U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: PSEG Nuclear LLC's 30-day Response to Request for Additional Information Regarding Flooding Aspects of Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident

References:


On March 12, 2012, the Nuclear Regulatory Commission (NRC) sent PSEG Nuclear LLC (PSEG) a request for information (Reference 1) pursuant to 10 CFR 50.54(f), associated with Near-Term Task Force (NTTF) Recommendation 2.1 for flooding. In response to Reference 1, PSEG provided flooding hazard reevaluation reports for the Hope Creek Generating Station (HCGS) and Salem Generating Station (SGS), via References 2 and 3, respectively. References 4 and 5 transmitted NRC Requests for Additional Information (RAIs) regarding the flooding hazard reevaluation reports for HCGS and SGS, respectively. Enclosure 1 provides the combined HCGS and SGS response to RAI questions 1 through 4. Consistent with the response schedules in References 4 and 5, PSEG will provide the response to RAI question 5 by September 26, 2014. Enclosure 2 contains the electronic files referenced in Enclosure 1.

In addition to RAI questions 1 through 5, References 4 and 5 request clarification regarding the scope of, and input parameters for, the integrated assessment. The scope of the HCGS integrated assessment, as stated in Reference 2, is to address the Local Intense Precipitation (LIP) event. The scope of the SGS integrated assessment, as stated in Reference 3, is to address the LIP event and storm surge associated effects. Discussion of input parameters will be included in the integrated assessments. Consistent with PSEG’s regulatory commitments in References 2 and 3, PSEG will complete the HCGS and SGS integrated assessments, for transmittal to NRC in March 2016. There are no regulatory commitments contained in this letter.

If you have any questions or require additional information, please do not hesitate to contact Mr. Brian Thomas at 856-339-2022.
I declare under penalty of perjury that the foregoing is true and correct.

Executed on **7/28/2014**

(Date)

Sincerely,

Christopher J. Schwarz
Vice President – Operations Support

Enclosures:

1. Response to RAI Regarding Flooding Hazard Reevaluation – Questions 1, 2, 3, and 4
2. Electronic Files in Response to RAI Questions 1, 2, 3, and 4

cc: Director of Office of Nuclear Reactor Regulation (w/o Enclosure 2)
Administrator, Region I, NRC (w/o Enclosure 2)
Mr. J. Lamb, Project Manager, NRC
NRC Senior Resident Inspector, Hope Creek (w/o Enclosure 2)
NRC Senior Resident Inspector, Salem (w/o Enclosure 2)
Mr. P. Mulligan, Manager IV, NJBNE (w/o Enclosure 2)
Hope Creek Commitment Tracking Coordinator (w/o Enclosure 2)
Salem Commitment Tracking Coordinator (w/o Enclosure 2)
PSEG Corporate Commitment Coordinator (w/o Enclosure 2)
(The bcc list should not be submitted as part of the DCD submittal - remove this page prior to submittal and make the bcc distribution accordingly)

bcc: President and Chief Nuclear Officer
    Senior Vice President and Chief Operating Officer
    Vice President – Hope Creek
    Vice President – Salem
    Vice President, Operations Support
    Director - Nuclear Oversight
    Director - Regulatory Affairs
    Plant Manager – Hope Creek
    Plant Manager – Salem
    Senior Project Manager – Fukushima Site Improvements Project
    Manager - Regulatory Assurance – Hope Creek
    Manager - Regulatory Assurance – Salem
    Manager - Licensing
    Document Control
Enclosure 1

Response to RAI Regarding Flooding Hazard Reevaluation Questions 1, 2, 3, and 4

Hope Creek Generating Station
Salem Generating Station Units 1 and 2
PSEG Nuclear LLC
REQUEST FOR ADDITIONAL INFORMATION

The NRC staff requests that the licensee provide the following figures and files used in the development of the (Hope Creek Generating Station and Salem Generating Station) Flooding Hazard Reevaluation Report (FHRR). Input and output files are requested in their native file format (*.xlsx, *.out, etc.). Adobe Acrobat Portable Document Files (PDFs) are not requested to be submitted unless specifically requested in that format. The NRC staff also requests that the licensee provide clarification regarding the scope of, and input parameters for, the integrated assessment.

Local Intense Precipitation, Riverine Flooding, and Dam Failure

The NRC staff requests that the licensee provide the following figures and files used in the development of the FHRR:

NRC Question 1

Local Intense Precipitation Flood
- Input files for FLO-2D modeling (in native FLO-2D format)
- Minimum output: Summary.out file from FLO-2D modeling (in native FLO-2D format)
- Sufficient output from FLO-2D modeling to review licensee's results independent of the FHRR and electronic reading room modeling (in native FLO-2D format):
  - MAXWSELEV.out
  - DEPTH.out
  - CHVOLUME.out
  - CHANMAX.out
  - CROSSMAX.out
  - HYCROSS.out
  - CROSSQ.out
  - HYCHAN.out
  - HYDROSTRUCT.out
  - VELTIMEC.out
  - VELTIMEFP.out
  - TIMDEP.out

PSEG Response to Question 1

Enclosure 2 provides the files to replicate the results of the local intense precipitation analysis described in Section 2.1 of the FHRR. No channel or structure files are included, as those elements are not used in the PSEG Salem Generating Station and Hope Creek Generating Station model. The file "_README.txt" is included in Enclosure 2 to give the user additional information when executing the files.
NRC Question 2

Riverine Probable Maximum Flood (PMF)

- HEC-HMS input files (in native format)
- HEC-RAS input file (in native format)
- Calibration sets for HEC-HMS and HEC-RAS (in native format)
- Sufficient output to review licensee's results independent of FHRR and electronic reading room (ERR) (in native format)

  - HEC-HMS *.DSS
  - HEC-HMS *.OUT
  - HEC-RAS *.O##- output files
  - HEC-RAS *.R##- restart files (depending on how the initial conditions are specified)
  - HEC-RAS *.DSS

PSEG Response to Question 2

Question 2 includes items related to HEC-HMS and HEC-RAS modeling for analyses associated with Riverine Probable Maximum Flood as described in Section 2.2 of the FHRR. These modeling tools were not directly used in developing the FHRRs as the analysis was completed during PSEG's Early Site Permit Application (ESPA) development. The PMF analysis for the FHRRs couples new storm surge analysis work with the riverine flooding analysis performed using HEC-HMS and HEC-RAS during the ESPA development.

For further information on modeling and assessments associated with Streams, Rivers, and Dam Failure performed during the ESPA development, please refer to PSEG Site ESPA Revision 3 (available on the NRC's new reactors web page at http://www.nrc.gov/reactors/new-reactors/esp/pseg.html), and responses to Site Safety Analysis Report (SSAR) RAIs No. 25 (ML11179A080) and No. 26 (ML11161A160).
LR-N14-0170
Enclosure 1

NRC Question 3

Dam Breach Flood

- HEC-HMS input files (in native format)
- HEC-RAS input file (in native format)
- Sufficient output to review licensee’s results independent of FHRR and ERR (in native format)
  - HEC-HMS *.DSS
  - HEC-HMS *.OUT
  - HEC-RAS *.O##- output files
  - HEC-RAS *.R##- restart files (depending on how the initial conditions are specified)
  - HEC-RAS *.DSS

PSEG Response to Question 3

Question 3 includes items related to HEC-HMS and HEC-RAS modeling for analyses associated with Dam Breach Flood. These modeling tools were not directly used in developing the FHRRs (Section 2.3), as the analysis was completed during PSEG’s Early Site Permit Application (ESPA) development. The FHRR dam failure analysis uses the screening approach discussed in JLD-ISG-13-01; however, no new HEC-HMS and HEC-RAS modeling was performed. As part of the screening analysis, results from the dam failure assessments prepared during the ESPA development were used to inform attenuation curves, as discussed in the FHRR. No new sedimentation analyses were performed, as the results of the screening conclude there are no critical dams and reservoirs in the Delaware River watershed.

For further information on modeling and assessments associated with Streams, Rivers, and Dam Failure performed during the ESPA development, please refer to PSEG Site ESPA Revision 3 (available on the NRC’s new reactors web page at http://www.nrc.gov/reactors/new-reactors/esp/pseg.html), and responses to Site Safety Analysis Report (SSAR) RAI’s No. 25 (ML11179A080) and No. 26 (ML11161A160).
Storm Surge

The NRC staff requests that the licensee provide the following additional information related to the evaluation of storm surge:

NRC Question 4

The NRC staff requests that the licensee provide the following additional information related to the evaluation of storm surge (FHRR Section 2.4):

The NRC staff requests that the licensee provide the ADCIRC+SWAN models files as listed below, that were applied in the development of probable maximum storm surge. Input and output files are requested in their native file format (*.xlsx, *.out, etc.). PDFs of files are requested to not be submitted unless specifically requested in that format.

<table>
<thead>
<tr>
<th>#</th>
<th>Files</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fort.13</td>
<td>ADCIRC+SWAN Nodal Attribute File</td>
</tr>
<tr>
<td>2</td>
<td>Fort.14</td>
<td>ADCIRC+SWAN Grid and Boundary Information File</td>
</tr>
<tr>
<td>3</td>
<td>Fort.15</td>
<td>ADCIRC+SWAN Model Parameter and Periodic Boundary Condition File</td>
</tr>
<tr>
<td>4</td>
<td>Fort.22</td>
<td>Wind input files developed for storms simulated in ADCIRC</td>
</tr>
<tr>
<td>5</td>
<td>Land Class Data</td>
<td>Defines land use in mesh region</td>
</tr>
<tr>
<td>6</td>
<td>Documentation</td>
<td>Reports developed the document mesh development (changes from FEMA coastal study mesh) and model validation and execution</td>
</tr>
<tr>
<td>7</td>
<td>Storm Validation data</td>
<td>Storm validation forcing files (wind/pressure, fort.22) and water level and data wave measurements for comparison</td>
</tr>
</tbody>
</table>

PSEG Response to Question 4

Enclosure 2 provides the above requested files. Consistent with discussions with NRC staff during a June 9, 2014 clarification call, the following subset of files is provided:

- Hurricane Isabel Validation
- JPM Storm No. 59 (ADCIRC+SWAN files)
- JPM Storm No. 59 (nested SWAN files)

The file “README.txt” is provided in Enclosure 2 to give the user additional information when executing the files.
Enclosure 2

Electronic Files in Response to RAI Questions 1, 2, 3, and 4

Hope Creek Generating Station
Salem Generating Station Units 1 and 2
PSEG Nuclear LLC
TYPICAL LICENSING AND REGULATORY AFFAIRS
CORRESPONDENCE CONCURRENCE FORM

Station(s): ___CGS and SGS 1 and 2 ___ Correspondence No.: LR-N14-0170

Subject/Document: ___Response to RAI - Flood Hazard Reevaluation ___

Document Due Date: 7/28/2014 _____ Regulatory Driven Due Date: YES / NO

Document Prepared by: W. McTigue Extension: 1523

If Routine NRC report, then document SAP recurring task or generate notification: N/A

Required Review and Disciplines Assigned by: P. Duke / Manager - Licensing

Type of Review Required: ___ Technical Verification Team Review
(Reference LS-AA-117)

Disciplines Required:

- Maintenance
- Operations
- Rx Engineering
- Nuclear Fuels
- Radiation Protection
- Engineering - I&C
- Design Engineering
- Work Management
- Chemistry
- Radwaste
- Engr - Mech Systems
- Engr - Elect Systems
- Training
- Reg Assurance / Licensing
- Programs Engineering
- Other: Fukushima Response

NOTE
The following signatures indicate and affirm that technical inputs for this regulatory correspondence are technically correct, complete, and accurate in all material respects.

<table>
<thead>
<tr>
<th>Print Name / Signature</th>
<th>Discipline</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. McTigue</td>
<td>Preparer</td>
<td>7/15/14</td>
</tr>
<tr>
<td>B. Thomas</td>
<td>Peer Review</td>
<td>7/17/14</td>
</tr>
<tr>
<td>D. Blount</td>
<td>Senior Lead, Project</td>
<td>7/15/14</td>
</tr>
<tr>
<td>C. McElhinny</td>
<td>Senior Reg Assur</td>
<td>7/15/14</td>
</tr>
<tr>
<td>E. Keyte</td>
<td>Reg Engr Hq</td>
<td>7/16/14</td>
</tr>
<tr>
<td>Charlotte Geiger</td>
<td>PSEG Fukushima</td>
<td>7/17/14</td>
</tr>
<tr>
<td>Tammy Morris</td>
<td>NAT/HC Reg Assur</td>
<td>7/17/14</td>
</tr>
</tbody>
</table>

Required Reviews and Signatures (check as appropriate):

☐ Station Qualified Review Required: _____________________________ Date: _______

☐ Corporate Licensing Concurrence Required: ___________________________ Date: 07/23/14

☐ Station Regulatory Assurance Concurrence Required: ___________________________ Date: 07/23/14

☐ PORC Approval Required: PORC Meeting No. ____________ PORC Chair ______________________ Date: _______

☐ Plant Manager Approval Required: _____________________________ Date: _______

☐ Site Vice President Approval Required: _____________________________ Date: _______
Quality Review Checklist

1. The following checklists should be selected based on the type of document being submitted (LER, LAR or other NRC correspondence)
   a. Correspondence Checklist – Page 3
   b. LAR – Page 4
   c. LER – Pages 5 and 6

2. Only one checklist should be used for each document, the individual assigned the responsibility for the letter should fill out the checklist.

3. The peer reviewer can use the following checklists as a guide.
## Correspondence Quality Checklist

**Letter Number:** LR-N14-0170

### Format

- [ ] Cover letter formatted IAW LS-AA-117-1003
- [X] Letter number on all pages, as appropriate  
- [ ] Pagination and page count
- [ ] Attachments and Enclosures referenced to the letter
- [X] CC and/or BC list are complete and accurate
- [ ] Enclosures or attachments are readable
- [ ] Special requirements noted such as Public Withholding with pages marked as appropriate
- [ ] Correct Addressee
- [X] Spelling and Grammar
- [ ] Docket and License Numbers as required
- [ ] Margins consistent
- [X] Fonts consistent

### Content

- [ ] Summary paragraph as introduction, which clearly states purpose of correspondence (what we wish to accomplish or what we need from addressee)
- [X] Appropriate regulatory references included
- [X] Body text flows, has a logical sequence and supports the conclusions
- [ ] Follows any regulatory guidance regarding content
- [ ] Extraneous material is not included
- [X] References cited as appropriate and necessary
- [ ] Conclusion states who has the action and what the action is including due dates as appropriate
- [ ] PSEG contact provided for any follow-up
- [ ] Paragraph structure complete and consistent
- [X] Affidavit or "affirmation" as required
- [ ] Statements supporting withholding included as appropriate
- [X] Summary of Commitments included as appropriate: (ref: LS-AA-117-1003)

### Transmission

- [ ] Letter signed by appropriate individual
- [X] Envelope(s) correctly addressed.
- [ ] SGI envelopes properly protected.
- [ ] Document page checked
- [ ] Document transmitted to Records Management
- [X] PDF File of signed and dated letter created for NRC electronic submission
- [X] OCR and Preflight PDF file
- [ ] Submit document to NRC and retain electronic submittal confirmation
- [X] Traveler (per LS-AA-117-1002) is complete (including appropriate discipline signatures)
- [ ] Commitments entered into Tracking Database
- [X] Correspondence log updated
- [X] Distribution timely
## License Amendments Requests Quality Checklist

### Letter Number: I

### LAR Number: I

#### Format
- Format IAW LS-AA-101-1000
- Marked up pages are clear and legible

#### Content
- 50.92 Discussion sections accurately answers the question
- Marked-up pages agree with descriptions in pleading.

#### Miscellaneous
- Marked up pages reflect current effective page.
- LAR number is appropriate and obtained from LAR log
- The effects of other pending changes have been evaluated for the potential to affect this application
- If included, Camera Ready pages are based on current effective pages. Be alert for pages that are impacted by different simultaneous amendments
- Traveler includes all relevant reviewers (TVT, SQR and PORC)
- Traveler includes **ALL** impacted departments
- Traveler completed
- Distribution timely
- Commitments appropriately entered into SAP
- Correspondence log updated

#### Transmission
- Letter signed by appropriate individual
- Envelope(s) correctly addressed
- Document page checked
- Document transmitted to Records Management
- PDF File of signed and dated letter created for NRC electronic submission
- OCR and Preflight PDF file
- Submit document to NRC and retain electronic submittal confirmation.
- Traveler (per LS-AA-117-1002) is complete (including appropriate discipline signatures)
- Commitments entered into Tracking Database
- Correspondence log updated
- Distribution timely
### LER Quality Checklist

<table>
<thead>
<tr>
<th>Letter Number:</th>
<th>LER Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td><strong>Initials</strong></td>
</tr>
<tr>
<td>o A brief abstract describing the major occurrences during the event, including all component or system failures that contributed to the event and significant corrective action taken or planned to prevent recurrence (NOTE: Energy Industry Identification System (EIIS) codes are not be used in abstract)</td>
<td></td>
</tr>
<tr>
<td>o A clear, specific, narrative description of what occurred so that knowledgeable readers conversant with the design of commercial nuclear power plants, but not familiar with the details of a particular plant, can understand the complete event</td>
<td></td>
</tr>
<tr>
<td>o Plant operating conditions before the event</td>
<td></td>
</tr>
<tr>
<td>o Status of structures, components, or systems that were inoperable at the start of the event and that contributed to the event</td>
<td></td>
</tr>
<tr>
<td>o Dates and approximate times of occurrences. [Validate dates and times]</td>
<td></td>
</tr>
<tr>
<td>o The cause of each component or system failure or personnel error, if known</td>
<td></td>
</tr>
<tr>
<td>o The failure mode, mechanism, and effect of each failed component, if known</td>
<td></td>
</tr>
<tr>
<td>o The EIIS component function identifier and system name of each system referred to in the LER</td>
<td></td>
</tr>
<tr>
<td>o For failures of components with multiple functions, include a list of systems or secondary functions that were also affected</td>
<td></td>
</tr>
<tr>
<td>o For failure that rendered a train of a safety system inoperable, an estimate of the elapsed time from the discovery of the failure until the train was returned to service</td>
<td></td>
</tr>
<tr>
<td>o The method of discovery of each component or system failure or procedural error</td>
<td></td>
</tr>
<tr>
<td>o Operator actions that affected the course of the event, including operator errors, procedural deficiencies, or both, that contributed to the event</td>
<td></td>
</tr>
<tr>
<td>o For each personnel error, we <strong>Shall</strong> discuss:</td>
<td></td>
</tr>
<tr>
<td>▪ Whether the error was a cognitive error (e.g., failure to recognize the actual plant condition, failure to realize which systems should be functioning, failure to recognize the true nature of the event) or a procedural error;</td>
<td></td>
</tr>
<tr>
<td>▪ Whether the error was contrary to an approved procedure, was a direct result of an error in an approved procedure, or was associated with an activity or task that was not covered by an approved procedure;</td>
<td></td>
</tr>
<tr>
<td>▪ Any unusual characteristics of the work location (e.g., heat, noise) that directly contributed to the error; and,</td>
<td></td>
</tr>
<tr>
<td>▪ The type of personnel involved (i.e., contractor personnel, licensed operator, non-licensed operator, other licensee personnel)</td>
<td></td>
</tr>
<tr>
<td>o Discussed automatic and manually initiated safety system responses</td>
<td></td>
</tr>
<tr>
<td>o Discussed the manufacturer and model number (or other identification) of each component that failed during the event.</td>
<td></td>
</tr>
<tr>
<td>o Provided an assessment of the safety consequences and implications of the event. This assessment must include the availability of other systems or components that could have performed the same function as the components and systems that failed during the event</td>
<td></td>
</tr>
<tr>
<td>o Provided a description of any corrective actions planned as a result of the event, including those to reduce the probability of similar events occurring in the future</td>
<td></td>
</tr>
</tbody>
</table>

1 Added as result of Notification 20450306
**LER Quality Checklist (continued):**

| Provided reference to any previous similar events at the same plant that are known |
| Provided the name and telephone number of a person within the licensee's organization who is knowledgeable about the event and can provide additional information concerning the event and the plant’s characteristics |
| Provided a clear statement regarding any Commitments |
| Provided clear statement regarding SSFF (NEI 99-02), e.g., "A review of this event determined that a Safety System Functional Failure (SSFF) as defined in NEI 99-02, Regulatory Assessment Performance Indicator Guidelines, did not occur. This event did not prevent the ability of a system to fulfill its safety function to either shutdown the reactor, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident." Or, "A review of this event determined that a Safety System Functional Failure (SSFF) as defined in NEI 99-02, Regulatory Assessment Performance Indicator Guidelines, did occur" and explain why |
| Review of SSFF completed by the Licensing NRC ROP SSFF PI program owner (70040851) |
| Avoid referencing INPO OE Reports in Publicly Available NRC Licensee Event Reports |
| SDP Considered |

**LER Format**

| Form NRC 366 is the current form. Check upper right hand corner for expiration. |
| Docket and License Numbers are correct. |
| LER Number appropriate (Check for duplicate LER numbers) |
| Margins consistent |
| Fonts consistent |
| Spelling and Grammar |
| Pagination correct |
| LER submittal date has been correctly filled in on Page 1 of LER form |

**Transmission**

| Letter signed by appropriate individual |
| Envelope(s) correctly addressed. SGI envelopes properly protected |
| Document page checked |
| Document transmitted to Records Management |
| LER uploaded to www.inpo.org/inpo/ices.asp |
| For HC – PORC minutes approving LER sent to CNO |
| For Salem – LER sent to CNO |
| PDF File of signed and dated letter created for NRC electronic submission |
| OCR and Preflight PDF file |
| Submit document to NRC and retain electronic submittal confirmation. |
| Traveler (per LS-AA-117-1002) is complete (including appropriate discipline signatures) |
| Commitments entered into Tracking Database |
| Correspondence log updated |
| Distribution timely |
JUL 29 2014

LR-N14-0174

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Salem Nuclear Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-70 and DPR-75
NRC Docket Nos. 50-272 and 50-311

Hope Creek Generating Station
Renewed Facility Operating License No. NPF-57
NRC Docket No. 50-354


Pursuant to 10 CFR 50.54(q) and 10 CFR 50.4(b)(5), PSEG Nuclear LLC (PSEG) hereby submits 10 CFR 50.54(q) Summary Analysis Report (ID#2014-21 and ID#2014-26) for Emergency Plan Document revisions implemented July 1, 2014 and July 24, 2014 (Attachment) and copies of the revised documents in their entirety (Enclosures) associated with the PSEG Nuclear LLC Emergency Plan. There are no regulatory commitments contained in this letter.

