCEDURE	
DOSE ASSESSMENT SUPERVISOR: Emergency-Plan-Position-Specific-Instruction		EP-PS-245 Revision 5 Page 1 of 4

QUALITY CLASSIFICATION:	APPROVAL CLASSIFICATION:
( ) QA Program (X) Non-QA Program	( ) Plant ( ) Non-Plant (X) Instruction

EFFECTIVE DATE: 6-26-2003

PERIODIC REVIEW FREQUENCY: Two Years

PERIODIC REVIEW DUE DATE: 6-26-2005

RECOMMENDED REVIEWS:
All

Procedure Owner: Nuclear Emergency Planning

Responsible Supervisor: Primary Dose Assessment Supervisor

Responsible FUM: Supervisor-Nuclear Emergency Planning

Responsible Approver: General Manager-Plant Support

CONTROLLED

DOSE ASSESSMENT SUPERVISOR: Emergency-Plan-Position-Specific Instruction

WHEN: EOF is activated

HOW NOTIFIED: Paged/telephone

REPORT TO: Recovery manager

WHERE TO REPORT: Emergency Operations Facility

OVERALL DUTY:

Manage radiological functions in the EOF, which includes providing radiological component of protective action recommendations to the Recovery Manager.

MAJOR TASKS:	TAB:	REVISION:
Obtain, then keep current, information you will need to manage the radiological functions in the EOF.	TAB A	3
Recommend changes to the emergency classification to the Recovery Manager, if needed.	TAB B	1
Recommend public protective actions to the Recovery Manager.	TAB C	3
Manage assessing and communicating radiological information from the EOF.	TAB D	4
Recommend protective actions for PPL emergency personnel to the Recovery Manager.	TAB E	3
Provide direction for field monitoring strategy.	TAB F	1
Support termination activities.	TAB G	0
Assist re-entry/recovery efforts.	TAB H	0
Make sure information and functions that are in progress during shift relief are turned over smoothly.	TAB I	1
Determine if there is a non-routine Radiological Release in Progress.	TAB J	0

SUPPORTING INFORMATION:	TAB:
EOF Dose Assessment Flowchart	TAB 1
Emergency Classification	TAB 2
Public Protective Action Recommendation Guide	TAB 3
Met/Vent Data Acquisition	TAB 4
Emergency Forms • Shift Takeover Checklist • Protective Action Recommendation Form	TAB 5
Responsibilities of Initial and Augmented EOF Radiological Assessment Staff after Turnover	TAB 6
PPL Emergency Personnel Dose Assessment and Protective Action Recommendation (PAR) Guide	TAB 7

REFERENCES:

EPA Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA 400-R-92-001 May 1992)

FDA Guidance: "Accidental Radioactive Contamination of Human Food and Animal Feed and Recommendations for State and Local Governments." Federal Register, pp 47073-47083, October 22, 1982

ICRP Publication 28, The Principles and General Procedures for Handling Emergency and Accidental Exposures of Workers. International Commission on Radiation Protection. (1978)

IE Notice 83-28

NCRP Report 55, Protection of the Thyroid Gland in the Event of Releases of Radioiodine, National Council Radiation Protection and Measurements. (1977)

NUMARC Graded Response Study

NUREG-0654, Planning Standards and Evaluation Criteria

NUREG-0731, Guidelines for Utility Management Structure and Technical Resources, September 1980

Radiological Assessment Reference Book

Spray Pond Blowdown Water Outlet Flow Rate PLI 50258 (May 8, 1987)

Susquehanna SES Emergency Plan

10 CFR 20 Appendix B

Study of Travel Time and Mixing Characteristics for the Susquehanna River below the Susquehanna SES - SUTRON CORPORATION - November 1985

NDAP-QA-1190, Nuclear Department Radiation Protection Program and Policies

NDAP-QA-1191, ALARA Program and Policy

NEPM-QA-1014, Radiological Environmental Monitoring Program

SSES Emergency Plan

National Interim Primary Drinking Water Regulations, EPA 570/9-76-003 (U.S.) Environmental Protection Agency, Washington, D.C. 1976

Commonwealth of Pennsylvania State Emergency Operations Plan, Appendix 6 to Annex E - BRP Technical Assessments and Protective Actions, September 22, 1988.

EC-ENVR-1047, Protective Action Guides, (PAGs), for the Evaluation of Abnormal, Unusual, or Unplanned Liquid Releases to the Susquehanna River

Guidance - Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies, HHS/FDA, December 2001.