The documents in Enclosure 1 (EP-HC-111-F6, Attachment 6, Hope Creek Primary Communicator Log, Revision 10 and EP-SA-111-F6, Attachment 6, Salem Primary Communicator Log, Revision 10) contain personal privacy information for which protection is requested under the provisions of 10 CFR 2.390.
Enclosure 1 of this letter contains information to be withheld from public disclosure pursuant to 10 CFR 2.390

JUL 29 2014
Page 2
LR-N14-0174

This letter and the attachment do not contain any personal privacy, proprietary, or safeguards information for which protection is requested under the provisions for 10 CFR 2.390. If you have any questions or require additional information, please contact Phil Quick, Emergency Preparedness Program Manager, at 856-339-3262.

Respectfully,

Craig Banner
Manager - Emergency Preparedness

Attachment - 10 CFR 50.54(q) Summary Analysis Reports
(2) Emergency Plan Document Revision – NC.EP.EP.ZZ-0405

cc (without enclosures):
W. Dean, Administrator, Region I, NRC
J. Lamb, Project Manager - USNRC
NRC Senior Resident Inspector - Salem
NRC Senior Resident Inspector - Hope Creek
P. Mulligan, Manager IV, NJBNE
T. Cachaza - Commitment Tracking Coordinator - Salem
L. Marabella – Corporate Commitment Tracking Coordinator
P. Duca – Commitment Tracking Coordinator - Hope Creek
Attachment 1

10 CFR 50.54(q) Summary Analysis Reports
**10 CFR 50.54(q) SUMMARY ANALYSIS REPORT**

<table>
<thead>
<tr>
<th>50.54Q I.D. Number:</th>
<th>2014-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>50.54Q Title:</td>
<td>EP-HC-111-F6 &amp; EP-SA-111-F6 both Revision #10, Primary Communicator Log</td>
</tr>
</tbody>
</table>

**Description of the change made to the Emergency Plan/Procedures:**
EP-HC-111-F6, Revision 10 and EP-SA-111-F6, Revision 10, are being issued to clarify the documentation requirement for NRC questions using the NRC data sheet. Contact information is also updated.

**Description of why the change is editorial (if not editorial, N/A this block):**
N/A - Not editorial

**Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):**
No impact on the licensing basis.

**A description of how the change to the Emergency Plan/Procedures still complies with regulation:**
This change has no impact on regulations. It clarifies the documentation required for NRC questions, and incorporates minor changes in order to correct contact information.

**A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:**
The proposed change clarifies the documentation required for NRC questions, and incorporates minor changes in order to correct contact information. There is no reduction in the effectiveness of the PSEG Emergency Plan due to the proposed procedure revisions.
10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

50.54Q I.D. Number: 2014-26

50.54Q Title: NC.EP-EP.ZZ-0405(Q), Emergency Termination – Reduction – Recovery, Revision 7

Description of the change made to the Emergency Plan/Procedures:
Procedure revision will provide additional clarification for recovering from Beyond-Design-Basis-External-Events (BDBEE). Other minor editorial and formatting changes are included.

Description of why the change is editorial (if not editorial, N/A this block):
N/A - Not editorial

Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):
No impact on the licensing basis.

A description of how the change to the Emergency Plan/Procedures still complies with regulation:
The revision is an enhancement to NC.EP-EP.ZZ-0405 in that it provides additional guidance for recovering from a Beyond-Design-Basis-External-Event (BDBEE). There are no impacts to the Emergency Plan, and therefore has no impact on regulations.

A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:
This revision incorporates enhancements that provide additional guidance for BDBEE. There is no adverse effect or reduction in the effectiveness of the PSEG Emergency Plan due to the procedure revision.


This letter, Attachment 1, and Enclosure 1, do not contain any personal privacy, proprietary, or safeguards information for which protection is requested under the provisions for 10 CFR 2.390. If you have any questions or require additional information, please contact Phil Quick, Emergency Preparedness Program Manager, at 856-339-3262.

Respectfully,

Craig Banner
Manager - Emergency Preparedness
ATTACHMENT – 10 CFR 50.54(q) Summary Analysis Reports

ENCLOSURE – Emergency Plan Document Revisions –

SC.EP-EP.ZZ-0301 (Q) R13
HC.EP-EP.ZZ-0301 (Q) R8
NC.EP-EP.ZZ-0302 (Q) R11
NC.EP-EP.ZZ-0303 (Q) R8
NC.EP-EP.ZZ-0304 (Q) R15
NC.EP-EP.ZZ-0309 (Q) R13
NC.EP-EP.ZZ-0310 (Q) R10
NC.EP-EP.ZZ-0313 (Q) R7
NC.EP-EP.ZZ-0404 (Q) R5
NC.EP-EP.ZZ-0601 (Q) R12
NC.EP-EP.ZZ-0602 (Q) R7
EP-SA-111-F1 Rev. 2
EP-SA-111-F2 Rev. 2
EP-SA-111-F3 Rev. 3
EP-SA-111-F4 Rev. 2
EP-SA-111-F24 Rev. 2
EP-HC-111-F1 Rev. 2
EP-HC-111-F2 Rev. 2
EP-HC-111-F3 Rev. 3
EP-HC-111-F4 Rev. 2
EP-HC-111-F24 Rev. 2

cc (without enclosures): D. Dorman, Administrator, Region I, NRC
C. Sanders - Parker, Project Manager - USNRC
NRC Senior Resident Inspector - Salem
NRC Senior Resident Inspector - Hope Creek
P. Mulligan, Chief, NJBNE
T. Cachaza - Commitment Tracking Coordinator - Salem
L. Marabella – Corporate Commitment Tracking Coordinator
T. MacEwen – Commitment Tracking Coordinator - Hope Creek
Attachment 1

10 CFR 50.54(q) Summary Analysis Reports
10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

50.54Q I.D. Number: 2014-67

50.54Q Title:
- EP-SA-111-F1 Rev. 2, Unusual Event
- EP-SA-111-F2 Rev. 2, Alert
- EP-SA-111-F3 Rev. 3, Site Area Emergency
- EP-SA-111-F24 Rev. 2, Unusual Event (Common Site)

<table>
<thead>
<tr>
<th>Description of the change made to the Emergency Plan/Procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECG Attachments 1 thru 4 and 24 have been reformatted to simplify and clarify the steps to be performed and signed off. A basis section, similar to those used for EALs, has been added to provide detailed information that the user should know to perform the attachment steps but that is not required to be included in each step. In addition, ECG Attachment 4 – Declaration of General Emergency has been revised to incorporate the initial PAR flow chart.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A - Not editorial.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of the licensing basis affected by the change to the Emergency Plan/Procedures (if not affected, omit this element):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on the licensing basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 10CFR50.54(q) applicability review determined that there is no impact on NRC regulations. This revision does not affect requirements as specified in the Emergency Plan. This revision reformats the attachments to simplify use to ensure prompt and correct notification of offsite responders.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>This revision does not impact the methods of staffing and/or responsibilities of on-shift personnel or initial activation and long term staffing of emergency response facilities nor does it impact notification procedures to the ERO, Local, State and/or Federal entities or prompt communication to emergency response personnel. The proposed changes relocate detailed information to the basis section to improve and enhance the ability of the user to perform the required steps. There is no resulting reduction in effectiveness due to this revision.</td>
</tr>
</tbody>
</table>
### 10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

**50.54Q I.D. Number:** 2014-68

**50.54Q Title:** EP-HC-111-F4 Rev. 2, General Emergency  
EP-SA-111-F4 Rev. 2, General Emergency

<table>
<thead>
<tr>
<th>Description of the change made to the Emergency Plan/Procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECG Attachment 4 – Declaration of General Emergency has been revised to incorporate a new initial PAR flow chart that implements the requirements of NUREG-0654 Supplement 3 criteria.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A – Not editorial.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on the licensing basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The proposed revision incorporates the guidance of NUREG-0654 Supplement 3 and does not adversely affect the Emergency Planning functions and does not result in a reduction in effectiveness.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The proposed change is consistent with the requirements of planning standard 10CFR50.47(b)(10) and NUREG-0654 Supplement 3 guidance and does not have an adverse impact on the emergency plan, therefore no reduction in effectiveness results from implementation of this revision.</td>
</tr>
<tr>
<td><strong>10 CFR 50.54(q) SUMMARY ANALYSIS REPORT</strong></td>
</tr>
<tr>
<td>-------------------------------------------</td>
</tr>
<tr>
<td><strong>50.54Q I.D. Number:</strong> 2014-69</td>
</tr>
<tr>
<td><strong>50.54Q Title:</strong> HC.EP-EP.ZZ-0301 (Q) R8, SHIFT RADIATION PROTECTION</td>
</tr>
<tr>
<td><strong>TECHNICIAN RESPONSE</strong></td>
</tr>
<tr>
<td><strong>Description of the change made to the Emergency Plan/Procedures:</strong></td>
</tr>
<tr>
<td>Procedure revision to incorporate changes resulting from:</td>
</tr>
<tr>
<td>1. The implementation of multi-source MIDAS dose assessment software.</td>
</tr>
<tr>
<td>2. NUREG-0654 Supplement 3 PAR changes.</td>
</tr>
<tr>
<td>3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event.</td>
</tr>
<tr>
<td><strong>Description of why the change is editorial (if not editorial, N/A this block):</strong></td>
</tr>
<tr>
<td>N/A - Not editorial.</td>
</tr>
<tr>
<td><strong>Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):</strong></td>
</tr>
<tr>
<td>No impact on the licensing basis.</td>
</tr>
<tr>
<td><strong>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</strong></td>
</tr>
<tr>
<td>A 10CFR50.54(q) applicability review determined that there is no impact on NRC regulations. This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress.</td>
</tr>
<tr>
<td><strong>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</strong></td>
</tr>
<tr>
<td>The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure.</td>
</tr>
</tbody>
</table>
10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

50.54Q I.D. Number: 2014-70

50.54Q Title: EP-HC-111-F1 Rev. 2, Unusual Event
EP-HC-111-F2 Rev. 2, Alert
EP-HC-111-F3 Rev. 3, Site Area Emergency
EP-HC-111-F4 Rev. 2, General Emergency
EP-HC-111-F24 Rev. 2, Unusual Event (Common Site)

Description of the change made to the Emergency Plan/Procedures:
ECG Attachments 1 thru 4 and 24 have been reformatted to simplify and clarify the steps to be performed and signed off. A basis section, similar to those used for EALs, has been added to provide detailed information that the user should know to perform the attachment steps but that is not required to be included in each step. In addition, ECG Attachment 4 – Declaration of General Emergency, has been revised to incorporate the initial PAR flow chart.

Description of why the change is editorial (if not editorial, N/A this block):
N/A - Not editorial.

Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):
No impact on the licensing basis.

A description of how the change to the Emergency Plan/Procedures still complies with regulation:
A 10CFR50.54(q) applicability review determined that there is no impact on NRC regulations. This revision does not affect requirements as specified in the Emergency Plan. This revision reformat the attachments to simplify use to ensure prompt and correct notification of offsite responders.

A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:
This revision does not impact the methods of staffing and/or responsibilities of on-shift personnel or initial activation and long term staffing of emergency response facilities nor does it impact notification procedures to the ERO, Local, State and/or Federal entities or prompt communication to emergency response personnel. The proposed changes relocate detailed information to the basis section to improve and enhance the ability of the user to perform the required steps. There is no resulting reduction in effectiveness due to this revision.
<table>
<thead>
<tr>
<th>10 CFR 50.54(q) SUMMARY ANALYSIS REPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>50.54Q I.D. Number:</strong> 2014-71</td>
</tr>
<tr>
<td><strong>50.54Q Title:</strong> NC.EP-EP.ZZ-0404 (Q) R5 – Protective Action Recommendations (PARS) Upgrades</td>
</tr>
</tbody>
</table>

**Description of the change made to the Emergency Plan/Procedures:**
Procedure revision to incorporate changes resulting from NUREG 0654 Supplement 3 PAR changes.

**Description of why the change is editorial (if not editorial, N/A this block):**
N/A - Not editorial.

**Description of the licensing basis affected by the change to the Emergency Plan/Procedures (if not affected, omit this element):**
No impact on the licensing basis.

**A description of how the change to the Emergency Plan/Procedures still complies with regulation:**
A 10CFR50.54(q) evaluation determined that there is no impact on NRC regulations. This revision does not affect requirements as specified in the Emergency Plan. This revision provides guidance for the implementation of Protective Action Recommendations (PAR) and PAR Upgrades consistent with the guidance provided by the NRC in NUREG 0654, Supplement 3, Revision 1.

**A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:**
The proposed change is consistent with the requirements of planning standard 10CFR50.47(b)(10) and NUREG-0654 Supplement 3 guidance and does not have an adverse impact on the emergency plan, therefore no reduction in effectiveness results from implementation of this revision.
### 10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

**50.54Q I.D. Number:** 2014-74

**50.54Q Title:** SC.EP-EP.ZZ-0301 (Q) R13, Shift Radiation Protection Technician Response

| Description of the change made to the Emergency Plan/Procedures: |
| Procedure revision to incorporate changes resulting from: |
| 1. The implementation of multi-source MIDAS dose assessment software. |
| 2. NUREG-0654 Supplement 3 PAR changes. |
| 3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event. |

| Description of why the change is editorial (if not editorial, N/A this block): |
| N/A - Not editorial. |

| Description of the licensing basis affected by the change to the Emergency Plan/Proced ures (if not affected, omit this element): |
| No impact on the licensing basis. |

| A description of how the change to the Emergency Plan/Procedures still complies with regulation: |
| A 10 CFR 50.54(q) applicability review determined that there is no impact on NRC regulations. This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress. |

| A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure: |
| The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure. |
### 10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

**50.54Q I.D. Number:** 2014-75

**50.54Q Title:** NC_EP-EP_ZZ-0302 (Q) R11, Radiological Assessment Coordinator Response

<table>
<thead>
<tr>
<th>Description of the change made to the Emergency Plan/Procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure revision to incorporate changes resulting from:</td>
</tr>
<tr>
<td>1. The implementation of multi-source MIDAS dose assessment software.</td>
</tr>
<tr>
<td>2. NUREG-0654 Supplement 3 PAR changes.</td>
</tr>
<tr>
<td>3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A - Not editorial.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of the licensing basis affected by the change to the Emergency Plan/Procedures (if not affected, omit this element):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on the licensing basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 10CFR50.54(q) applicability review determined that there is no impact on NRC regulations. This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure.</td>
</tr>
</tbody>
</table>
Description of the change made to the Emergency Plan/Procedures:
Procedure revision to incorporate changes resulting from:
1. The implementation of multi-source MIDAS dose assessment software.
2. NUREG-0654 Supplement 3 PAR changes.
3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event.

Description of why the change is editorial (if not editorial, N/A this block):
N/A - Not editorial.

Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):
No impact on the licensing basis.

A description of how the change to the Emergency Plan/Procedures still complies with regulation:
A 10 CFR 50.54(q) applicability review determined that there is no impact on NRC regulations. This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress.

A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:
The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure.
**10 CFR 50.54(q) SUMMARY ANALYSIS REPORT**

**50.54Q I.D. Number:** 2014-77

**50.54Q Title:** NC. EP-EP.ZZ-0304 (Q) R15, Operational Support Center (OSC) Radiation Protection Response

**Description of the change made to the Emergency Plan/Procedures:**

Procedure revision to incorporate changes resulting from:

1. The implementation of multi-source MIDAS dose assessment software.
2. NUREG-0654 Supplement 3 PAR changes.
3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event.

**Description of why the change is editorial (if not editorial, N/A this block):**

N/A - Not editorial.

**Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):**

No impact on the licensing basis.

**A description of how the change to the Emergency Plan/Procedures still complies with regulation:**

A 10CFR50.54(q) applicability review determined that there is no impact on NRC regulations. This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress.

**A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:**

The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure.
### 10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

**50.54Q I.D. Number:** 2014-78

**50.54Q Title:** NC.EP-EP.ZZ-0309 (Q) R13, Dose Assessment (MIDAS) Instructions

<table>
<thead>
<tr>
<th>Description of the change made to the Emergency Plan/Procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure revision to incorporate changes resulting from:</td>
</tr>
<tr>
<td>1. The implementation of multi-source MIDAS dose assessment software.</td>
</tr>
<tr>
<td>2. NUREG-0654 Supplement 3 PAR changes.</td>
</tr>
<tr>
<td>3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A - Not editorial.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on the licensing basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 10CFR50.54(q) applicability review determined that there is no impact on NRC regulations. This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure.</td>
</tr>
</tbody>
</table>
### 10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

**50.54Q I.D. Number:** 2014-79

**50.54Q Title:** NC.EP-EP.ZZ-0310 (Q) R10, Radiation Protection Supervisor-Offsite and Field Monitoring Team Response

<table>
<thead>
<tr>
<th>Description of the change made to the Emergency Plan/Procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure revision to incorporate changes resulting from:</td>
</tr>
<tr>
<td>1. The implementation of multi-source MIDAS dose assessment software.</td>
</tr>
<tr>
<td>2. NUREG-0654 Supplement 3 PAR changes.</td>
</tr>
<tr>
<td>3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A - Not editorial.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on the licensing basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 10CFR50.54(q) applicability review determined that there is no impact on NRC regulations. This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure.</td>
</tr>
</tbody>
</table>
10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

**50.54Q I.D. Number:** 2014-80

**50.54Q Title:** NC.EP-EP.ZZ-0313 (Q) R7, Advanced Dose Assessment (MIDAS) Instructions

<table>
<thead>
<tr>
<th>Description of the change made to the Emergency Plan/Procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure revision to incorporate changes resulting from:</td>
</tr>
<tr>
<td>1. The implementation of multi-source MIDAS dose assessment software.</td>
</tr>
<tr>
<td>2. NUREG-0654 Supplement 3 PAR changes.</td>
</tr>
<tr>
<td>3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A - Not editorial.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on the licensing basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 10CFR50.54(q) applicability review determined that there is no impact on NRC regulations. This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure.</td>
</tr>
<tr>
<td>Description of the change made to the Emergency Plan/Procedures:</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Procedure revision to incorporate changes resulting from:</td>
</tr>
<tr>
<td>1. The implementation of multi-source MIDAS dose assessment software.</td>
</tr>
<tr>
<td>2. NUREG-0654 Supplement 3 PAR changes.</td>
</tr>
<tr>
<td>3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A - Not editorial.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of the licensing basis affected by the change to the Emergency Plan/Procedure (if not affected, omit this element):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on the licensing basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 10 CFR 50.54(q) applicability review determined that there is no impact on NRC regulations.</td>
</tr>
<tr>
<td>This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure.</td>
</tr>
</tbody>
</table>
**10 CFR 50.54(q) SUMMARY ANALYSIS REPORT**

**50.54Q I.D. Number:** 2014-82

**50.54Q Title:** NC.EP-EP.ZZ-0602 (Q) R7, EOF Radiological Dose Assessment

<table>
<thead>
<tr>
<th>Description of the change made to the Emergency Plan/Procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure revision to incorporate changes resulting from:</td>
</tr>
<tr>
<td>1. The implementation of multi-source MIDAS dose assessment software.</td>
</tr>
<tr>
<td>2. NUREG-0654 Supplement 3 PAR changes.</td>
</tr>
<tr>
<td>3. The change in the radiological release definition from ODCM values to any release above normal that is attributable to the event.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A - Not editorial.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of the licensing basis affected by the change to the Emergency Plan/Proced ure (if not affected, omit this element):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on the licensing basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 10CFR50.54(q) applicability review determined that there is no impact on NRC regulations. This procedure change does not affect requirements as specified in the emergency plan. It provides guidance for the implementation of previously evaluated changes to MIDAS dose assessment software, NUREG-0654 Supplement 3 PAR changes, and a change to the definition of a release in progress.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Proced ure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The evaluations performed for the MIDAS multi-source software revision (2014-61), the radiological release definition evaluation (2014-72), and the implementation of NUREG-0654 Supplement 3 PAR requirements evaluation (2014-73) resulted in no reduction in effectiveness of the emergency plan. The proposed revision to this procedure implements these requirements and the guidance needed for the emergency response organization to implement these changes. There is no reduction in effectiveness resulting from the implementation of the proposed revision to this procedure.</td>
</tr>
</tbody>
</table>
Enclosure 1

Emergency Plan Document Revisions
Emergency Plan Document Revisions Implemented December 23, 2014

EP-HC-111-F4 Rev 2
EP-SA-111-F4 Rev 2
NC.EP-EP.ZZ-0404 (Q) Rev 5

Emergency Plan Document Revisions Implemented December 24, 2014

EP-HC-111-F1 Rev 2
EP-HC-111-F2 Rev 2
EP-HC-111-F3 Rev 3
EP-HC-111-F24 Rev 2
EP-SA-111-F1 Rev 2
EP-SA-111-F2 Rev 2
EP-SA-111-F3 Rev 3
EP-SA-111-F24 Rev 2

Emergency Plan Document Revisions Implemented December 30, 2014

HC.EP-EP.ZZ-0301(Q) Rev 8
SC.EP-EP.ZZ-0301(Q) Rev 13
NC.EP-EP.ZZ-0302(Q) Rev 11
NC.EP-EP.ZZ-0303(Q) Rev 8
NC.EP-EP.ZZ-0304(Q) Rev 15
NC.EP-EP.ZZ-0309(Q) Rev 13
NC.EP-EP.ZZ-0310(Q) Rev 10
NC.EP-EP.ZZ-0313(Q) Rev 7
NC.EP-EP.ZZ-0601(Q) Rev 12
NC.EP-EP.ZZ-0602(Q) Rev 7
USE CATEGORY: II

A. Biennial review performed: Yes ___ No ___ N/A ___

B. Packages and Affected Document Numbers incorporated into this revision: None

C. The following OTSCs were incorporated into this revision: None

REVISION SUMMARY:

- Revised to incorporate changes for:
  - Definition of Release
  - PAR Process
  - Multil-MIDAS
- Step 5.2.1 modified to identify turnover of dose assessment responsibilities not required unless a release is in progress. The definition of a Radiological Release has changed as defined in IMCF ECG Attachments 1-4 and no longer is set to the ODCM limit.
- Step 5.2.2 modified to review EP-Aid048 for Salem RMS quick reference as Attachment 4 is being deleted.
- Attachment 1 step 1.1.7 modified to add if a radiological release is in progress
- Attachment 1 Step 1.1.9 – added internet as source of MET data
- Attachment 1 Note above 1.1.10 modified to remove desk phone numbers that wouldn’t connect to an individual during an emergency but to contact the EPC in the EOF for MIDAS issues OR the EPA in the TSC
- Attachment 1 step 1.1.10 modified to add if a radiological release is in progress and automatic data collection is not available.
- Attachment 1 step 1.1.12 modified to add if a radiological release is in progress, generalized direction to review the SSCL and added the guidance to notify the SM or RAC if Protective Action Guidelines (PAG) are exceeded (≥1000 mRem Projected TEDE Dose or ≥5000 mRem Projected Thyroid CDE Dose). Changes to NUREG 0654 Supplement 3 has totally revised the Protective Action Recommendations made by PSEG. Changing the emphasis to have the SRPT inform the SM/RAC if dose assessment exceeds the PAGs versus having the SRPT determine the radiological PAR. PARs are only given to the states if in a GE Classification.

(Continued)

IMPLEMENTATION REQUIREMENTS

Effective Date: _______________
REVISION SUMMARY (Continued):

- Attachment 1 steps 1.1.13 through 1.1.16 have been deleted and remaining steps renumbered as the SRPT is not responsible to determine the radiological PAR.
- Attachment 1 step 1.1.15 reworded to have the SRPT, based on habitability surveys, make recommendations to the SM/RAC for onsite protective actions, based on Attachment 7.
- Attachment 1 step 1.1.16, first bullet, removed old ODCM release limits.
- Attachment 1 step 1.1.18 modified to remove reference to a step number that is not required.
- Attachment 4 deleted (reserved) added direction on page to refer to EP Aid-048 for Salem RMS quick reference.
- Attachment 5 modified to remove instructions for using the Unit 2 RMS computer that has been removed.
- Attachment 6 deleted (reserved) to remove old radiological PAR flowchart.
- Attachment 8 modified to place a SOP at the North side Control Point door versus locking as the door lock was removed.
# SHIFT RADIATION PROTECTION TECHNICIAN RESPONSE

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES</td>
<td>2</td>
</tr>
<tr>
<td>2.1</td>
<td>Prerequisites To Be Followed Prior To Implementing This Procedure</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS</td>
<td>2</td>
</tr>
<tr>
<td>3.1</td>
<td>Precaution and Limitations To Be Followed Prior To Implementing This Procedure</td>
<td>3</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED</td>
<td>3</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE</td>
<td>3</td>
</tr>
<tr>
<td>5.1</td>
<td>The SRPT Should</td>
<td>3</td>
</tr>
<tr>
<td>5.2</td>
<td>When the TSC is Activated, Perform the Following</td>
<td>3</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS</td>
<td>4</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES</td>
<td>4</td>
</tr>
<tr>
<td>7.1</td>
<td>References</td>
<td>4</td>
</tr>
<tr>
<td>7.2</td>
<td>Cross References</td>
<td>4</td>
</tr>
</tbody>
</table>

**ATTACHMENTS**

- ATTACHMENT 1 - Shift Radiation Protection Technician Checklist ........................................ 5
- ATTACHMENT 2 - Radiological Assessment Data Sheet - Unit 1 ........................................ 10
- ATTACHMENT 3 - Radiological Assessment Data Sheet - Unit 2 ........................................ 12
- ATTACHMENT 4 - Deleted Refer to EP-Aid 048 ................................................................. 14
- ATTACHMENT 5 - Operating Instructions for the RM 2300 (R41 Monitor Values) .................. 16
- ATTACHMENT 6 - Deleted (reserved) ...................................................................................... 19
- ATTACHMENT 7 - Onsite Protective Action Guidelines ...................................................... 21
- ATTACHMENT 8 - Salem RP Control Point Contamination Control Guidance .......................... 22
- ATTACHMENT 9 - Steam Generator Tube Leak/Rupture Guidelines .................................... 23

**FORMS**

- Form - 1 Habitability Log .................................................................................................. 26
1.0 PURPOSE
To outline and describe the Shift Radiation Protection Technician’s (SRPT) duties during a declared emergency

2.0 PREREQUISITES
2.1 Prerequisites To Be Followed Prior To Implementing This Procedure
Implement this procedure at:
- The discretion of the Shift Manager (SM) or Radiation Protection Supervision.
- Upon a declaration of an Unusual Event or greater emergency classification.

3.0 PRECAUTIONS AND LIMITATIONS

NOTE
In accordance with the PSEG Nuclear LLC Emergency Plan, during a declared emergency, the Radiological Assessment Coordinator (RAC), among other duties, has complete oversight of the onsite Radiation Protection and Chemistry organizations.

The Salem Shift Radiation Protection Technician reports directly to the Shift Manager in the Salem Control Room and keeps the RAC informed of conditions.

Although the Radiation Protection Supervisor – Exposure Control (RPS-EXP) reports directly to the Operations Support Center Coordinator (OSCC), the RAC has oversight of the RPS-EXP concerning radiological matters.

Upon activation of the TSC, the following positions report directly to the RAC:
- The Radiation Protection Supervisor – Offsite located in the TSC;
- Any Radiation Protection Technicians assigned to the TSC;
- The Hope Creek Shift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Hope Creek Onshift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Salem Onshift Radiation Protection Technician (located at the Salem Control Point);

All other Onsite Radiation Protection Technicians (Hope Creek or Salem) report directly to The RPS-EXP.
3.1 **Precaution and Limitations To Be Followed Prior To Implementing This Procedure**

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

3.1.2 Personnel who implement this procedure shall be trained and qualified IAW the Emergency Plan.

3.1.3 The SM may change any priority concerning the SRPT’s duties, as deemed necessary.

3.1.4 Steps listed in this procedure may be performed in the order deemed appropriate for the emergency situations. Only steps applicable to the specific emergency need be performed.

4.0 **EQUIPMENT REQUIRED**

As provided at the Control Point and Control Room.

[The key to the Operations Support Center (OSC) emergency locker is located in the red key box at work control outside the Control Room]

5.0 **PROCEDURE**

5.1 **The SRPT Should:**

START completing Attachment 1, Shift Radiation Protection Technician(s) Checklist.

5.2 **When the TSC is Activated Perform the Following:**

5.2.1 If a radiological release is in progress, COMPLETE the turnover of Dose Assessment/Station Status Checklist duties to the Radiation Protection Supervisor – Offsite or the Radiological Assessment Coordinator.

**NOTE**

A complete listing of RMS monitors can be found in the RMS Manual (Unit 1 or 2).

5.2.2 REFER to EP Aid-048 for a quick reference for Salem RMS monitors, if needed.

5.2.3 DOCUMENT monitors in Warning "W" or Alarm "A" on Attachment 2, Radiological Assessment Data Sheet - Unit 1, or Attachment 3, Radiological Assessment Data Sheet - Unit 2.
5.2.4 DOCUMENT monitor values as instructed by the SM or Radiation Protection Supervision on Attachment 2, Radiological Assessment Data Sheet - Unit 1, or Attachment 3, Radiological Assessment Data Sheet - Unit 2.

5.2.5 TRANSMIT completed Attachment 2 or Attachment 3 via the FAX using the Group "C" key every 15 to 20 minutes or in the opinion of the SRPT, conditions warrant it.

5.2.6 PROVIDE a completed copy of Attachment 2 or 3 to the Radiation Protection Supervisor - Exposure Control (RPS-EXP) located in the OSC, every 15 to 20 minutes, or in the opinion of the SRPT, conditions warrant it.

6.0 RECORDS
Return completed procedure and any information or data thought to be pertinent by the SRPT, to the Emergency Preparedness Manager.

7.0 REFERENCES

7.1 References
PSEG Nuclear Emergency Plan LLC.

7.2 Cross References

7.2.1 NC.EP-EP.ZZ-0310(Q), Radiation Protection Supervisor – Offsite And Field Monitoring Team Response.

7.2.2 Salem Offsite Dose Calculation Manual (ODCM).
ATTACHMENT 1
SHIFT RADIATION PROTECTION TECHNICIAN CHECKLIST
Page 1 of 5

1.0 SRPT INITIAL ACTIONS

NOTE

- The order that the steps are followed in this attachment may be performed out of sequence, if the SRPT believes the emergency warrants it.
- Refer to NC.EP-EP.ZZ-0303 (Q), for Assembly/Accountability directions at the Control Point, if implemented.

1.1 Perform the Following:

1.1.1 REPORT to the CR when an emergency is declared to receive a briefing from the SM.

1.1.2 PROVIDE a briefing to the SM, which should include the following Information:
- Habitability of the Control Point and Control Room.
- Any unusual dose rates observed on the way to the CR.

NOTE

- On a back shift, during a non-outage situation, there should be 2 Rad Pro Techs and 1 Chemistry Tech available at all times at Hope Creek.
- The Hope Creek Control Point may be contacted at extension 3741.
- The staffing of the Salem Radiation Protection and Chemistry personnel.

1.1.3 REQUEST the status of the MET Tower’s operability.
   A. IF the MET Tower is not operational, THEN refer to step 1.1.9.

1.1.4 OBTAIN the identity of Communicator 2 (Name)
ATTACHMENT 1
SHIFT RADIATION PROTECTION TECHNICIAN CHECKLIST
Page 2 of 5

1.1.5 TURN on the AMS located in the back of Unit 1 & Unit 2 CR.

1.1.6 REQUEST that the Emergency Vehicle from the Hope Creek Control Point (x3741) be delivered to the Unit 2 Steam Mixing Bottle Area or alternate location, depending on radiological conditions, and the keys delivered to the Salem CP when any of the following occur:

- Upon an Alert declaration or higher.
- When an Alert declaration or higher is about to be made.
- If on/offsite monitoring is deemed necessary by the SM or Radiation Protection Supervision.

NOTE
- The SRPT should be generating page two of the Station Status Checklist (SSCL) for both Salem Unit One and Unit Two, for DUAL Site Events. The Hope Creek SRPT will be generating a SSCL for Hope Creek under these conditions.
- A blank SSCL, page 2, may be obtained from Communicator Number 2, if thought necessary.
- The SRPT should write the dose assessment assumptions used in the MIDAS calculations in the “3. Other Pertinent Information” portion of the SSCL, if the MIDAS calculations were not based on RMS monitor values (R41A-C).

Examples would be Isotopic Dose Assessment or Main Steam Line Dose Assessment Based on Teletector Values, etc.

1.1.7 IF a radiological release is in progress, IMPLEMENT NC.EP.EP.ZZ-0309(Q), Dose Assessment, to perform dose assessment and generate a SSCL pg. 2 every 30 minutes.

1.1.8 PERFORM the following steps, if automatic data acquisition MIDAS and/or the MET Computer is not operational:

- REFER to appropriate attachment, (Attachment 2, Radiological Assessment Data Sheet - Unit 1 or Attachment 3, Radiological Assessment Data Sheet - Unit 2).
- COMPLETE monitors with an * next to them, monitors in alarm, and the MET Data section listed on Attachments 2 and 3 every 15 minutes for the affected Unit.
1.1.9 OBTAIN the MET data from the following, if the MET Computer is not operational:

- Hope Creek Control Point (extension 3741)
- National Weather Service at 609-261-6604 or 609-261-6602
- The Internet (Weather Channel or similar website) (see EP Aid-025).

NOTE

Contact an Emergency Preparedness Coordinator at NETS x5028 or DID x3761 concerning any MIDAS problems during a declared emergency.

OR

Contact the Emergency Preparedness Advisor (EPA) in the TSC after the activation of the TSC concerning any MIDAS problems.

1.1.10 If a radiological release is in progress and automatic data collection is not functioning, IMPLEMENT NC.EP.EP.ZZ-0309 (Q) Dose Assessment (MIDAS) Instructions, to perform dose assessment in the manual mode.

1.1.11 IF the MIDAS computer located in the CR is not operational, THEN use one of the MIDAS computers listed below:

- Salem TSC
- Hope Creek Control Point
- Hope Creek TSC

1.1.12 If a radiological release is in progress, REVIEW page 2 of the SSCL to ensure all data is correct: If the Projected TEDE (4 Day) Dose in any row is \( \geq 1000 \text{ mRem} \) or the Thyroid CDE Dose is \( \geq 5000 \text{ mRem} \), immediately inform the Shift Manager and RAC (N/A if Dose Assessment has been transferred to the TSC or EOF).
1.1.13 PROVIDE the signed SSCL to Communicator Number 2, or leave it with the SM, if he requests to keep it.

1.1.14 PERFORM habitability checks in the CR, and OSC if activated, every thirty minutes and record results on Form – 1, Habitability Log, unless told otherwise by the SM or the Radiation Protection Supervisor-Exposure Control (RPS-EXP).

1.1.15 MAKE recommendations for Onsite Protective Actions to the SM or RAC for Onsite locations using Attachment 7, Onsite Protective Action Guidelines, when necessary.

1.1.16 ESTABLISH Contamination Controls (no eating, no drinking, no smoking, proper postings, setting up step off pads (SOP) and friskers) when any of the following have occurred.

NOTE

SOP’s will be placed at the entrances to “hardened” facilities, which have pressurized/filtered ventilation (CR & TSC). The Control Point will be controlled in accordance with Attachment 9 and other facilities/areas will be controlled as deemed appropriate by the RAC. Non-hardened facilities can become contaminated if the radiological release is pulled into normal building ventilation. SRPT and RAC should discuss potential for building contamination.

- If it has been determined that a radiological release is in progress.
- The potential for a radiological release is thought to be high.
- Normal RCA boundaries have been breached.
- At the SM’s or RAC’s discretion.
A RM-14 or equivalent count rate meter should be positioned next to all newly placed contamination control step off pads.

1.1.17 IMPLEMENT Attachment 9, SALEM RP CONTROL POINT CONTAMINATION CONTROL GUIDANCE, to limit access to certain areas and where to position step off pads.

1.1.18 NOTIFY the RAC and RPS-EXP of changing radiological conditions regarding release, habitability and/or contamination controls.

1.1.19 ASSIST the SM with completion of Page 2 of the NRC Data Sheet, if requested.

1.1.20 IMPLEMENT Attachment 10, Steam Generator Tube Leak/Rupture Guidelines, when thought appropriate.

1.1.21 IMPLEMENT Section 5.2 of this procedure, and follow appropriate steps, when the TSC is activated.

TURNOVER
Given By: ___________________________ Date/Time: ___ - ___ - ___ / ___ : ___

TURNOVER
Received By: _________________________ Date/Time: ___ - ___ - ___ / ___ : ___
**Meteorological Data**

Back up MET data may be obtained by calling Hope Creek Control Point at 3741 or contacting the National Weather Service at (609) 261-6604 or (609) 261-6602

<table>
<thead>
<tr>
<th>Monitor Number</th>
<th>Name</th>
<th>Value</th>
<th>Units</th>
<th>Warning</th>
<th>Alarm</th>
<th>Low Range</th>
<th>High Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1R11A</td>
<td>CTMT Particulate</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E +01</td>
<td>1E +06</td>
</tr>
<tr>
<td>1R12A</td>
<td>CTMT Noble Gas</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E +01</td>
<td>1E +06</td>
</tr>
<tr>
<td>1R12B</td>
<td>CTMT Iodine</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E +01</td>
<td>1E +06</td>
</tr>
<tr>
<td>*1R41A</td>
<td>Low Range PV NG</td>
<td>µCi/cc</td>
<td>N/A</td>
<td>N/A</td>
<td>1E-08</td>
<td>1E-01</td>
<td></td>
</tr>
<tr>
<td>*1R41B</td>
<td>Mid Range PV NG</td>
<td>µCi/cc</td>
<td>N/A</td>
<td>N/A</td>
<td>1E-04</td>
<td>1E+02</td>
<td></td>
</tr>
<tr>
<td>*1R41C</td>
<td>High Range PV NG</td>
<td>µCi/cc</td>
<td>N/A</td>
<td>N/A</td>
<td>1E-01</td>
<td>1E+05</td>
<td></td>
</tr>
<tr>
<td>1R41D</td>
<td>NG Effluent</td>
<td>µCi/sec</td>
<td>W</td>
<td>A</td>
<td>1E+00</td>
<td>1E+13</td>
<td></td>
</tr>
<tr>
<td>1R2</td>
<td>130 CTMT ARM</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
<td></td>
</tr>
<tr>
<td>1R10A</td>
<td>100' CTMT Personnel Hatch</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
<td></td>
</tr>
<tr>
<td>1R10B</td>
<td>130' CTMT Personnel Hatch</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
<td></td>
</tr>
<tr>
<td>1R7</td>
<td>Seal Table, GA</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
<td></td>
</tr>
<tr>
<td>+1R44A</td>
<td>CTMT High Range</td>
<td>R/hr</td>
<td>W</td>
<td>A</td>
<td>1E+00</td>
<td>1E+07</td>
<td></td>
</tr>
<tr>
<td>+1R44B</td>
<td>CTMT High Range</td>
<td>R/hr</td>
<td>W</td>
<td>A</td>
<td>1E+00</td>
<td>1E+07</td>
<td></td>
</tr>
<tr>
<td>1R53</td>
<td>MSL Process (N 16)</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
<td></td>
</tr>
</tbody>
</table>

* Complete every 15 minutes
+ Record Value if On-scale.