MAJOR TASK:

Obtain, then keep current, information you will need to manage the radiological functions in the Emergency Operations Facility.

SPECIFIC TASKS:	HOW:
1. Read the "Chronology of Events" upon arrival.	
2. Prepare for turnover from TSC.	2b. Confirm staff is ready to assume control of Dose Assessment: (1) Fully staffed (as a minimum, the DASU, DAST and FTD are required for EOF activation) (2) Prepared to perform and evaluate dose calculations (3) Prepared to assume control of field teams. (4) Prepared to assume communications with DEP/BRP.
3. Obtain The radiological history and technical picture of the emergency.	3a. Talk to the Recovery Manager and obtain: (1) Technical picture of conditions at the plant and its prognosis. (2) Target turnover time **NOTE:** **Only steps through 3a are necessary to complete prior to EOF activation.**

SPECIFIC TASKS:	HOW:
	3b. Obtain radiological history from the on-shift Dose Assessment Supervisor, (if applicable), or the Radiation Protection Coordinator, (if TSC still in charge). (1) Who has control of the Rad Function? (TSC or EOF) (2) Open items (3) Type(s) and magnitude(s) of release(s) (4) Status of the emergency (5) Last transmitted PAR Form.
	3c. Consult with members of the Dose Assessment Staff: (1) Brief staff on accident status and current PARs (2) Obtain Shift Takeover Checklist and record: (a) MIDAS information from DAST (b) Field Team and RMS Data from FTD
	HELP **SHIFT TAKEOVER CHECKLIST** **See TAB 5**
4. Contact the Radiation Protection Coordinator and confirm turnover.	4a. Confirm the EOF will assume responsibility for forward calculations.
	4b. Confirm the EOF will assume responsibility for back calculations.

SPECIFIC TASKS:	HOW:
	4c. Confirm the EOF will assume responsibility for study case calculations.
	4d. Confirm the EOF will assume responsibility for OSCAR and any other field team already dispatched.
	4e. Determine time for EOF to assume communications with DEP/BRP.
	4f. Obtain current plant radiological status.
	4g. Obtain current effluent release status.
	4h. Determine status of latest dose calculation.
5. Accept turnover of Dose Assessment responsibilities.	5a. Turnover can be part of the TSC/EOF facility turnover or can be conducted after conference call.
6. Maintain awareness of plant status and prognosis.	6a. Periodically discuss with other managers: (1) EOF Support Supervisor (2) Engineering Support Supervisor (3) Recovery Manager (4) Radiation Protection Coordinator
	HELP **EOF DOSE ASSESSMENT FLOWCHART** **See TAB 1**
	6b. **Periodically meet with the Dose Assessment Staffer and Field Team Director to discuss:** (1) Dose Assessment Summary Sheets (2) Results of Dose Calculations

SPECIFIC TASKS:	HOW:
	(3) Field Team and RMS results, team placement strategy, and radiation protection for teams
	(4) Meteorological observations and forecasts
	(5) Communications obstacles and opportunities
7. Assess reliability of data.	7a. Periodically evaluate data by:
	(1) Reviewing measured/calculated dose rate ratios.
	(2) Determining if low confidence (white) PICSY data exists.
	NOTE: **"White" data is an indication of potentially unreliable data. It may be normal and acceptable due to low or no flow in the effluent vent or may indicate a release exceeding the range of the instrument or an instrumentation/ computer interface problem.**
	NOTE: **White data should be considered as a potential unmonitored release condition unless Engineering or Chemistry data indicates otherwise.**
	(3) Determining if reported Iodine-131 release rates from Chemistry or other analyses seem reasonable. In general, data is suspect if the NG/I-131 release rate ratio is less than 1,000 for a given vent.

SPECIFIC TASKS:	HOW:

(4) Determining if reported particulate release rates from Chemistry or other analyses seem reasonable. In general, date is suspect if the NG/P release rate ratio is less than 10,000 for a given vent.

7b. If low confidence (white) PICSY data exists:

(1) Consult with Engineering to determine if condition is normal (i.e., per design) and if vent totals are valid from the Engineering or Dose Assessment perspective.

(2) If vent totals are considered valid from the measured/calculated ratios (measured to projected dose is within 0.1 to 5 range), use forward calculations with caution. If measured field data is higher than projected values, perform a Back Calculation and use the more conservative results.