(1) Circle “W” or “A” for any monitor in “Warning” or “Alarm”
## ATTACHMENT 2

### RADIOLOGICAL ASSESSMENT DATA SHEET - UNIT 1

**Date:______________**

**Time:______________**

<table>
<thead>
<tr>
<th>Monitor Number</th>
<th>Name</th>
<th>Value</th>
<th>Units</th>
<th>Warning (1)</th>
<th>Alarm (1)</th>
<th>Low Range</th>
<th>High Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1R1A</td>
<td>CR, General Area (GA)</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R1B</td>
<td>Control Room Intake Duct</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R3</td>
<td>Chem Lab, GA</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R4</td>
<td>Charging Pump, GA</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R5</td>
<td>Spent Fuel Pool</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R6A</td>
<td>Primary Sample Lab</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R9</td>
<td>New Fuel Storage, GA</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R13A</td>
<td>21-23 CFCU SW Local Mon</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R13B</td>
<td>23-25 CFCU SW Local Mon</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R15</td>
<td>Condenser Air Ejector</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R17A</td>
<td>Component Cooling H₂O</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R17B</td>
<td>Component Cooling H₂O</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R18</td>
<td>Liquid Waste Release</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R19A</td>
<td>#11 S/G Blowdown</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+00</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R19B</td>
<td>#12 S/G Blowdown</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+00</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R19C</td>
<td>#13 S/G Blowdown</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+00</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R19D</td>
<td>#14 S/G Blowdown</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+00</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R20B</td>
<td>Chemistry Count Room</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R26</td>
<td>Rx Coolant Filter</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-02</td>
<td>1E+03</td>
</tr>
<tr>
<td>1R31A</td>
<td>Letdown HX Failed Fuel</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R32A</td>
<td>Fuel Handling Crane</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R34</td>
<td>North Pipe Pen</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R36</td>
<td>Evap and Feed H₂O</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R40</td>
<td>Condensate Filter</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R46</td>
<td>MSL Process</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+00</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R47</td>
<td>Electrical Pen High Range</td>
<td>mR/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+07</td>
</tr>
<tr>
<td>2R52</td>
<td>PASS Room</td>
<td>R/ hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E+00</td>
<td>1E+04</td>
</tr>
</tbody>
</table>

(1) Circle "W" or "A" for any monitor in "Warning" or "Alarm"
Date: ________________  Time: ________________

**Meteorological Data**

Back up MET data may be obtained by calling Hope Creek Control Point at 3741, National Weather Service at (609) 261-6604 or (609) 261-6602.

| Wind Speed | mph | 33' |
| Wind Speed | mph | 300' |
| Wind Direction FROM | degrees | 33' |
| Wind Direction FROM | degrees | 300' |
| Delta “T” | °C | 300-33’ or 150-33’ |

(Use 300-33 if operational)

| Plant Vent flow rate | (1.25E + 05 if unknown) | _______ | cfm |

<table>
<thead>
<tr>
<th>Monitor Number</th>
<th>Name</th>
<th>Value</th>
<th>Units</th>
<th>Warning (1)</th>
<th>Alarm (1)</th>
<th>Low Range</th>
<th>High Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2R11A</td>
<td>CTMT Particulate</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>1E +01</td>
<td>1E +06</td>
<td></td>
</tr>
<tr>
<td>2R12A</td>
<td>CTMT NG</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>1E +01</td>
<td>1E +06</td>
<td></td>
</tr>
<tr>
<td>2R12B</td>
<td>CTMT Iodine</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>1E +01</td>
<td>1E +06</td>
<td></td>
</tr>
<tr>
<td>*2R41A</td>
<td>Low Range PV NG</td>
<td>µCi/cc</td>
<td>N/A</td>
<td>N/A</td>
<td>1E-08</td>
<td>1E-01</td>
<td></td>
</tr>
<tr>
<td>*2R41B</td>
<td>Mid Range PV NG</td>
<td>µCi/cc</td>
<td>N/A</td>
<td>N/A</td>
<td>1E-04</td>
<td>1E+02</td>
<td></td>
</tr>
<tr>
<td>*2R41C</td>
<td>High Range PV NG</td>
<td>µCi/cc</td>
<td>N/A</td>
<td>N/A</td>
<td>1E-01</td>
<td>1E+05</td>
<td></td>
</tr>
<tr>
<td>2R41D</td>
<td>NG Effluent</td>
<td>µCi/sec</td>
<td>W</td>
<td>A</td>
<td>1E+00</td>
<td>1E+13</td>
<td></td>
</tr>
<tr>
<td>2R2</td>
<td>130 CTMT ARM</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
<td></td>
</tr>
<tr>
<td>2R10A</td>
<td>100’ CTMT Persnl Hatch</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
<td></td>
</tr>
<tr>
<td>2R10B</td>
<td>130’ CTMT Persnl Hatch</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
<td></td>
</tr>
<tr>
<td>2R7</td>
<td>Seal Table, GA</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
<td></td>
</tr>
<tr>
<td>+2R44A</td>
<td>CTMT High Range</td>
<td>R/hr</td>
<td>W</td>
<td>A</td>
<td>1E+00</td>
<td>1E+07</td>
<td></td>
</tr>
<tr>
<td>+2R44B</td>
<td>CTMT High Range</td>
<td>R/hr</td>
<td>W</td>
<td>A</td>
<td>1E+00</td>
<td>1E+07</td>
<td></td>
</tr>
<tr>
<td>2R53</td>
<td>MSL Process (N 16)</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td>1E+01</td>
<td>1E+06</td>
<td></td>
</tr>
</tbody>
</table>

* Complete every 15 minutes
+ Record Value if Onscale
(1) Circle “W” or “A” for any monitor in “Warning” or “Alarm”
## ATTACHMENT 3
### RADIOLOGICAL ASSESSMENT DATA SHEET - UNIT 2

<table>
<thead>
<tr>
<th>Monitor Number</th>
<th>Name</th>
<th>Value</th>
<th>Units</th>
<th>Warning (1)</th>
<th>Alarm (1)</th>
<th>Low Range</th>
<th>High Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2R1A</td>
<td>CR, General Area (GA)</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R1B</td>
<td>CR Intake Duct</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R3</td>
<td>Chem Lab, GA</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td>A</td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R4</td>
<td>Charging Pump, GA</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R5</td>
<td>Spent Fuel Pool</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>1R6A</td>
<td>Primary Sample Lab</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R9</td>
<td>New Fuel Storage, GA</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R13A</td>
<td>21-23 CFCU SW LOCAL MON</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R13B</td>
<td>23-25 CFCU SW LOCAL MON</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R15</td>
<td>Condenser Air Ejector</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R17A</td>
<td>Component Cooling H₂O</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R17B</td>
<td>Component Cooling H₂O</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R18</td>
<td>Liquid Waste Release</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R19A</td>
<td>#21 S/G Blowdown</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+00</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R19B</td>
<td>#22 S/G Blowdown</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+00</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R19C</td>
<td>#23 S/G Blowdown</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+00</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R19D</td>
<td>#24 S/G Blowdown</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+00</td>
<td>1E+06</td>
</tr>
<tr>
<td>1R20B</td>
<td>Chem Count Room (Unit 1)</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R26</td>
<td>Rx Coolant Filter</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R31</td>
<td>Letdown HX Failed Fuel</td>
<td>CPM</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+01</td>
<td>1E+06</td>
</tr>
<tr>
<td>2R32A</td>
<td>Fuel Handling Crane</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R34</td>
<td>South Pipe Pen</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+01</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R40</td>
<td>Condensate Filter</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R46</td>
<td>MSL Process</td>
<td>MR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+00</td>
<td>1E+04</td>
</tr>
<tr>
<td>2R47</td>
<td>Electrical Pen High Range</td>
<td>mR/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E-01</td>
<td>1E+07</td>
</tr>
<tr>
<td>2R52</td>
<td>PASS Room</td>
<td>R/hr</td>
<td>W</td>
<td>A</td>
<td></td>
<td>1E+00</td>
<td>1E+04</td>
</tr>
</tbody>
</table>

(1) Circle “W” or “A” for any monitor in “Warning” or “Alarm”
RESERVED

SEE EP AID-048
For RMS Quick Reference
1.0 OPERATION OF THE RM 2300 (R41 MONITORS)

1.1 PERFORM the following to obtain 1 minute, 10 minute, hourly, or daily readings.

2.1.1 PRESS **CURRENT ACTIVITY**.

2.1.2 PRESS **SELECT**.

2.1.3 IF “MENUS” is not highlighted, THEN RETURN to Step 2.1.1.

2.1.4 VERIFY “MENUS” is highlighted

2.1.5 PRESS **SELECT**.

2.1.6 PRESS **DOWN “l” ARROW** until “Display/Clear History” is highlighted

**NOTE**

When obtaining RMS data, use RP1 panel & rack room strip charts.
2.1.7 PRESS **SELECT.** “DISPLAY HISTORY” should be highlighted.

2.1.8 PRESS **SELECT.**

2.1.9 USE **DOWN “↑” ARROW** to highlight 1 minute, 10 minute, hourly, or daily averages.

2.1.10 PRESS **SELECT.** Channel ID is located in the upper left hand corner of screen (Channel 1 = R41A, Channel 2 = R41B, Channel 3 = R41C, and Channel 4 = R41D)

2.1.11 USE **PREVIOUS** or **NEXT** push buttons to change channel to desired channel. These buttons are located on right side of panel, under Channel Select. The most current reading is at the top of the left side column.

2.1.12 PRESS **CURRENT ACTIVITY** push button to return to the main screen.
ATTACHMENT 6
RESERVED

RESERVED
1.0 **RADIATION LEVELS**

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 100</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel. Consider evacuation of other personnel.</td>
</tr>
<tr>
<td>&gt; 1000</td>
<td>Control Room, OSC, TSC, Control Point</td>
<td>Consider evacuation within one hour, and/or relocation as appropriate.</td>
</tr>
<tr>
<td>&gt; 1000</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel. Consider immediate evacuation of remaining personnel.</td>
</tr>
<tr>
<td>&gt; 1000</td>
<td>Control Room, OSC, TSC, Control Point</td>
<td>Consider immediate evacuation, and/or relocation upwind of the plume.</td>
</tr>
</tbody>
</table>

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 Emergency Procedure NC.EP-EP.ZZ-0305 (Q), Stable Iodine Thyroid Blocking, for additional information.
Place Step Off Pads and Friskers in the indicated locations*

* Depicts locations for locked doors and SOP’s for establishing contamination controls at the RP Control Point. Understand, the RP Control Point is not a hardened facility and if a release is picked up by the ventilation supply, the entire area could become contaminated.
ATTACHMENT 9
STEAM GENERATOR TUBE LEAK/RUPTURE GUIDELINES
Page 1 of 3

1.0  STEAM GENERATOR TUBE LEAK/RUPTURE GUIDELINES

1.1  Refer to the Following Guidelines for Assistance During a Steam Generator Tube Leak/Rupture.

1.1.1  REFER to SC.RP-T1.RM-0607(Q) Primary To Secondary Leak Rate Calculation Based on R15 or R19 Data, to monitor steam generator leak rate. Keep the SM informed of leak rates.

NOTE

• A Steam Generator Tube Rupture (SGTR) that occurs without a breach of the Main Steam Line(s) (MSL) will be a monitored, but unfiltered release. The Plant Vent Effluent Radiation Monitors (R41A – C) will detect this release and dose assessment may be performed using the appropriate Plant Vent Effluent Radiation Monitor in accordance with (IAW) NC.EP-EP.ZZ-0309 (Q) Dose Assessment, unless or until Operations isolates the pathway from the condenser air removal header to the Plant Vent.

• Dose assessment may be performed using the R46 monitor value during a primary to secondary leak or SGTR IAW NC.EP-EP.ZZ-0309 (Q) Dose Assessment.

• Dose assessment may be performed in the case of a breach of the MSL, or the appropriate R46 monitor being out of service, by taking a dose rate on a PRE-EXISTING TELETECTOR RAD MONITORING LOCATION of the affected MSL IAW NC.EP-EP.ZZ-0309(Q) Dose Assessment.

• The PRE-EXISTING TELETECTOR RAD MONITORING LOCATIONS are at the bend of the MSL, prior to the Main Steam Isolation Valves. Refer to NC.EP-EP.ZZ-0309(Q), Dose Assessment for a diagram.

1.1.2  PERFORM dose assessment IAW NC.EP-EP.ZZ-0309 (Q), Dose Assessment, inputting the R46 monitor value or if the monitor is inoperable use the teletector reading at the pre-designated survey location multiplied by the monitor correction factor (1.16E-02) and input this value as the R46 reading.
1.1.3 CONSIDER setting up contamination controls for the Turbine Building due to pre-existing leaks should be considered contaminated. (Contamination levels could increase to "Contamination Area" values due to the secondary side being contaminated from the primary side).

1.1.4 IF radiological conditions in the area warrant it, THEN establish the Turbine Building or portions of the Turbine as Radiation Areas or High Radiation Areas (The dose rates could increase to these levels due to the secondary side being contaminated by the primary side).

NOTE

- The possibility exists that the entire Protective Area for Salem and Hope Creek could become a contaminated area where only clean islands exist.
- All areas of water found on Plant surfaces/floors and in the Yard, should be considered contaminated, until proven otherwise.

1.1.5 CONSIDER setting up contamination controls promptly, to ensure that the Control Room/OSC, Control Point, TSC and Main Guard House are maintained as clean islands.

1.1.6 CONSIDER the following items to help maintain these areas as clean islands:

- DELIVER Shoe covers, gloves, friskers, PC and waste Containers to the CR & OSC.
- DRESS Anyone exiting the CR & OSC clean area in shoe covers and gloves.
- FRISK all personnel prior to entering the CR/OSC.
• DECONTAMINATE all contaminated persons, as time and manpower permits.

• PREVENT contaminated persons or items/equipment from entering into clean areas without Supervision's approval.

• SETUP the entrance(s) to the Main Guard House, with step off pads, friskers, PC and waste containers, as time and manpower permits.

• DELIVER shoe covers and gloves to the Guard House, to be worn by anyone exiting the guard house into the Protected Area, as time and manpower permits.

• REQUEST the SM for additional support from Hope Creek to assist with appropriate tasks, if thought necessary.
# HABITABILITY LOG

<table>
<thead>
<tr>
<th>TIME</th>
<th>LOCATION</th>
<th>DOSE RATE (mR/hr)</th>
<th>CONTAMINATION (CPM)</th>
<th>INITIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If other means are used to ensure habitability, then list:

________________________________________

________________________________________

________________________________________
PSEG NUCLEAR L.L.C.
EMERGENCY PREPAREDNESS
HC.EP-EP.ZZ-0301(Q) - REV. 8
SHIFT RADIATION PROTECTION TECHNICIAN RESPONSE

USE CATEGORY: II

A. Biennial review performed: Yes ___ No ___ N/A ___
B. Packages and Affected Document Numbers incorporated into this revision: None
C. The following OTSCs were incorporated into this revision: None

REVISION SUMMARY:

• Revised to incorporate changes resulting from radiological release definition change, PAR Process changes due to implementation of NUREG-0654 Supplement 3, and MIDAS software revisions.
• Step 5.2.1 modified to identify turnover of dose assessment responsibilities not required unless a release is in progress. The definition of a Radiological Release has changed as defined in IMCF ECG Attachments 1-4 and no longer is set to the ODCM limit.
• Step 5.2.2 modified to review EP Aid-049 - Hope Creek Radiation Monitoring System Summary as Attachment 4 is being deleted.
• Attachment 1 Note 1.1 revised to add EP Aid-019 for SPDS instructions
• Attachment 1 step 1.1.6 modified to add “if a radiological release is in progress”
• Attachment Step 1.1.8 – added reference to EP Aid-025
• Attachment 1 Note above 1.1.11 updated phone numbers
• Attachment 1 step 1.1.9 modified to add if a radiological release is in progress and automatic data collection is not available.

(continued)

IMPLEMENTATION REQUIREMENTS

Effective Date: _______________
REVISION SUMMARY (Continued):

- Attachment 1 step 1.1.12 modified to add if a radiological release is in progress, generalized direction to review the SSCL and added the guidance to notify the SM or RAC if Protective Action Guidelines (PAG) are exceeded (>1000 mRem Projected TEDE Dose or >5000 mRem Projected Thyroid CDE Dose). Changes to NUREG 0654 Supplement 3 has revised the Protective Action Recommendations made by PSEG. Changing the emphasis to have the SRPT inform the SM/RAC if dose assessment exceeds the PAGs versus having the SRPT determine the radiological PAR. PARs are only given to the states if in a GE Classification.
- Attachment 1 steps 1.1.12 through 1.1.22 have been revised as the SRPT is not responsible to determine the radiological PAR.
- Attachment 2 – removed NPV and SPV particulate and iodine entry lines as not required.
- Attachment 3 deleted (reserved) added direction on page to refer to EP Aid-049 - Hope Creek Radiation Monitoring System Summary
- Attachment 6 deleted (reserved) to remove old radiological PAR flowchart.
# SHIFT RADIATION PROTECTION TECHNICIAN RESPONSE

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE ......................................................................</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES ................................................................</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS ......................................</td>
<td>2</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED ..................................................</td>
<td>3</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE .....................................................................</td>
<td>3</td>
</tr>
<tr>
<td>5.1</td>
<td>The SRPT Should: ....................................................</td>
<td>3</td>
</tr>
<tr>
<td>5.2</td>
<td>When the TSC is Activated Perform the Following: .............</td>
<td>3</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS ........................................................................</td>
<td>4</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES ...................................................................</td>
<td>4</td>
</tr>
<tr>
<td>7.1</td>
<td>References ...................................................................</td>
<td>4</td>
</tr>
<tr>
<td>7.2</td>
<td>Cross References .....................................................</td>
<td>4</td>
</tr>
<tr>
<td>ATTACHMENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATTACHMENT 1 - Shift Radiation Protection Technician Checklist</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>ATTACHMENT 2 - Hope Creek RMS Status Sheet</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>ATTACHMENT 3 - Reserved</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>ATTACHMENT 4 - Onsite Protective Action Guidelines</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>ATTACHMENT 5 - DAPA Correction Calculations</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>ATTACHMENT 6 - Reserved</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>FORMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form 1 - Habitability Log</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>FIGURES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figure 1 - 1 - DAPA Monitor Reading vs. Average Drywell Air Temperature</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Figure 1 - 2 - DAPA Monitor Reading Bias vs. Average Drywell Air Temperature</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>
1.0 **PURPOSE**

To outline and describe the Shift Radiation Protection Technician’s (SRPT) duties during a declared emergency

2.0 **PREREQUISITES**

2.1 **Prerequisites To Be Followed Prior To Implementing This Procedure**

Implement this procedure at:

- The discretion of the Shift Manager (SM) or Radiation Protection Supervision.
- Upon a declaration of an Unusual Event or greater emergency classification.

3.0 **PRECAUTIONS AND LIMITATIONS**

**NOTE**

In accordance with the PSEG Nuclear LLC Emergency Plan, during a declared emergency, the Radiological Assessment Coordinator (RAC), among other duties, has complete oversight of the onsite Radiation Protection and Chemistry organizations.

Although the Radiation Protection Supervisor – Exposure Control (RPS-EXP) reports directly to the Operations Support Center Coordinator (OSCC), the RAC has oversight of the RPS-EXP concerning radiological matters.