7c. If PICSY vent totals are questionable:

(1) Request Engineering promptly pursue corrective actions, obtain Chemistry vent sample data, and/or evaluate need to switch vent monitoring to PAVSS.

(2) Notify RPC and discuss alternate methods to obtain release data (e.g., HP air samples) and/or need to switch to PAVSS.

SPECIFIC TASKS:	HOW:
	(3) Use appropriate alternate data such as grab sample (vent, PAVSS, HP air samples) results, or previously measured or default noble gas to Iodine/particulate ratios in Forward Calculation.
	(4) Ensure field teams are taking air samples as appropriate and consistent with ALARA principles.
	(5) Report conditions as a potential unmonitored or an unmonitored release as appropriate depending on measured to projected dose rate ratios.
	(6) Initiate Back Calculations if field data is available and as appropriate a Default Accident or NUREG 1228 MIDAS Calculation.
8. Provide VALID dose calculations whenever plant conditions indicate a release has occurred.	**NOTE:** **At least one calculation is to be completed if there is indication that a release has occurred. Calculations must be performed every 15 minutes if site total release rates exceed TRM limits.**
	8a. Select an appropriate and valid accident menu.
	(1) Use measured vent data in the Forward calculation MIDAS model whenever possible.
	(2) Initiate Back Calculations if field data is available. Test the validity of field data using the Default Accident or NUREG 1228 MIDAS models.

SPECIFIC TASKS: **HOW:**

CAUTION:
Only VALID calculations are to be used for EAL Classification, Initial PAR Determination or a PAR Upgrade.

A VALID calculation is defined as one that is based on:

1) Current meteorology and expected release duration and

2) Valid vent data, Chemistry vent sample, HP air sample results or approved I-131/Particulate default ratios or

3) Valid in the field radiological measurements or

4) In the absence of valid measured radiological data, a MIDAS Default or NUREG-1228 calculation based on inputs that are judged by Engineering to be consistent with the current conditions in the affected unit.

NOTE:
Study Case Calculations are hypothetical calculations that are based on assumed, unverified plant conditions and leakage rates and meteorology that existed at the time of the calculation.

(3) In the absence of valid measured radiological data, perform a Valid MIDAS Default Accident or NUREG 1228 Calculation. Use results for EAL Classification and PAR determinations only when:

(a) Plant conditions indicate a release is in progress.

(b) Valid vent or field data is not available or will not be available within the allowed 15 minute assessment interval.

(c) The calculation represents current meteorology and expected release duration.

(d) Input parameters are based on current plant conditions that have been validated as appropriate by Engineering

NOTE:
The Default model is the appropriate and preferred model for a filtered release that does not exceed design basis leak rates.

MAJOR TASK:

Manage assessing and communicating radiological information from the EOF.

SPECIFIC TASKS:	HOW:
1. **Instruct** Administrative Assistant to call out additional offsite monitoring teams, and/or Dose Assessment Staff if they are needed.	
2. Communicate with or ensure the Radiation Liaison communicates with PA DEP/BRP.	2a. Approximately every thirty minutes, telephone DEP/BRP and relay information contained in the "Protective Action Recommendation" form. **NOTE:** **PA DEP/BRP representative may request that updates should be provided solely to their representative at the EOF upon their arrival. That practice is acceptable upon verification by telephone with PA DEP/BRP.**
3. Maintain ongoing communication with the Dose Assessment Staffer and Field Team Director regarding calculations and field readings.	3a. Determine status of dose calculations and field surveys. 3b. Provide needed direction to efforts. **NOTE:** **Use of the headsets available to the DAST and DASU may facilitate communications when face-to-face discussions are difficult to arrange.**
4. **Notify** Recovery Manager of significant changes, especially those which would indicate an escalation in the classification or a change to the current public PAR.	4a. Changes to note would include: (1) Release rates or indications of an unmonitored release. (2) Field Team readings. (3) Projected doses or weather. (4) The approaching of any related EALs and PAGs.

SPECIFIC TASKS:	HOW:
	(5) Significant environmental sample analysis results.
5. **Maintain** ongoing communications with the Radiological Liaison and RPC.	
6. Maintain ongoing communications with the Public Information Manager as feasible.	6a. The Public Information Manager may be interested in the information on the "Protective Action Recommendation" form and the "Supplemental Radiological Data Comparison" form.
7. Periodically **update** the Dose Assessment Staffer and Field Team Director.	7a. Include this information when updating: (1) Plant status. (2) What mitigative or protective actions are being considered. (3) Any other information that might affect dose assessment.