Upon activation of the TSC, the following positions report directly to the RAC:

- The Radiation Protection Supervisor – Offsite located in the TSC;
- Any Radiation Protection Technicians assigned to the TSC;
- The Hope Creek Shift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Hope Creek Onshift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Salem Onshift Radiation Protection Technician (located at the Salem Control Point);

The Salem Shift Radiation Protection Technician reports directly to the Shift Manager in the Salem Control Room.

All other Onsite Radiation Protection Technicians (Hope Creek or Salem) report directly to The RPS-EXP.
3.1 Precaution and Limitations To Be Followed Prior To Implementing This Procedure

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

3.1.2 Personnel who implement this procedure shall be trained and qualified IAW the Emergency Plan.

3.1.3 The SM may change any priority concerning the SRPT’s duties, as deemed necessary.

3.1.4 Steps listed in this procedure may be performed in the order deemed appropriate for the emergency situations. Only steps applicable to the specific emergency need be performed.

4.0 EQUIPMENT REQUIRED

As provided at the Control Point and Control Room.

5.0 PROCEDURE

NOTE

The SM may change any priority for the SRPT, as deemed necessary.

5.1 The SRPT Should:

5.1.1 START completing Attachment 1, Shift Radiation Protection Technician Checklist.

5.2 When the TSC is Activated Perform the Following:

5.2.1 If a release is in progress, COMPLETE the turnover of Dose Assessment/Station Status Checklist duties to the Radiation Protection Supervisor - Offsite or the Radiological Assessment Coordinator (RAC).

5.2.2 REFER to EP Aid-049 for a quick reference to Hope Creek RMS monitors, if needed.

5.2.3 IF RMS data is not available from the RM-11 or SPDS Reports, THEN PERFORM the following steps every 15 minutes:

A. DOCUMENT radiation monitors that are in Alarm on Attachment 2, Hope Creek RMS Status Sheet, from the Control Room by referring to the 10C604 Panel.
B. **DOCUMENT** other radiation monitor values as instructed by the SM or Radiation Protection Supervision on Attachment 2.

C. **FAX** the completed Attachment 2 to the TSC and EOF using the Group “C” key.

D. **PROVIDE** a completed copy of Attachment 2 to the Radiation Protection Supervisor - Exposure Control (RPS-EXP) located in the OSC, every 15 to 20 minutes, or in the opinion of the SRPT, if conditions warrant it.

5.2.4 **IMPLEMENT** NC.EP-EP.ZZ-0303(Q), Control Point - Radiation Protection Response.

6.0 **RECORDS**

Return completed procedure and any information or data thought to be pertinent by the SRPT, to the Emergency Preparedness Manager.

7.0 **REFERENCES**

7.1 **References**

PSEG Nuclear 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-0303 (Q), Control Point - Radiation Protection – Response

7.2.3 EP Aid-049 - Hope Creek Radiation Monitoring System Summary
1.0 SRPT INITIAL ACTIONS

**NOTE**

- The order that the steps are followed in this attachment may be performed out of sequence, if the SRPT believes the emergency warrants it.
- Refer to NC.EP-EP.ZZ-0303(Q), for Assembly/Accountability directions at the Control Point, if implemented.
- Refer to EP Aid-019 for SPDS Operation Instructions, to obtain Meteorological or Radiological Reports.
- Refer to HC.RP-TI.ZZ-0004(Q), Gaseous Effluent Surveillance, for sampling instructions, as needed.

1.1 Perform the Following:

1.1.1 REPORT to the CR when an emergency is declared to receive a briefing from the SM.

1.1.2 REQUEST that the SRPT, or his designee, located at the Control Point is notified if FRVS is placed in service.

1.1.3 OBTAIN the identity of Communicator 2 _____________________.

   (Name)

1.1.4 REQUEST the status of the MET Tower’s operability.

   - IF the MET Tower is not operational, THEN REFER to step 1.1.8.

1.1.5 PROVIDE a briefing to the SM, which should include the following Information:

   - Habitability of the Control Point and Control Room.

   - Any unusual dose rates, Plant Conditions, or Alarms observed on the way to the CR.
NOTE

- On a back shift, during a non-outage situation, there should be two Rad Pro Techs and one Chemistry Tech available at all times at Salem.
- The Salem Control Point may be contacted at extension 2635, 2644, or 2608 (Radiation Protection Supervisor’s phone).
- The staffing of the Salem Radiation Protection and Chemistry personnel.

NOTE

- The SRPT should be generating page two of the Station Status Checklist (SSCL) for Hope Creek, during COMMON Site Events. The Salem SRPT will be generating a SSCL for Salem Units 1 and 2 during Common Site Events.
- A blank SSCL, page 2, may be obtained from Communicator Number 2, if necessary.
- The SRPT should write the dose assessment assumptions used in the MIDAS calculations in the “3. Other Pertinent Information” portion of the SSCL, if the MIDAS calculations were not based on RMS monitor values (NPV, SPV, FRVS, HTV). Example would be “Isotopic Dose Assessment.”

1.1.6 IF a radiological release is in progress, IMPLEMENT NC.EP-EP.ZZ-0309(Q), Dose Assessment (MIDAS) Instructions, to perform dose assessment and generate a completed SSCL pg. 2 every 30 minutes.

1.1.7 PERFORM the following steps, if automatic data acquisition MIDAS and/or the MET Computer is not operational:

- REFER to Attachment 2, Hope Creek RMS Status Sheet.
- COMPLETE Vent Process Monitors and the MET Data section every 15 minutes.
1.1.8 **OBTAIN** the MET data from the following sources, **IF** the MET Computer **NOT** is operational **THEN**:

- Salem Unit One Control Room (NETS X5120, DID X5111).
- National Weather Service at 609-261-6604 or 609-261-6602.
- The Internet (Weather Channel or similar website) (see EP Aid-025).

1.1.9 **IF** a radiological release in in progress, **THEN IMPLEMENT** NC.EP-EP.ZZ-0309(Q), Dose Assessment (MIDAS) Instructions, for instructions for performing dose assessment in the manual mode.

1.1.10 **INPUT** the appropriate effluent monitor and MET values manually into MIDAS to perform dose assessment in the manual mode.

**NOTE**

Contact the Emergency Preparedness Coordinator (EPC) in the EOF at NETS X5028 or DID X3761.

1.1.11 **IF** the MIDAS computer located at the CP is **NOT** operational, **THEN** use one of the MIDAS computers listed below:

- Hope Creek TSC
- Salem Control Room
- Salem TSC

1.1.12 **IF** a radiological release is in progress, **REVIEW** page 2 of the SSCL to ensure all data is correct: **IF** the Projected TEDE (4 Day) Dose in any row is ≥1000 mRem or the Thyroid CDE Dose is ≥5000 mRem, immediately inform the Shift Manager and RAC (N/A if Dose Assessment has been transferred to the TSC or EOF).

1.1.13 **PROVIDE** the signed SSCL to Communicator Number 2, or leave it with the SM, if he requests to keep it.
ATTACHMENT 1
Page 4 of 5

1.1.14 **ASSIST** the SM with completion of Page 2 of the NRC Data Sheet, upon request.

1.1.15 **PERFORM** habitability checks at the CP, CR, and the OSC if activated, every thirty minutes and record results on Form - 1, Habitability Log, unless told otherwise by the SM, Radiation Protection - Exposure Control (RPS-EXP), or the RAC.

1.1.16 **MAKE** recommendations for onsite protective actions to the SM or RAC for onsite locations using Attachment 4, Onsite Protective Action Guidelines, when necessary.

1.1.17 **ESTABLISH** Contamination Controls (no eating, no drinking, no smoking, proper postings, setting up step off pads and friskers) IAW NC.EP-EP.ZZ-0303(Q), when any of the following have occurred:

- A radiological release is in progress.
- The potential of a radiological release is thought to be high.
- Normal RCA boundaries have been breached.
- At the RAC's discretion.

1.1.18 **NOTIFY** the RAC and RPS-EXP of changing radiological conditions as determined from step 1.1.16.

**NOTE**

DAPA monitor readings fluctuate due to Drywell temperature. Consult Attachment 5, DAPA Correction Calculations, to perform the required calculations to obtain the correct DAPA monitor readings, if necessary.

1.1.19 **TREND** RMS data utilizing the RM-11 or SPDS Reports, if directed.

1.1.20 **REFER** to EP Aid-049 for information concerning RMS monitors.
1.1.21 **REFER** to HC.RP-AR.SP-0001(Q), Radiation Monitoring System Alarm Response for more complete information concerning RMS.

1.1.22 **IMPLEMENT** Section 5.2 of this procedure, and follow appropriate steps, when the TSC is activated.
## METEOROLOGICAL DATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Low Value</th>
<th>High Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>WND SPD 33 FT.</td>
<td>MPH</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>WND SPD 150 FT.</td>
<td>MPH</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>WND SPD 300 FT.</td>
<td>MPH</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>WND DIR 33 FT</td>
<td>DEG FROM</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>WND DIR 150 FT</td>
<td>DEG FROM</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>WND DIR 300 FT</td>
<td>DEG FROM</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DELTA T (150-33)</td>
<td>DEG C</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DELTA T (300-33)</td>
<td>DEG C</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>STAB. CLASS (300-33)</td>
<td>A - G</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

## VENT PROCESS MONITORS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Low Value</th>
<th>High Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRVS LOW RANGE</td>
<td>uCi/cc</td>
<td>1.0E-08</td>
<td>1.0E-01</td>
</tr>
<tr>
<td>FRVS MID RANGE</td>
<td>uCi/cc</td>
<td>1.0E-03</td>
<td>1.0E+02</td>
</tr>
<tr>
<td>FRVS HIGH RANGE</td>
<td>uCi/cc</td>
<td>1.0E-01</td>
<td>1.0E+05</td>
</tr>
<tr>
<td>FRVS EFFLUENT</td>
<td>uCi/sec</td>
<td>0.0E+00</td>
<td>1.0E+12</td>
</tr>
<tr>
<td>NPV LOW RANGE</td>
<td>uCi/cc</td>
<td>1.0E-08</td>
<td>1.0E-01</td>
</tr>
<tr>
<td>NPV MID RANGE</td>
<td>uCi/cc</td>
<td>1.0E-03</td>
<td>1.0E+02</td>
</tr>
<tr>
<td>NPV HIGH RANGE</td>
<td>uCi/cc</td>
<td>1.0E-01</td>
<td>1.0E+05</td>
</tr>
<tr>
<td>NPV EFFLUENT</td>
<td>uCi/cc</td>
<td>5.0E-12</td>
<td>1.0E-06</td>
</tr>
<tr>
<td>SPV LOW RANGE</td>
<td>uCi/cc</td>
<td>1.0E-08</td>
<td>1.0E-01</td>
</tr>
<tr>
<td>SPV MID RANGE</td>
<td>uCi/cc</td>
<td>1.0E-03</td>
<td>1.0E+02</td>
</tr>
<tr>
<td>SPV HIGH RANGE</td>
<td>uCi/cc</td>
<td>1.0E-01</td>
<td>1.0E+05</td>
</tr>
<tr>
<td>SPV EFFLUENT</td>
<td>uCi/cc</td>
<td>5.0E-12</td>
<td>1.0E-06</td>
</tr>
<tr>
<td>HTV LOW RANGE</td>
<td>uCi/cc</td>
<td>1.0E-04</td>
<td>1.0E+02</td>
</tr>
<tr>
<td>HTV MID RANGE</td>
<td>uCi/cc</td>
<td>5.0E+00</td>
<td>5.0E+05</td>
</tr>
<tr>
<td>HTV EFFLUENT</td>
<td>uCi/sec</td>
<td>5.0E-03</td>
<td>2.60E+07</td>
</tr>
</tbody>
</table>

## DRYWELL MONITORS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Low Value</th>
<th>High Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAPA A</td>
<td>R/hr</td>
<td>1.0E+00</td>
<td>1.0E+08</td>
</tr>
<tr>
<td>DAPA B</td>
<td>R/hr</td>
<td>1.0E+00</td>
<td>1.0E+08</td>
</tr>
<tr>
<td>DW LEAK DETECT.</td>
<td>uCi/cc</td>
<td>1.0E-06</td>
<td>1.0E-01</td>
</tr>
<tr>
<td>MSL A</td>
<td>mR/hr</td>
<td>1.0E+00</td>
<td>1.0E+06</td>
</tr>
<tr>
<td>MSL B</td>
<td>mR/hr</td>
<td>1.0E+00</td>
<td>1.0E+06</td>
</tr>
<tr>
<td>MSL C</td>
<td>mR/hr</td>
<td>1.0E+00</td>
<td>1.0E+06</td>
</tr>
<tr>
<td>MSL D</td>
<td>mR/hr</td>
<td>1.0E+00</td>
<td>1.0E+06</td>
</tr>
</tbody>
</table>
### ATTACHMENT 2

**Page 2 of 2**

<table>
<thead>
<tr>
<th>TITLE</th>
<th>CURRENT READING</th>
<th>UNITS</th>
<th>RANGE (LOW)</th>
<th>RANGE (HIGH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIN CR</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>TSC VESTIBULE</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>CHEM LAB SAM RM</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>RAD WASTE CR</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>OFFGAS TREAT CR</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>OFFGAS VIAL SS</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>RADIWASTE SS</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>RX BLDG SS</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>OUTSIDE RX BLDG SS</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>FRVSV SKID</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>FRVSV LRP</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>PERSONNEL AIRLOCK</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>EQUIPMENT AIRLOCK</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>MOTOR EQUIP AIRLOCK</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>OPEN EQUIP HATCH</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>SPENT FP DEMIN EQUIP</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>AUX HATCHWAY</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>REST MACH SHOP A</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>REST MACH SHOP B</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>SPENT FUEL POOL</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>NEW FUEL A</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td>NEW FUEL B</td>
<td></td>
<td>mR/hr</td>
<td>1.00E-01</td>
<td>1.00E+04</td>
</tr>
<tr>
<td><strong>PROCESS MONITORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REFUELING FLR EXH A</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>REFUELING FLR EXH B</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>REFUELING FLR EXH C</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>REACTOR BLDG EXH A</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>REACTOR BLDG EXH B</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>REACTOR BLDG EXH C</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>CR VENTILATION C</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>CR VENTILATION C1</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>CR VENTILATION D</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>CR VENTILATION D1</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>COOLING TOWER BLDN</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>LIQUID RAD WASTE</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>OFFGAS A</td>
<td></td>
<td>mR/hr</td>
<td>1.00E+00</td>
<td>1.00E+06</td>
</tr>
<tr>
<td>OFFGAS B</td>
<td></td>
<td>mR/hr</td>
<td>1.00E+00</td>
<td>1.00E+06</td>
</tr>
<tr>
<td>OFFGAS TREAT SYS A</td>
<td></td>
<td>cpm</td>
<td>1.00E+01</td>
<td>1.00E+06</td>
</tr>
<tr>
<td>OFFGAS TREAT SYS B</td>
<td></td>
<td>cpm</td>
<td>1.00E+01</td>
<td>1.00E+06</td>
</tr>
<tr>
<td>RX BLDG VENT SYS EXH</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>TB BLDG EXH</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>TB BLDG COMPART EXH</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>RAD WASTE EXH SY S</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>RADWASTE AREA EXH</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
<tr>
<td>GAS R/W AREA EXH</td>
<td></td>
<td>uCi/cc</td>
<td>1.00E-06</td>
<td>1.00E-02</td>
</tr>
</tbody>
</table>
Refer to
EP Aid-049 - Hope Creek Radiation Monitoring System Summary
As needed
1.0 RADIATION LEVELS

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 100</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel. Consider evacuation of other personnel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 100</td>
<td>Control Room</td>
<td>Consider evacuation within one hour, and/or relocation as appropriate.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1000</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel. Consider immediate evacuation of remaining personnel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1000</td>
<td>Control Room</td>
<td>Consider immediate evacuation, and/or relocation upwind of the plume.</td>
</tr>
</tbody>
</table>

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 Emergency Procedure NC.EP-EP.ZZ-0305 (Q), Stable Iodine Thyroid Blocking, for additional information.
1.0 DAPA CORRECTION CALCULATIONS

1.2 To Correct For DAPA High Temperature, Perform The Following

1.2.1 REFER to Figure 1-1.

1.2.2 IF the uncorrected DAPA reading lies below the curve, THEN the DAPA Monitor reading is unreliable and should not be used.

1.2.3 PROCEED to step 1.4, if the uncorrected DAPA reading lies above the curve.

1.2.4 REFER to Figure 1-2.

1.2.5 DETERMINE a BIAS value to add to the uncorrected DAPA reading by finding the value on the curve that corresponds to the associated average Drywell Air Temperature.

\[
\text{DAPA Monitor Reading (R/hr)} + \text{Bias Value} = \text{Corrected DAPA Reading (R/hr)}
\]
RESERVED

See
EP Aid-049 - Hope Creek Radiation Monitoring System Summary
## FORM - 1

**HABITABILITY LOG**

Page 1 of 1

<table>
<thead>
<tr>
<th>TIME PERFORMED/LOCATION</th>
<th>DOSE RATE (mR/hr)</th>
<th>CONTAMINATION (CCPM)</th>
<th>INITIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If other means are used to ensure habitability, THEN list:

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
Lined area indicates DAPA Monitor value at which alternate method for determining estimate of Drywell airborne radiation levels should be used.
FIGURE 1 - 2
DAPA MONITOR READING BIAS vs. AVERAGE DRYWELL AIR TEMPERATURE

DAPA MONITOR READING BIAS (R/hr)

AVERAGE DRYWELL AIR TEMPERATURE (°F)
RADIOLOGICAL ASSESSMENT COORDINATOR RESPONSE

USE CATEGORY: II

A. Biennial review performed: Yes ___  No ___  N/A X

B. Packages and Affected Document Numbers incorporated into this revision: None

C. The following OTSCs were incorporated into this revision: None

REVISION SUMMARY:

Revised to incorporate changes for:
- Revised to incorporate changes for the change in definition of radioactive release to a “release above normal attributable to the event”
- Attachment 5 deleted, Refer to EP Aid-048 and EP Aid-049
- Editorial changes for clarification (multiple)
- Revision bars used through out to indicate changes

IMPLEMENTATION REQUIREMENTS

Effective Date: _______________
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS</td>
<td>2</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED</td>
<td>3</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE</td>
<td>3</td>
</tr>
<tr>
<td>5.1</td>
<td>The RAC/RPS-Offsite Should Perform the Following:</td>
<td>3</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS</td>
<td>4</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES</td>
<td>4</td>
</tr>
</tbody>
</table>

## Attachments:

- ATTACHMENT 1 – TSC Pre-Activation Checklist ................................................. 5
- ATTACHMENT 2 – RAC Checklist ................................................................. 7
- ATTACHMENT 3 – Onsite Protective Action Guidelines ................................. 12
- ATTACHMENT 4 – TSC Evacuation Checklist .................................................. 13
- ATTACHMENT 5 – Reserved ........................................................................... 16
1.0 PURPOSE

To outline and describe the Radiological Assessment Coordinator’s (RAC) duties.

2.0 PREREQUISITES

2.1 Prior To Implementing This Procedure

2.1.1 Implement this procedure at:

- The discretion of the Shift Manager (SM)
- The discretion of the Emergency Duty Officer (EDO).
- Upon the manning of the TSC.

3.0 PRECAUTIONS AND LIMITATIONS

NOTE

In accordance with the PSEG Nuclear LLC Emergency Plan, during a declared emergency, the Radiological Assessment Coordinator (RAC), among other duties, has complete oversight of the onsite Radiation Protection and Chemistry organizations.

Although the Radiation Protection Supervisor – Exposure Control (RPS-EXP) reports directly to the Operations Support Center Coordinator (OSCC), the RAC has oversight of the RPS-EXP concerning radiological matters.

Upon activation of the TSC, the following positions report directly to the RAC:

- The Radiation Protection Supervisor - Offsite located in the TSC;
- Any Radiation Protection Technicians assigned to the TSC;
- The Hope Creek Shift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Hope Creek Onshift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Salem Onshift Radiation Protection Technician (located at the Salem Control Point);

The Salem Shift Radiation Protection Technician reports directly to the Shift Manager in the Salem Control Room.

All other Onsite Radiation Protection Technicians (Hope Creek or Salem) report directly to The RPS-EXP.
3.1 **Prior To Implementing This Procedure**

3.1.1 Steps listed in this procedure may be performed in the order deemed appropriate for the emergency situations. Only steps applicable to the specific emergency need be performed.