MAJOR TASK:

Recommend protective actions for PPL emergency personnel to the Recovery Manager.

SPECIFIC TASKS:	HOW:
1. Ensure that the dose received by field teams is appropriate for their mission.	1a. Make sure team exposures are tracked by the Field Team Director.
	1b. Make sure teams are rotated; new teams called out, etc. to minimize exposure.
	HELP **Emergency Personnel Dose Assessment & Protective Action Recommendation Guide** **See EP-PS-247, TAB 5**
	1c. **Make sure emergency exposure extensions are processed as needed.** **NOTE:** **RWP #8002 applies to Field Monitor activities and RWP #8001 to OSCAR activities. Proposed changes to the RWPs should be discussed with the RPC.**
	1d. Obtain Recovery Manager approval of extensions if necessary.
2. Discuss thyroid exposure control for teams in the field with Dose Assessment Staffer.	2a. If iodine concentrations may result in doses greater than 5 rem/shift Thyroid CDE (1000 mrem/hr or 1200 ncpm on frisker assuming ~ 50% occupancy factor) ensure the Field Team Director has initiated Thyroid CDE tracking and is using effective exposure control measures.

SPECIFIC TASKS:	HOW:
	2b. Make sure teams are rotated, or new teams are called out, etc. to maintain thyroid exposure less than 10 rem if feasible.
	2c. Perform bioassay as needed to determine actual internal exposure.
	2d. For doses potentially exceeding 10 rem, recommend to and obtain approval from the Recovery Manager for the team to use KI tablets.
	2e. Make sure teams are notified of recommendation to use KI and of any precautions regarding interactions with other drugs.
	HELP **PPL Emergency Personnel Dose Assessment and Protective Action Recommendation (PAR) Guide** **See TAB 7**
	2f. Contact Consulting Radiological Physician as appropriate for input regarding the administration of subsequent doses of KI, potential drug interaction and cessation of KI intake.

MAJOR TASK:

Provide direction for field monitoring strategy.

SPECIFIC TASKS:	HOW:
1. Review Field Team Placement strategy with FTD and DAST.	1a. Review with the Field Team Director and Dose Assessment Staffer changes in the emergency that would impact Field Team placement strategy. **HELP** **Field Monitoring Strategy Notes** **See EP-PS-247, TAB 3**
2. Monitor liquid release activities.	2a. **Ensure liquid release samples and calculations are obtained from the TSC Coordinator via fax.** **NOTE:** **Field Team Director is backup for the TSC Coordinator.** 2b. Inform Radiological Liaison of required notifications: (1) Danville Water Authority (2) DEP/BRP
3. Work with Effluents Management, when required, to arrange for assistance with radioactive materials transport.	3a. Assistance may be required onsite, at county decontamination facility, or other mutually agreed upon site.

Determine if there is a non-routine Radiological Release in Progress.

SPECIFIC TASKS:	HOW:
1. Determine if there is a non-routine Radiological release in progress.	1a. There is a release in progress if ANY of the following are true: (1) Any release rates above Technical Specifications or Technical Requirements Manual limits, OR (2) Entry into the Emergency Plan for the listed EALs: • 3 Fuel Clad Degradation • 15 Radiological Effluents • 17 Spent Fuel Related Incident • 18 Steam Line Break, OR (3) Any radiological release to the environment, detected by effluent monitors or environmental monitoring, above normal levels and is attributable to a declared event, OR **NOTE:** **Normal levels are the highest reading in the last 24 hours prior to the emergency, excluding the current peak value.** (4) If the Shift Manager/ED/RM has reason to believe that an Unmonitored release is in progress even though plant indications are otherwise normal, OR (5) Entry into the E Plan under EAL 21 Dry Fuel Storage or EAL 16 Security Event, AND the Dry Storage Cask has been breached.

SPECIFIC TASKS:	HOW:
	(6) Initiation of SBGT System due to Radiological release.
2. If there is a non-routine radiological release in progress, ensure performance of the following actions.	2a. Provide that information to the Recovery Manager and EOF Support Supervisor for facility notification and communication of the information to offsite agencies.
	2b. Direct on-shift dose assessment staff to ensure initiation of dose calculations and field monitoring.