3.1.2 Approval of the SM is required prior to the issuance of Potassium Iodide (Kl) until a qualified RAC assumes his duties. The authority to designate when and who should receive Kl shifts from the SM to the RAC for all Onsite Personnel at this time IAW NC.EP-EP.ZZ-0305(Q), Stable Iodine Thyroid Blocking. The duty of authorizing Kl cannot be delegated or assumed by any other position.

3.1.3 The Radiation Protection - Offsite (RPS-Offsite) should assume the RAC's duties until relieved by a qualified RAC. Duties the RPS-Offsite **CANNOT PERFORM** have asterisks next to them.

3.1.4 Medical care takes priority over any radiological conditions, unless the radiological conditions are life threatening.

3.1.5 All Onsite Emergency Response Organization members **MUST** have taken and **PASSED** Rad Worker Training/Rad Worker Requalification and have an OSL **ASSIGNED** to them. Any personnel who do not meet these requirements may be asked to evacuate the owner control area.

3.1.6 It is recommended that initials be used in the step performance check offs/sign-offs, instead of checkmarks, if more than one person may implement this procedure.

3.1.7 Personnel who implement this procedure shall be trained and qualified IAW the Emergency Plan.

3.1.8 The RAC needs to follow-up on instructions to ensure they are being followed in a timely manner or have been completed.

4.0 **EQUIPMENT REQUIRED**

As provided at the Control Point, Control Room, and TSC.

5.0 **PROCEDURE**

5.1 **The RAC/RPS-Offsite Should Perform the Following:**

5.1.1 **IF** the TSC is not yet activated, **THEN** **IMPLEMENT** Attachment 1, TSC Pre - Activation Checklist.

5.1.2 **IF** the TSC is activated, **THEN** **IMPLEMENT** Attachment 2, RAC Checklist.

5.1.3 **IF** Onsite Protective Actions are necessary, **THEN** **IMPLEMENT** Attachment 3, Onsite Protective Action Guidelines.
5.1.4 IF the TSC needs to be evacuated, THEN IMPLEMENT Attachment 4, TSC Evacuation Checklist.

5.1.5 IF information is needed concerning the Hope Creek or Salem Radiological monitoring System, THEN refer to Attachment 5, RMS Quick Reference.

6.0 RECORDS
Return completed procedure and any information or data thought to be pertinent by the dose assessor, to the EP Manager.

7.0 REFERENCES

7.1 References
7.1.1 Roger E. Linnemann, M.D., President of Radiation Management Consultants, Clinical Associate Professor of Radiation Oncology at the University of Pennsylvania School of Medicine.

7.1.2 Nuclear Business Unit Emergency Plan

7.2 Cross References
7.2.1 Nuclear Business Unit Emergency Plan
7.2.3 NC.EP-EP.ZZ-0304(Q), OSC – Radiation Protection Response.
7.2.4 NC.EP-EP.ZZ-0305(Q), Stable Iodine Thyroid Blocking.
7.2.5 NC.EP-EP.ZZ-0309(Q), Dose Assessment.
7.2.6 NC.EP-EP.ZZ-0310(Q), Radiation Protection Supervisor – Offsite and Field Monitoring Team Response.
7.2.7 The Hope Creek and Salem Offsite Dose Calculation Manual (ODCM)
ATTACHMENT 1
TSC PRE-ACTIVATION CHECKLIST
Page 1 of 2

DATE: ___/___/___
TIME: ____:____

RAC’s INITIAL ACTIONS

1.1 Perform the Following:

1.1.1 PERFORM or ASSIGN a Radiation Protection Technician (RPT) to check the dose rates in the TSC.

1.1.2 COMPARE the dose rates with the habitability criteria found in Attachment 3, Onsite Protective Action Guidelines.

1.1.3 IF the evacuation limits found in Attachment 3 are exceeded, THEN refer to Attachment 4, TSC Evacuation, and suggest an alternate TSC location to the EDO.

1.1.4 OBTAIN a briefing from the EDO concerning the Plant’s Operational condition.

1.1.5 OBTAIN a briefing from the SRPT concerning the Plant’s radiological conditions and status of available RP support personnel.

1.1.6 If additional support is needed, contact the unaffected station’s SRPT and direct the two onshift radiation protection technicians to report to the affected station’s TSC for RP support.

1.1.7 DIRECT the RPS-Offsite to implement NC.EP-EP.ZZ-0310, RPS-Offsite and Field Monitor Team Response.

1.1.8 IF the RPS-Offsite has NOT arrived at the TSC, THEN IMPLEMENT Attachment 1, TSC Pre-activation Checklist, of NC.EP-EP.ZZ-0310, RPS-Offsite and Field Monitor Team Response, until the RPS – Offsite arrives.

1.1.9 ENSURE the following tasks are being performed by the RSP-Offsite or Radiation Protection Technicians (RPTs).
ATTACHMENT 1
TSC PRE-ACTIVATION CHECKLIST
Page 2 of 2

NOTE
IF a radiological release in in progress, THEN the TSC radiological assessment should not be generating the official Page 2 of the Station Status Checklist (SSCL) until the TSC is activated and the SRPT is informed the TSC is activated and the TSC radiological assessment personnel will be taking over the generation of the SSCL, Page 2. This note only applies to first bullet below.

- Page 2 of the Station Status checklist (SSCL) is being generated.
- A continuous air monitor sampler (AMS III) is set up outside the TSC entrance.
- That Radiation Protection Emergency Equipment is available and operational in the TSC.

NOTE
If an individual who has attended Rad Worker Training/Rad Worker Requalification forgets his/her OSL, an OSL can be issued to that person and the person can remain in their emergency response facility.

- ENSURE all persons in the TSC, OSC, and CP have an OSL, or have them escorted offsite.
- Habitability checks are performed every 30 minutes.

1.1.10 IMPLEMENT Attachment 2, RAC Checklist, upon:

- Completion of this Attachment
- When the TSC is activated.
- At the RAC’s discretion.
- TSC PRE-ACTIVATION CHECKLIST COMPLETED: 

  (TIME)

- TSC ACTIVATED: / 

  (TIME)
RAC’s DUTIES

1.1 Perform the Following:

1.1.1 ENSURE dose rates in the TSC are being check every 30 minutes.

1.1.2 COMPARE the dose rates with the habitability criteria found in Attachment 3, Onsite Protective Action Guidelines.

1.1.3 IF the evacuation limits found in Attachment 3 are exceeded, THEN REFER to Attachment 4, TSC Evacuation, and suggest an alternate TSC location to the EDO.

1.1.4 ADVISE the EDO on all Station, Onsite, and Offsite radiological conditions, when thought appropriate.

1.1.5 DIRECT the RPS-Offsite to continue to implement NC.EP-EP.ZZ-0310, RPS-Offsite and Field Monitor Team Response

1.1.6 IF fuel damage has occurred, or thought to have occurred, THEN request the Core Thermal Hydraulic Engineer to implement SC.EP-EP.ZZ-0205 (Q) or HC.EP-EP.ZZ-0205 (Q), as appropriate.
ATTACHMENT 2
RAC CHECKLIST
Page 2 of 5

1.1.7 IF the potential is thought to be high that a Radiological Release, a Chemical Release, or a Gaseous Release may occur, or an actual Radiological or Gaseous Release is in progress
THEN:

- **NOTIFY** the EDO.

- **IF** A RADIOLICAL RELEASE IS IN PROGRESS.

  A. **MAKE** a page announcement to the Plant saying, "A Radiological Release Is In Progress."

  B. **NOTIFY** the unaffected station’s SM that a release Is in progress from the affected station.

  C. **REQUEST** a plant vent sample (noble gas & iodine at minimum) be taken from the appropriate release point (vent).

- **IF THE POTENTIAL OF A RADIOLICAL RELEASE IS THOUGHT TO BE HIGH**

  A. **REQUEST** the EDO to **NOTIFY** the Control Room of this.

  B. **NOTIFY** the Control Point, OSC, and EOF of the potential for a Radiological Release is thought to be high.

- **IF** staffed, **NOTIFY** the TSS at **HOPE CREEK and SALEM** to:

  A. **PLACE** the TSC Emergency Filter Unit in service in the Pressurization Mode for radiological releases.

  B. **PLACE** the TSC Emergency Filter Unit in service in the Recirculation Mode for chemical or other gaseous releases.

- **COORDINATE** with the Radiological Support Manager (RSM) the moving of any equipment thought essential from the Security Center and the Process Center, if thought the equipment could be in the path of the Plume.
NOTE
Persons/vehicles leaving or entering the Owner Controlled Area (OCA) should be coordinated with the Security Liaison and the RSM, if the EOF is manned or activated.

- RECOMMEND travel routes

NOTE
Any Steps with an asterisk (*) next to them may not be delegated to anyone but another qualified RAC. These steps have RAC written under them.

1.1.8 REVIEW the appropriate ECG sections and provide the EDO with Event Classification Recommendations, as necessary.

1.1.9 IF a GE has been declared, THEN IMPLEMENT NC.EP-EP.ZZ-404, Protective Action Recommendations (PARS) Upgrades, and provide the EDO with appropriate Radiological PARs, as necessary.

NOTE
Contamination controls consist of the following:
- No eating, drinking, or smoking.
- Setting up Step Off Pads (SOP).
- Placing Friskers next to SOPs.
- Establish proper postings.
- Preparing electronic dosimetry and/or SRDs for use in the TSC.
- Preparing electronic dosimetry and/or SRDs for use by people leaving the TSC.

1.1.10 IMPLEMENT Contamination Controls for all onsite Emergency Response Facilities, including the unaffected Plants, if:
- A Radiological Release is in progress.
- The potential for a radiological release is thought to be high.
- Normal RCA boundaries have been breached.
- At the discretion of the RAC.
1.1.11 IF Contamination Controls are Implemented, THEN:

- NOTIFY the EDO Contamination Controls have been implemented.
- NOTIFY the Control Room, Control Point, OSC, and EOF Contamination Controls should be implemented.
- MAKE a plant page announcement saying, “Contamination Controls are being implemented.”


NOTE

A RPT may be sent to the hospital “after the fact,” if waiting for the RPT will delay the departure of the ambulance.

1.1.13 COORDINATE with the Operational Support Center Coordinator (OSCC) the evacuation of injured person(s).

1.1.14 DIRECT a RPT to accompany an injured person if:

- The person is contaminated.
- The person is potentially contaminated.
- A Radiological Release is in progress.
- The potential that a Radiological Release is thought to be high.

1.1.15 INFORM the RSM that an injured person is leaving the Site.

1.1.16 COORDINATE with the OSCC the evacuation of any person(s) receiving an exposure of 5 rem External Dose Equivalent (EDE) or greater to an appropriate medical facility, as soon as practical.
1.1.17 INTERFACE directly with the NRC on specific radiological issues, as the need arises.

1.1.18 ARRANGE with the Administrative Support Supervisor for relief shifts of RPTs and Chemistry Technicians.

1.1.19 RECOMMEND expenditures for additional radiological support equipment/staff, as necessary.

1.1.20 REFER to Step 1.1 of this Attachment and follow appropriate Steps until relieved from your duties by a qualified RAC.
### 1.0 **RADIATION LEVELS**

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 100</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel. Consider evacuation of other personnel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 100</td>
<td>Control Room, OSC, TSC, Control Point</td>
<td>Consider evacuation within one hour, and/or relocation as appropriate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 1000</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel. Consider immediate evacuation of remaining personnel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 1000</td>
<td>Control Room, OSC, TSC, Control Point</td>
<td>Consider immediate evacuation, and/or relocation upwind of the plume.</td>
</tr>
</tbody>
</table>

### 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 Emergency Procedure NC.EP-EP.ZZ-0305(Q), Stable Iodine Thyroid Blocking, for additional information.
TSC EVACUATION CHECKLIST

1.1 Evacuate the TSC in the Following Manner:

NOTE

Consideration should be given to dose rates in alternate TSC prior to evacuation. Multiple evacuations are to be avoided. Departure of the ambulance.

1.1.1 CONSIDER where to relocate the TSC using the locations below:

- Hope Creek TSC for Salem
- Salem TSC for Hope Creek
- EOF (TSC Technical Staff only)
- Operations Support Center
- Security Center
- Administration Building

1.1.2 RECOMMEND the EDO of your selection.

1.1.3 Notify the RPS-EXP and the Shift Radiation Protection Technician of the evacuation of the TSC and the location of the new TSC.
1.1.4 DIRECT the following items be relocated to the new TSC, if thought appropriate:

- Log books
- Calculators
- Maps
- Portable computer software
- Portable radios
- Radiation instruments, dosimetry, stanchions, etc.
- Emergency Plan Implementing Procedures
  - Controlled Copy Books
  - Working Copy Files
- Event Classification Guidelines
  - Controlled Copy Books
  - Working Copy Files
- Station Procedures

1.1.5 DIRECT the use of protective clothing, if radiological conditions are unknown enroute to the new location.

1.1.6 DIRECT the use of dose rate instruments during the relocation of the TSC.

1.1.7 DIRECT personnel to be surveyed for contamination prior to admittance to the new TSC, if practical.

1.1.8 INFORM Security, the Control Room, Control Point, OSC, and EOF (if manned or activated) of the new location and phone numbers.
1.1.9 NOTIFY the Administrative Support Supervisor, if any additional resources or personnel are required due to the evacuation.

1.1.10 IMPLEMENT Attachment 1, TSC Activation Checklist, and ensure the new TSC is ready to assume its responsibilities.

Completed by: ___________________________/ ____________________________
(PRINT/SIGNATURE)
Refer to the following for RMS Quick Reference.

EP Aid-048 – Salem Radiation Monitoring System Summary
EP Aid-049 – Hope Creek Radiation Monitoring System Summary
Use Category: II

A. Biennial review performed: Yes ___ No ___ N/A X

B. Packages and Affected Document Numbers incorporated into this revision: None

C. The following OTSCs were incorporated into this revision: None

Revision Summary:

- Revised 2.1.1 – changed title from Operations Superintendent to Shift Manager
- Revised Attachment 1 Step 1.1.13 to remove reference to Attachment 5 and refer to EP Aid-018 and EP Aid-019 for assistance in using SPDs
- Revised Attachment 1 note below step 1.1.13 to remove ODCM Release values and add reference to EP Aid-048 and EP Aid-049 for RMS monitors
- Revised Attachment 1 step 1.1.14 for remove reference to release > ODCM values
- Revised Note above Attachment 1 step 1.1.21 to update procedure number
- Revised Attachment 2 step 2 to reference EP Aid-043
- Deleted Attachment 5 and reserved for future use
- Revised Figure 2-1 to no lock door (core has been removed) and place step off pad when contamination controls are implemented

Implementation Requirements

Effective Date: ________________
# CONTROL POINT – RADIATION PROTECTION - RESPONSE

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS</td>
<td>2</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED</td>
<td>3</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE</td>
<td>3</td>
</tr>
<tr>
<td>5.1</td>
<td>The SRPT, ORPT, Or Designee Should Perform the Following</td>
<td>3</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS</td>
<td>3</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES</td>
<td>3</td>
</tr>
</tbody>
</table>

## ATTACHMENTS

- ATTACHMENT 1 - Radiation Protection - Control Point Checklist.......................... 4
- ATTACHMENT 2 - Onsite Protective Action Guidelines ........................................... 10
- ATTACHMENT 3 - Control Point Evacuation Checklist ......................................... 11
- ATTACHMENT 4 - Assembly/Accountability Instruction - Control Point .................. 13
- ATTACHMENT 5 - Hope Creek SPDS - Meteorological And RMS Report Instructions........ 15

## FORMS

- Form 1 - Habitability Log .............................................................................. 16
- Form 2 - Accountability Station Attendance Sheet ........................................... 19

## FIGURES

- FIGURE 1 - 1 - Guidance For Contamination Control (HOPE CREEK ONLY) .............. 17
- FIGURE 1 - 2 - Guidance For Contamination Control (HOPE CREEK ONLY) .............. 19
- FIGURE 1 - 3 Guidance For Contamination Control (HOPE CREEK ONLY) .................. 20
- FIGURE 1 - 4 Guidance For Contamination Control (HOPE CREEK ONLY) ............... 21
- FIGURE 2 - 1 Guidance For Contamination Control (SALEM ONLY) .......................... 22
1.0 **PURPOSE**

Outline and describe the Radiation Protection Technician's duties at the Control Point during a declared emergency.

2.0 **PREREQUISITES**

2.1 **Prerequisites To Be Followed Prior To Implementing This Procedure**

2.1.1 Implement this procedure at the discretion of the Shift Manager or Radiation Protection Supervision.
2.1.2 Upon a declaration of an Alert or greater emergency classification.

3.0 **PRECAUTIONS AND LIMITATIONS**

**NOTE**

In accordance with the PSEG Nuclear LLC Emergency Plan, during a declared emergency, the Radiological Assessment Coordinator (RAC), among other duties, has complete over site of the onsite Radiation Protection and Chemistry organizations.

Although the Radiation Protection Supervisor – Exposure Control (RPS-EXP) reports directly to the Operations Support Center Coordinator (OSCC), the RAC has over site of the RPS-EXP concerning radiological matters.

Upon activation of the TSC, the following positions report directly to the RAC:

- The Radiation Protection Supervisor – Offsite located in the TSC;
- Any Radiation Protection Technicians assigned to the TSC;
- The Hope Creek Shift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Hope Creek On-shift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Salem On-shift Radiation Protection Technician (located at the Salem Control Point);

The Salem Shift Radiation Protection Technician reports directly to the Shift Manager in the Salem Control Room.

All other Onsite Radiation Protection Technicians (Hope Creek or Salem) report directly to The RPS-EXP.
3.1 Precaution and Limitations To Be Followed Prior To Implementing This Procedure

3.1.1 Elevator use should be limited to transporting equipment unless Site Protection indicates that elevator use should be utilized to move an injured person.

3.1.2 It is recommended that initials be used in the place keeping sign-offs, 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 IAW the Emergency Plan.

3.1.4 Steps listed in this procedure may be performed in the order deemed appropriate for the emergency situations. Only steps applicable to the specific emergency need be performed.

3.1.5 Refer to Attachment 4, Assembly/Accountability Instruction - Control Point, to implement Assembly/Accountability when appropriate.

4.0 EQUIPMENT REQUIRED

Equipment is provided at the Control Point and Control Room.

5.0 PROCEDURE

5.1 The SRPT, ORPT, Or Designee Should Perform The Following:

5.1.1 REFER to Attachment 1, Radiation Protection - Control Point Checklist, and perform applicable duties.

6.0 RECORDS

Return completed procedure and any information or data thought to be pertinent by the SRPT or ORPT, to the EP Manager.

7.0 REFERENCES

7.1 References

PSEG Nuclear Emergency Plan

7.2 Cross References

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

HC.EP-EP.ZZ-0301(Q), Shift Radiation Protection Technician Response

SC.EP-EP.ZZ-0301(Q), Shift Radiation Protection Technician Response
ATTACHMENT 1
RADIATION PROTECTION - CONTROL POINT CHECKLIST
Page 1 of 6

Date/Time: _______/_______

1.0 RADIATION PROTECTION CHECKLIST

1.1 Perform The Following:

1.1.1 ENSURE radiological habitability surveys of the Control Point (CP) and OSC are performed every 30 minutes, unless instructed otherwise by:

♦ SRPT
♦ RAC
♦ Radiation Protection Supervisor - Exposure Control (RPS-EXP)
♦ SM

1.1.2 RECORD results on Form - 1, Habitability Log.

1.1.3 SETUP and START the Air Monitoring System at the CP.

1.1.4 REFER to evacuation criteria located in Attachment 2, Onsite Protective Action Guidelines.

1.1.5 IF evacuation is necessary, THEN follow the checklist provided in Attachment 3, Control Point Evacuation Checklist.

1.1.6 MAINTAIN access control.

1.1.7 SUPPORT Repair, Sampling, and Corrective Action Missions, as directed by the OSC or the TSC.
NOTE

1. An individual, in lieu of a team, may be dispatched by SRPT/ORPT/RPT after:
   a. Receiving the RAC’s concurrence or instructions to do so.
   b. Notifying the RPS-EXP, located in the OSC.
   c. Instructing the individual to check in with the Control Point every 15 minutes via some type of audio communications (plant page, radio, or telephone).

2. An individual should not be used under the following circumstances:
   a. An individual’s exposure could be expected to exceed 1000 mRem.
   b. The task would require entry into a Harsh Environment Area such as a steam atmosphere or a heat stress environment.

3. Sending out an individual in lieu of a team should be the exception and not the norm.

4. Control Point Teams should be limited to performing Surveys, taking Air Samples, setting up Contamination Controls, Chemistry and Effluent Sampling.

1.1.8 ENSURE all Control Point teams are made up of at least two people unless a task meets the criteria from the above note for dispatching an individual.

1.1.9 BRIEF, or ENSURE a briefing takes place, for all Control Point Teams IAW Team Briefing Guidelines, found in NC.EP-EP.ZZ-0202(Q), OSC Activation And Operations, and ALARA Analysis, found in NC.EP-EP.ZZ-0304(Q), prior to allowing the team to go out.

1.1.10 IF general area dose rates at the work area is ≤ 1000 mR/hr, THEN no documented radiological briefing is necessary.

1.1.11 NOTIFY the RPS-EXP by phone that the team or individual is going out into the field and what their task is.
1.1.12 OBTAIN current updates of the emergency from the RAC, RPS-EXP, or their designees.

**NOTE**

Radiation Monitor System (RMS) values can be obtained from:

<table>
<thead>
<tr>
<th>HOPE CREEK ONLY</th>
<th>SALEM ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM-11</td>
<td>Radiological Assessment Data Sheet</td>
</tr>
<tr>
<td>RMS Data Sheet (HC SPDS)</td>
<td>(Salem SPDS) (Limited RMS Monitors)</td>
</tr>
</tbody>
</table>

1.1.13 ASSESS in-plant radiation monitoring systems readings for habitability in areas of interest. Refer to E Aid-018 (Salem) OR EP Aid-019 (HC) for assistance using SPDS to obtain MET/Radiological Information

**NOTE**

Indications of a potential radioactive airborne problem in the Reactor Building or Auxiliary Building would be increases or alarms in the Reactor or Auxiliary Building:

<table>
<thead>
<tr>
<th>HOPE CREEK ONLY</th>
<th>SALEM ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Duct Monitors</td>
<td>Plant Vent Monitor</td>
</tr>
<tr>
<td>• Effluent Monitors</td>
<td>Effluent Monitors</td>
</tr>
<tr>
<td>• Area Radiation Monitors</td>
<td>Area Radiation Monitors</td>
</tr>
<tr>
<td>• Air Monitoring Samplers</td>
<td>Air Monitoring Samplers</td>
</tr>
</tbody>
</table>

Refer to EP Aid-048 (Salem) and EP Aid-049 (HC) for additional information on station RMS.
ATTACHMENT 1
Page 4 of 6

1.1.14 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 is in progress.
- Normal RCA boundaries have been breached.
- At the discretion of the RAC.

1.1.15 REFER to Figures 1-1 through 1-4 (HOPE CREEK ONLY), and Figure 2-1 (SALEM ONLY), Contamination Control Guidance, on how to limit access to certain areas and where to position SOPs during implementation of Contamination Controls.

1.1.16 ENSURE a RM-14 or equivalent count rate meter is positioned at all SOPs.

1.1.17 NOTIFY the RPS-EXP and the RAC of changing radiological conditions as determined from:

- Step 1.1.12
- Step 1.1.13
- Any Radiation ALARMS on fixed or portable Radiation Monitors.

1.1.18 PERFORM inplant surveys, air samples, and analysis as directed by the RAC, RPS-EXP, or appropriate Radiation Protection Station procedures.

1.1.19 REFER to NC.EP-EP.ZZ-0306, Emergency Air Sampling and Analysis, and NC.EP-EP.ZZ-0307(Q), Plant Vent Sampling as directed by the OS, RAC, or RPS-EXP.

1.1.20 ENSURE operational and response checks are done, prior to use, on all appropriate equipment in the:

- R.P. Count Room
- Instrument Issue Room
NOTE

An inventory is not necessary if the seal is not broken on the CP or CR Emergency Lockers.


- Emergency Locker located at the CP.

1.1.21 ISSUE radiological monitoring equipment as necessary.

1.1.22 ISSUE dosimetry as necessary.

1.1.23 ENSURE appropriate RWP’s are being utilized

1.1.24 SUPPORT the TSC as directed upon activation.

1.1.25 SUPPORT the OSC as directed upon activation.

1.1.26 COORDINATE the handling and storage of high activity/chemistry samples, with the Chemistry Supervisor-CP/TSC or the Chemistry CP Technician.

1.1.27 DECONTAMINATE personnel and equipment IAW appropriate Radiation Protection Station procedure.

1.1.28 ASSIST in radioactive waste problems and activities as necessary.
NOTE

ASSEMBLY shall be implemented after the declaration of an Alert emergency classification.

ACCOUNTABILITY shall be implemented after the declaration of a Site Area Emergency, but may be implemented at any time after Assembly at the discretion of the SM/Emergency Duty Officer (EDO).

1.1.29 PERFORM Assembly/Accountability utilizing the guidance provided in Attachment 4, Assembly/Accountability Instruction - Control Point.

TURNOVER

Given By: ___________________ Date/Time: __________/_________

Received By: ________________ Date/Time: __________/_________
1.0 **RADIATION LEVELS**

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 100</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel. Consider evacuation of other personnel.</td>
</tr>
<tr>
<td>&gt; 1000</td>
<td>Control Room, OSC, TSC, Control Point</td>
<td>Consider evacuation within one hour, and/or relocation as appropriate.</td>
</tr>
</tbody>
</table>

2.0 **RADIOIODINE**

If the iodine-131 equivalent is calculated or measured in concentrations greater than or equal to 5.0E-07 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 Emergency Procedure NC.EP-EP.ZZ-0305(Q), Stable Iodine Thyroid Blocking, for additional information. (see EP Aid-043 for information on KI)
ATTACHMENT 3
CONTROL POINT EVACUATION CHECKLIST
Page 1 of 2

1.0 EVACUATION OF THE CONTROL POINT

1.1 The Chemistry Supervisor-CP/TSC Or Designee Should:

1.1.1 ENSURE Radiation Protection are assisting Chemistry personnel in evacuation of the Control Point.

1.1.2 ENSURE that the TSC and Control Room are kept aware of the new location.

1.1.3 ENSURE the following equipment is included in the Control Point evacuation:
   • Movable Counting Room Equipment.
   • Dosimeters, additional TLDs from the Control Point.
   • Emergency Logbooks.
   • Portable Survey Equipment.
   • Survey materials (air sample filters etc.)
   • SCBA and spare tanks.
   • Respirators and canisters.
   • Protective Clothing.
   • Posting Materials and Barricades.
   • Emergency Plan Implementing Procedures.
   • Event Classification Guide.
   • Station Procedures.

1.1.4 NOTIFY the RAC of the new telephone numbers.

1.1.5 NOTIFY the RAC when the new Control Pont has become operational.

1.1.6 RE-ESTABLISH the operability of the evacuated equipment as soon as possible.
1.1.7 MONITOR continuously Radiation Protection personnel exposure. Rotate personnel as appropriate to ensure dose limits are not exceeded.

1.1.8 ENSURE all pertinent information is entered in log books.

1.1.9 USE the equipment checklist and note deficiencies.

1.1.10 IF additional materials or services are required due to relocation, THEN CONTACT the RAC.

**NOTE**

A list of categories, corresponding Vendors and telephone numbers is provided in the following pages. For PSEG stockroom items refer to SAP or other available listing of supplies/equipment.

1.1.11 WHEN requesting inventory status, GIVE due regard to habitability of particular areas.
1.0 **IMPLEMENTATION OF ASSEMBLY AT THE CONTROL POINT**

1.1 **The SRPT/ORPT Or Designee SHALL:**

**NOTE**

Assembly/Accountability actions at the Control Point are to be coordinated with the SRPT/ORPT and the RAC.

1.1.1 ASSEMBLE all Personnel at the Control Point.

1.1.2 DIRECT personnel exiting the RCA to proceed to their accountability station or direct them to assemble in change areas dependent on radiological conditions.

1.1.3 DIRECT personnel remaining at the Control Point to sign-in on the Accountability Station Attendance Sheet (Form - 2).

1.1.4 IF accountability implementation is called for, THEN PROCEED to Section 2.0 of this attachment.

2.0 **IMPLEMENTATION OF ACCOUNTABILITY**

2.1 **The SRPT/ORPT Or Designee SHALL:**

T – 0 MIN

2.1.1 IF the Radiation Alert Alarm and page announcement sounds, "ALL ACCOUNTABILITY STATIONS IMPLEMENT ACCOUNTABILITY", THEN ENSURE all personnel at the Control Point, including all personnel in the Radiation Protection Break Room and Change Areas, have passed their photobadges through the accountability card reader located at the Control Point.
T - + 20 MIN

2.1.2 WHEN the page announcement sounds, "ALL ACCOUNTABILITY STATIONS COMPLETE YOUR ACCOUNTABILITY", THEN ENSURE that any personnel arriving at the Control Point since the initial call for accountability also have passed their photo badges through the Control Point accountability card reader.

2.1.3 DIRECT all stragglers (personnel arriving at the Control Point after 30 minutes have lapsed) to pass their photo badge through the accountability card reader and report the badge number(s) of stragglers to the Security Center (Ext. 2223).

2.1.4 MAINTAIN continuous accountability until Hope Creek's/Salem's emergency is terminated.

2.1.5 IF the Automated Accountability System malfunctions, THEN REFER to Section 3.0.

3.0 AUTOMATED ACCOUNTABILITY SYSTEM MALFUNCTION

3.1 The Chemistry Supervisor-CP/TSC Or Designee SHALL:

3.1.1 IF the automated accountability system malfunctions, THEN PROVIDE a copy of the Accountability Station Attendance Sheet, Form - 2, to the Security Force Member dispatched to the Control Point.
See

EP Aid-018 - Salem SPDS - Instruction for MET and Radiological Data

EP Aid-019 - Hope Creek CRIDS SPDS – Instructions for Met and Radiological Data

EP Aid-090 - HC EOF RM-11 - Instructions for Radiological and Flow Data

As Needed
<table>
<thead>
<tr>
<th>TIME</th>
<th>LOCATION</th>
<th>DOSE RATE (mR/hr)</th>
<th>CONTAMINATION (CPM)</th>
<th>INITIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

______________________________

______________________________

______________________________
### ACCOUNTABILITY STATION ATTENDANCE SHEET

Facility: CR, CP, TSC, OSC  
(circle)  
Date: _____________

<table>
<thead>
<tr>
<th>LAST NAME/FIRST NAME</th>
<th>BADGE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Attach additional pages with appropriate information as needed.
FIGURE 2 - 1
GUIDANCE FOR CONTAMINATION CONTROL (SALEM ONLY)
Page 1 of 1

SOUTH END OF CONTROL POINT

Lock Door*
Place Step Off Pads and Friskers in the indicated locations*

NORTH END OF CONTROL POINT

* Depicts locations for locked doors and SOP's for establishing contamination controls at the RP Control Point. Understand, the RP Control Point is not a hardened facility and if a release is picked up by the ventilation supply, the entire area could become contaminated.
USE CATEGORY: II

REVISION SUMMARY:

- Deleted note above 5.1.15 to eliminate reference to ODCM release limits
- Revised step 5.1.15 to remove reference to ODCM release
- Deleted Attachments 5, 6,& 7

IMPLEMENTATION REQUIREMENTS

Effective Date: _________________
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE ......................................................................................</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES ...........................................................................</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS ................................................................</td>
<td>2</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED .......................................................................</td>
<td>3</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE ..................................................................................</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>5.1 The Radiation Protection Supervisor - Exposure Control Should Perform the Following .................................................................</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5.2 Perform The Following Steps If Emergency Exposure is Required ................................................................</td>
<td>7</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS .......................................................................................</td>
<td>8</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES ..................................................................................</td>
<td>8</td>
</tr>
</tbody>
</table>

**ATTACHMENTS**

ATTACHMENT 1 - Individual Radiation Exposure Record .................................................................... | 9    |
ATTACHMENT 2 - ALARA Analysis Form ......................................................................................... | 11   |
ATTACHMENT 3 - Selection And Authorization For Emergency Exposures ......................................... | 13   |
ATTACHMENT 4 - Onsite Protective Action Guidelines ..................................................................... | 18   |
ATTACHMENT 5 - Reserved ........................................................................................................... | 19   |
ATTACHMENT 6 - Reserved ........................................................................................................... | 20   |
ATTACHMENT 7 - Reserved ........................................................................................................... | 21   |

**FORMS**

FORM - 1 Habitability Log ........................................................................................................... | 22   |
FORM - 2 Individual’s Current Yearly Dose .................................................................................. | 23   |
1.0 PURPOSE

1.1 To outline and describe the duties of the Radiological Protection Supervisor – Exposure Control (RPS-EXP).

1.2 To provide guidance to emergency response personnel for administration of Radiation Protection Team Response for the Operational Support Center (OSC) during an emergency.

2.0 PREREQUISITES

2.1 Prerequisites To Be Followed Prior To Implementing This Procedure.

2.1.1 Implement this procedure at:

- The Shift Manager’s (SM) discretion.
- The manning of the OSC.
- The declaration of an Alert.

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

3.0 PRECAUTIONS AND LIMITATIONS

NOTE

In accordance with the PSEG Nuclear LLC Emergency Plan, during a declared emergency, the Radiological Assessment Coordinator (RAC), among other duties, has overall command and control of the onsite Radiation Protection (RP) and Chemistry organizations.

Normally RP and Chemistry personnel onshift report to the station's Shift Manager but when the shift staff is augmented, during an emergency, the onshift RP and Chemistry personnel will report to the RAC with the exception of the Salem SRPT who will continue to report to the Salem Shift Manager.

Although the Radiation Protection Supervisor – Exposure Control (RPS-EXP) reports directly to the Operations Support Center Coordinator (OSCC), the RAC has oversight responsibilities for several B-1 table tasks being carried out by the RPS-EXP and as such, must interface with the RAC concerning these responsibilities. Since all other RP and Chemistry personnel being called in to augment the shift report to the RAC, the RPS-EXP will also need to interface with the RAC for any RP personnel resources who are needed.

As additional RP Technicians report to the site they should report to the Control Point and report to the RAC through the SRPT at HC or the ORPT at Salem.
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 Reactor Coolant System lines. **CAUTION** should be exercised when entering this area.

3.1.2 Initials shall be used in the place-keeping sign-off.

3.1.3 All Onsite Emergency Response Organization members **MUST** have **PASSED** Rad Worker Training/Rad Worker Requalification and have a Dosimeter of Legal Record (DLR) **ASSIGNED**. While it isn’t the intent of this procedure to remove ERO members from the OSC who do not meet the above criteria, they must be challenged on the above requirements. The RPS-EXP will consult with the RAC to resolve any discrepancy IAW RP-AA-210 Dosimetry Issue, Usage and Control, Section 4.1.3.

4.0 **EQUIPMENT REQUIRED**
Equipment is provided In the Emergency Response Facility.

5.0 **PROCEDURE**

**NOTE**

- An individual’s yearly dose limit is automatically raised to 4500 mrem upon the declaration of an Alert or higher classification.
- The dose extension to 4500 mrem may be implemented in the PRORAD system. Attachment 1 has instructions on how to accomplish this task and return a person’s dose limit to normal limits when appropriate.
- Dose Tracking may be performed using the PRORAD System instead of Attachment 1, Individual Radiation Exposure Record, if PRORAD is operational and the dose extension to 4500 mrem was implemented in the PRORAD system.
- If a person does not have a completed NRC Form 4 on record, no dose extension shall be allowed,. The allowable dose limit will be maintained in ProRad.
5.1 **The RPS – EXP Should Perform The Following:**

5.1.1 **DIRECT** habitability to be performed every 30 minutes and **LOG** the results on Form -1, 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 OSC Coordinator (OSCC).

5.1.4 **ENSURE** Section 1.0 of Attachment 1, Individual Radiation Exposure Record is completed for the onsite emergency response personnel assigned to the OSC/CP.

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

5.1.6 **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 CP or OSC via some type of audio communications (page, radio, telephone, etc.) and should check-in every 15 or 30 minutes with the OSC or CP.

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.

5.1.7 **ENSURE** all OSC and CP teams are made up of at least two people, unless a task meets the above note’s criteria for dispatching an individual.
NOTE
EP Aid-047 may be used to assist with making dose estimations.

5.1.8 IF travel path dose rates, or dose rates at destination are 
\[ \geq 1000 \text{ mR/hr EDE,} \]
THEN COMPLETE Attachment 2, ALARA Analysis Form.

5.1.9 IF travel path dose rates, or dose rates at destinations are 
\[ \leq 1000 \text{ mR/hr EDE,} \]
THEN Attachment 2 does NOT have to be completed.

5.1.10 PROVIDE job status information to the Radiological Assessment Coordinator (RAC) concerning jobs, as thought appropriate.

NOTE
- Radiological briefings of teams should take place during pre-job briefing. Two separate briefings (pre-job and radiological) should not be the normal method of performing OSC pre-job briefings.
- 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 lasting longer than 20 minutes. Circumstances may arise that make meeting this goal impossible, but the team should try to meet the 20 minute goal.

5.1.11 BRIEF all OSC team members on appropriate radiological conditions.

5.1.12 DEBRIEF all teams and ensure Section 2.0 of Attachment 1 is completed.

5.1.13 OBTAIN plant status updates from the OSCC.
5.1.14 **OBTAIN** current RMS status from the most appropriate location listed below:

**(HOPE CREEK ONLY)**
- Control Point personnel (RM-11).
- Hope Creek SPDS (See EP Aid-019)
- TSC Radiological Assessment personnel.

**(SALEM ONLY)**
- Shift Radiation Protection Technician (SRPT)
- Salem SPDS (See EP Aid-018) or P250
- TSC Radiological Assessment personnel.

5.1.15 **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 is declared
- Normal RCA boundaries have been breached.
- At the RAC's discretion.

5.1.16 **IF** conditions listed in Step 5.1.15 are met, **THEN NOTIFY** the RAC or SRPT of the changing conditions.
NOTE
It is part of the RAC’s responsibilities to establish best routes in and out of the Owner Control Area, if Step 5.1.15 has been implemented.

HOPE CREEK ONLY
Movements of teams outside the Power Block should be coordinated with the RAC.

SALEM ONLY
Movements of teams in the Yard Area should be coordinated with the RAC.

5.1.17 COORDINATE with the OSCC and the RAC transportation of injured person(s) or person(s) receiving exposures of ≥ 5 rem acute EDE dose 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 be done verbally prior to, or during, the OSC Team being dispatched.

• IF APPROVED by the EDO, THEN Voluntary consent, pre-job briefings, and EDO authorization for Fire Brigade Tasks, that require Emergency Exposure, should be 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.

• IF APPROVED to be dispatched using the same process as Life Saving Teams, THEN Attachment 3 should be completed as soon as possible, after the return of the Fire Brigade Team.

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
7.1.4 PSEG Nuclear, LLC Emergency Plan

7.2 **Cross References**

7.2.1 NC.EP-EP.ZZ-0302(Q), Radiological Assessment Coordinator Response
7.2.2 SC/HC.EP-EP.ZZ-0301(Q), Shift Radiation Protection Response
7.2.3 RP-AA-210, Dosimetry Issue, Usage and Control
7.2.4 EP Aid-018, Salem SPDS – Instructions for MET and Radiological Data
7.2.5 EP Aid-019, Hope Creek CRIDS/SPDS – Instructions for MET and Radiological Data
7.2.6 EP Aid-047, Quick Dose Estimates
ATTACHMENT 1
INDIVIDUAL RADIATION EXPOSURE RECORD
PAGE 1 OF 2

DATE/TIME: ___________ / ___________

1.0 INDIVIDUAL INFORMATION
Name: ___________________________ Badge Number: ___________

NOTE
Dose Tracking **SHOULD** be performed using the PRORAD System instead of Attachment 1, if PRORAD is operational and the dose extension to 4500 mrem was implemented in the PRORAD system.

1.1 PERFORM the following to implement the PRORAD dose extension to 4500 mrem:

1.1.1 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.

The **NUCLEAR “IT” NETWORK OPERATIONS PHONE NUMBERS** are:
- **PRIMARY PHONE NUMBER**: DID x7008 [Located At Nuclear Administration Building (TB 2)]
  - IF the phone is answered by Voice Mail, THEN leave a message with a phone number to call and the IT Operator will be automatically be paged.
- **SECONDARY PHONE NUMBER**: NETS x5009 (Located at EOF).

1.2 PERFORM the following to return dose limits to normal:

1.2.1 REQUEST the RAC’s 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.

1.2.2 IF the RAC gives permission; 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 using the phone numbers listed below:

The **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 of all OSC Team Members, if PRORAD is not being used and log it on Form – 2, Individual’s Current Yearly Dose.

- NAME
- BADGE NUMBER
- CURRENT YEARLY DOSE in (mRem)

2.1 **Job Specific Information**

<table>
<thead>
<tr>
<th>Team Number</th>
<th>Dose Rec’d (mRem)</th>
<th>Yr. Remaining Dose (mRem)*</th>
<th>Initial When Entered into PRORAD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Year Remaining Dose (mRem) = [(4500 mRem – Current Year Dose) – Dose Received]*
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 needs to meet the criteria of accident mitigation or life saving tasks IAW Attachment 3.

If dose rates in an areas are not known, then backout DOSES, not dose rates, should be used in planning out a task.

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 (individual dose): ________________ (rem)
   \( (1.1.1 \times 1.1.2 = 1.1.3) \)

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)
   \( (1.2.1 \times 1.2.2 = 1.2.3) \)

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)
   \( (1.3.1 \times 1.3.2 = 1.3.3) \)

1.4 Total Individual External Dose Equivalent: ________________ (rem)
   \( [(1.1.3 + 1.2.3 + 1.3.3 = 1.4) \text{ Total Individual EDE}] \)
## Team Briefing

### 2.1 Information Covered During Briefing:

- 
- 
- 
- 
- 
- 

### 2.2 Personnel Attending Briefing:

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
<th>Badge #</th>
<th>Name</th>
<th>Signature</th>
<th>Badge #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1.0 Effects Of Exposure To Radiation on the Human Body

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

<table>
<thead>
<tr>
<th>RANGE</th>
<th>0 to 100 (rem)</th>
<th>100 to 200 (rem)</th>
<th>200 to 600 (rem)</th>
<th>600 to 1000 (rem)</th>
<th>1000 to 5000 (rem)</th>
<th>1000 to 5000 (rem)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vomiting</td>
<td>None</td>
<td>5 to 50%</td>
<td>&gt; 300 rem 100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Delay Time</td>
<td>3 hr.</td>
<td>2 hr.</td>
<td>1 hr.</td>
<td>30 minutes</td>
<td>Central Nervous System</td>
<td></td>
</tr>
<tr>
<td>Leading Organ</td>
<td>None</td>
<td>Bone Marrow</td>
<td>Gl Tract</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characteristic Signs</td>
<td>None</td>
<td>Moderate Leukopenia</td>
<td>Severe Leukopenia, Hemorrhage, Infection, Purpura, Epilation at &gt; 300 rem</td>
<td>Diarrhea, Fever, Electrolyte Loss</td>
<td>Convulsions, Tremor, Ataxia</td>
<td></td>
</tr>
<tr>
<td>Prognosis</td>
<td>Excellent</td>
<td>Excellent</td>
<td>Good</td>
<td>Guarded</td>
<td>Grave to Hopeless</td>
<td></td>
</tr>
<tr>
<td>Incidence of Death</td>
<td>None</td>
<td>None</td>
<td>0 to 80%</td>
<td>80% to 90%</td>
<td>90 to 100%</td>
<td></td>
</tr>
</tbody>
</table>

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

LIFE SAVING EMERGENCY DOSE AUTHORIZATION:

- Voluntary consent, pre-job briefings, and EDO authorization that require Emergency Exposure for LIFE SAVING TASKS should be done verbally and can be performed 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.
ATTACHMENT 3
SELECTION AND AUTHORIZATION FOR EMERGENCY EXPOSURES
Page 2 of 5

- Emergency Exposure should only be authorized by the Emergency Duty Officer (EDO) and cannot be delegated. The SM has this responsibility until the EDO assumes his responsibilities.

- EDO’s 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, physically and technically qualified to perform the task.
  - Not have previously received Emergency Exposure.

- Emergency Exposure 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 or her total exposure for the year is \( \leq 4.5 \) rem 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.
• 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.
• Emergency Exposure should be voluntary.

5.0 FIRE BRIGADE EMERGENCY DOSE AUTHORIZATION:

• Upon approval of the EDO, the Fire Brigade members should follow the same briefing, dispatching of the team, and paperwork processes that a life saving team would follow.

6.0 TEAM BRIEFING

Information Covered During Briefing: __________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
### 7.0 VOLUNTARY CONSENT

I, (the under signed), volunteer for Emergency Exposure:

<table>
<thead>
<tr>
<th>PEEL (REM)</th>
<th>NAME</th>
<th>SIGNATURE</th>
<th>BADGE #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 8.0 EMERGENCY EXPOSURE AUTHORIZATION

I hereby authorize the planned Emergency Exposure(s) for the individual(s) listed in Section 7 of (Voluntary Consent) of this Attachment.

Emergency Exposure Authorized by: (EDO) ____________________________

DATE/TIME: _____ - _____ - _____ / _____: _____
## 9.0 **ACTUAL EDE DOSE RECEIVED**

<table>
<thead>
<tr>
<th>Badge #</th>
<th>Name (Print)</th>
<th>Current Yr. Dose (REM)</th>
<th>Dose Received (REM)</th>
<th>Total Dose (REM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initial when entered into PRORAD: ________  DATE/TIME: ___-___-___ /___:___
# ATTACHMENT 4
## ON SITE PROTECTIVE ACTION GUIDELINES
### Page 1 of 1

## 1.0 RADIATION LEVELS

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 100</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider evacuation of other personnel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 100</td>
<td>Control Room</td>
<td>Consider evacuation within one hour,</td>
</tr>
<tr>
<td></td>
<td>OSC</td>
<td>and/or relocation as appropriate.</td>
</tr>
<tr>
<td></td>
<td>TSC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control Point</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1000</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider immediate evacuation of remaining</td>
</tr>
<tr>
<td></td>
<td></td>
<td>personnel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1000</td>
<td>Control Room</td>
<td>Consider immediate</td>
</tr>
<tr>
<td></td>
<td>OSC</td>
<td>evacuation, and/or</td>
</tr>
<tr>
<td></td>
<td>TSC</td>
<td>relocation upwind of</td>
</tr>
<tr>
<td></td>
<td>Control Point</td>
<td>the plume.</td>
</tr>
</tbody>
</table>

## 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.
RESERVED

See

EP Aid-018 - Salem SPDS - Instruction for MET and Radiological Data

EP Aid-019 - Hope Creek CRIDS SPDS – Instructions for Met and Radiological Data

As Needed
See

EP Aid-048 - Salem Radiation Monitoring System Summary

EP Aid-049 - Hope Creek Radiation Monitoring System Summary

As Needed
RESERVED

See

EP Aid-047 - Quick Dose Estimates

As Needed
**FORM - 1**  
**HABITABILITY LOG**  
**Page 1 of 1**

<table>
<thead>
<tr>
<th>TIME</th>
<th>LOCATION</th>
<th>DOSE RATE (mR/hr)</th>
<th>CONTAMINATION (CPM)</th>
<th>INITIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If other means are used to ensure habitability, then list:

________________________________________________________________________

________________________________________________________________________

NUCLEAR COMMON  
Page 22 of 23  
Rev. 15
### Form - 2
**Individual’s Current Yearly Dose**

<table>
<thead>
<tr>
<th>Name</th>
<th>Badge Number</th>
<th>Current Yearly Dose (mRem)*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Blank spaces for data entry.*
DOSE ASSESSMENT (MIDAS) INSTRUCTIONS

USE CATEGORY: III

A. Biennial review performed: Yes ___ No ___ N/A X

B. Packages and Affected Document Numbers incorporated into this revision: None

C. The following OTSCs were incorporated into this revision: None

REVISION SUMMARY:

The following revisions changes were made due to installation of MIDAS revision

- Revised step 3.1.3 to add reference to Section 5.5.
- Revised step 3.1.6 minor editorial and formatting.
- Revised Note above Section 5.1 to add clarification to the first bullet for rapid monitor increases.
- Revised Section 5.2.4, 5.2.5, 5.2.6 and 5.2.7 to provide instructions on changes in the software for the new version of MIDAS.
- Revised Section 5.2.11 due to changes in function of the new software. This version removes the lock on the run next time step to allow the user to perform another dose assessment if corrections are needed or a rapid increase occurs without the need to restart MIDAS.
- Revised Section 5.3.9 and 5.3.10 to provide instructions on changes in the software for the new version of MIDAS.
- Revised Section 5.3.13 for clarification.
### DOSE ASSESSMENT (MIDAS) INSTRUCTIONS

#### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE .......................................................................................</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES ...........................................................................</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS ................................................................</td>
<td>2</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED ......................................................................</td>
<td>3</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE ..................................................................................</td>
<td>4</td>
</tr>
<tr>
<td>5.1</td>
<td>Startup Instructions For MIDAS ..................................................</td>
<td>4</td>
</tr>
<tr>
<td>5.2</td>
<td>Auto Quick Dose Projection (Menu G) Mode Instructions ......................</td>
<td>5</td>
</tr>
<tr>
<td>5.3</td>
<td>Manual Quick Dose Projection (Menu A) Mode Instructions ...................</td>
<td>7</td>
</tr>
<tr>
<td>5.4</td>
<td>Manual Isotopic Entry on Spreadsheet (Menu M) Mode Instructions ..........</td>
<td>9</td>
</tr>
<tr>
<td>5.5</td>
<td>Dose Assessment Guidance - Effluent Monitors Increase By A Factor Equal to Or Greater Than10</td>
<td>11</td>
</tr>
<tr>
<td>5.6</td>
<td>Preplanned Alternative Guidance ................................................</td>
<td>13</td>
</tr>
<tr>
<td>5.7</td>
<td>Additional Guidance and Instructions for MIDAS ..................................</td>
<td>14</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS ......................................................................................</td>
<td>15</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES ..................................................................................</td>
<td>16</td>
</tr>
</tbody>
</table>

**ATTACHMENTS**

 ATTACHMENT 1 - Salem/Hope Creek Dose Assessment Guidance ......................... 17
1.0 PURPOSE

This procedure provides guidance and operating instructions concerning performing basic dose assessment using the MIDAS dose assessment program.

2.0 PREREQUISITES

2.1 Prerequisites to be Followed Prior to Implementing This Procedure

IMPLEMENT this procedure:

- Upon the declaration of an Unusual Event or higher emergency classification.
- At the request of the Shift Manager (SM).
- At the request of the Radiation Protection Duty Supervisor (RPDS) or Shift Radiation Protection Technician (SRPT).
- In accordance with (IAW) Salem and Hope Creek applicable station procedures.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Precautions and Limitations to be Followed Prior to Implementing this Procedure:

3.1.1 Sections/Steps in this procedure may be PERFORMED in the order deemed appropriate for the emergency situation. Only Sections/Steps that are applicable to the specific MIDAS dose assessment mode of operation that is being PERFORMED need to be followed.

3.1.2 Initials should be used in the place keeping sign-offs next to the step being PERFORMED. Place keeping may be suspended for simple and repetitive steps, after first use, if approved by supervisor in accordance with HU-AA-104-101.

3.1.3 This procedure is limited to performance of basic dose assessment calculations; Automatic/Manual “Quick Dose Projection”, “Isotopic Entry on Spreadsheet” and guidance if instantaneous monitor values increase ≥ a factor of 10 (Section 5.5). (If the reactor has been shut down ≥90 minutes use Enhanced Dose Projection, instead of the Quick Dose Projection mode found in NC.EP-EP.ZZ-0313(Q), used at the EOF.)
3.1.4 **IF** there are concurrent multiple releases from Salem and Hope Creek **THEN** REFER to NC.EP-EP.ZZ-0313 (Q), Advanced Dose Assessment (MIDAS) Instructions, to **PERFORM** dose assessment (necessary if the combined releases could exceed the EPA Protective Action Guideline (PAG) of ≥1,000 mRem TEDE or ≥5000 mRem Thyroid CDE beyond the Site Boundary).

3.1.5 Personnel who **IMPLEMENT** this procedure shall be trained and qualified IAW the Emergency Plan.

3.1.6 **IF** a “Release is in Progress” **THEN** continue each subsequent run using the **Run Next Time Step** or **Save Without Exiting** options in order to integrate previous cumulative dose, if possible. **IF** **Run Next Time Step** is not possible the dose projection is still accurate but previous assessments will not be part of the cumulative dose. **IF** changing pathways in the middle of a MIDAS run **THEN** MIDAS should be restarted.

3.1.7 The R-46 Main Steam Line Monitor should only be used as an effluent monitor for dose assessment if a primary to secondary leak is occurring and the Steam Generator is releasing directly to atmosphere through the safety relief valve(s) (SRV) or through the atmospheric vent (MS-10). **IF** the R-46 monitor is changing, verification of an atmospheric pathway should be obtained.

4.0 **EQUIPMENT REQUIRED**

MIDAS Dose Assessment software is loaded on the hard drive of each computer connected to the LAN 2.5 Network, in all emergency facilities. While MIDAS will run independent of the network, the automatic data collection (auto mode) will not function without the network and dose assessment will have to be run in manual mode. Salem SPDS, Hope Creek CRIDS/SPDS and the “EOF RM-11” also reside on the LAN 2.5 network and is a source of data for running MIDAS dose assessment software. (EOF RM-11 only resides on the EOF Dose Assessment Area computers.)
5.0 **PROCEDURE**

**NOTE**

- Dose Assessment should be performed using 10 or 15-minute average radiation monitor system (RMS) and meteorological (MET) data, **UNLESS** circumstances in Section 5.5 are met (instantaneous monitor readings increase ≥ a factor of 10). Auto data collection captures average data values so it is not appropriate to run in Auto when running dose assessment for rapid monitor increases.

- LAN 2.5 computers should be left running at all times. When done running MIDAS leave the computer on but turn off the monitor.


- Use references: **EP Aid-048**, Salem Radiation Monitoring System Summary and **EP Aid-049**, Hope Creek Radiation Monitoring System Summary when information is needed concerning a specific radiation monitors (i.e. units, detector location, alarm set points...)

- Prior to starting dose assessment activities determine the active effluent pathways by checking for effluent flow. (HC - NPV, SPV, FRVS and HTV and for Salem - Plant Vent (Steam Generator to Atmosphere must be determined by visual observations)).

- A blank SSCL page 2 can be found in the Event Classification Guide (ECG), Attachment 8 or from Communicator Number 2.

5.1 **Start-Up Instructions For MIDAS**

5.1.1 **ENSURE** the computer and monitors are both turned on. **IF** necessary, **PRESS** the **POWER** button to turn them on. (If the computer was off, turning it on will boot the LAN 2.5 to the desktop where the MIDAS Accident Calcs icon can be seen.)

5.1.2 **IF** the monitor screen is blank **THEN MOVE** the mouse to "wakeup" the monitor.

5.1.3 **POSITION** the cursor on the **Midas Accident Calcs** icon and double left click the mouse. (The Sheet # 1 screen will be displayed).

5.1.4 **SELECT** Unit (**Hope Creek**, **Salem Unit 1**, or **Salem Unit 2**)
5.1.5 SELECT the appropriate Section for type of dose assessment mode, from the list below:

- REFER to Section 5.2 for instructions on how to PERFORM Dose Assessment in Automatic QUICK DOSE PROJECTION (MENU G).
- REFER to Section 5.3 for instructions on how to PERFORM Dose Assessment in Manual QUICK DOSE PROJECTION (MENU A).
- REFER to Section 5.4 for instructions on how to PERFORM Dose Assessment in ISOTOPIC ENTRY ON SPREADSHEET (MENU M).
- REFER to Section 5.5 to PERFORM Dose Assessment When Plant Vent Effluent Monitor(s) Increase By A Factor of 10 or greater.
- REFER to Section 5.6 for Preplanned Alternative Guidance to PERFORM Dose Assessment.
- REFER to Section 5.7 for Additional Guidance and Instructions for MIDAS concerning:
  - Screen print or print an additional station status checklist (SSCL),
  - Print a map,
  - Additional map guidance,

5.2 Auto Quick Dose Projection (MENU G) Mode Instructions

5.2.1 SELECT AUTOMATIC.

5.2.2 SELECT AUTO QUICK DOSE PROJECTION (MENU G) using the down arrow located in the Accident Run Menu Selection box.

5.2.3 SELECT OK (MIDAS will calculate a dose assessments for all monitored pathways that auto data collection has a current radiation monitor reading and flow indication. If a normal effluent pathway monitor is out of service MIDAS will NOT calculate that pathway and will need to be done in manual. Automatic dose calculations will also not be calculated for Steam Generator to atmosphere or Containment Leakage because there isn’t a flow monitor. Ensure all pathways with Effluent Flow print on SSCL if not resolve issues by running in manual.)
5.2.4 **REVIEW** data on the “Meteorological Raw Data” spreadsheet and **USE** SPDS to update any missing or inaccurate data on the “Current Time” data line (row). Then **SELECT** “OK”.

5.2.5 **REVIEW** data on the “Radiation Monitor & Flow Raw Data” spreadsheet. **USE** SPDS to update any missing or inaccurate data on the “Current Time” data line (row). **IF** the calculation is for a Steam Generator Tube Rupture (SGTR) to Atmosphere or Containment leakage **THEN ENTER** the appropriate flows on the spreadsheet from Attachment 1 (from Steam Generator or Containment leakage dose assessment sections). Then **SELECT** “OK”.

5.2.6 **SELECT** the appropriate “Accident Type” from the pull-down menu. (Salem; Core Accident, Tube Rupture [SGTR] or Spent Fuel Accident) (Hope Creek; Routine Effluent, Core Accidents or Spent Fuel)

- **For Salem and Hope Creek** **SELECT** Spent Fuel Pool if the event is due to damage to fuel in the Spent Fuel Pool
- **For Salem** **SELECT** Tube Rupture if the event is due to a SGTR select
- **For Hope Creek** **SELECT** Routine Effluents if there is no increase in effluent concentration
- **IF none of the above are applicable**, choose Core Accident

5.2.7 **LEFT CLICK** on the “Next” button then **LEFT CLICK** on “Start Calc”.

5.2.8 If MIDAS is available in automatic mode the display will change to the map display and a SSCL will automatically print. **IF** MIDAS input data from MET or RAD Monitors is not available **THEN EXIT** and **GO TO** section 5.3 and run a Quick Dose Projection in manual.

5.2.9 **IF a SSCL needs to be printed to the screen, or an additional SSCL printed out,** **THEN GO** to section 5.7.1 for guidance.

5.2.10 **IF another dose assessment calculation is required or to EXIT,** **THEN SELECT END RUN** (A pop-up screen will appear).
NOTE
When a release starts or is in-progress use the Run Next Time Step option in order to integrate previous cumulative dose. The three other remaining options should be used PRIOR to a radiological release since dose integration is not necessary.

If using Run Next Time Step is not appropriate for the situation then select Save Run & Exit if dose integration is needed later the data will be available in the “RECAP” mode.

Exit Without Saving should be only used if the user knows the data which won’t be saved will never be needed, for any reason.

5.2.11 PERFORM one of the following options as available:

- IF the user wishes to Run Next Time Step dose assessment calculation, THEN SELECT it, CLICK OK, and RETURN to Step 5.2.4. (MIDAS will PERFORM dose assessment calculations, the SSCL will automatically printout, and the screen map with plume will appear).

OR

- IF the user wishes to Save the Run and EXIT, THEN SELECT Save Run & Exit, CLICK OK and RETURN to Step 5.1.3.

OR

- IF the user wishes to EXIT Without Saving the Run, THEN SELECT Exit Without Saving, CLICK OK and RETURN to Step 5.1.3.

OR

- IF another dose assessment calculation is needed IMMEDIATELY, THEN SELECT Save Without Exiting, CLICK OK and RETURN to Step 5.2.4.

5.3 Manual Quick Dose Projection (MENU A) Mode Instructions

NOTE
Manual Mode Dose Assessment, should be PERFORMED IF:

- A Plant Vent Effluent monitor is not operational.
- A surveillance of the Plant Vent Effluent monitor is ongoing.
- Automatic radiological data acquisition is not operational.
- Automatic meteorological data acquisition is not operational.
- To input the total isotopic noble gas and iodine 131 values.
- The criteria in Section 5.5 is met.
- The criteria in Section 5.6 is met
5.3.1 SELECT **Manual** mode.

5.3.2 SELECT **Quick Dose Projection (Menu A)** using the down arrow located in the Accident Run Menu Selection box.

5.3.3 SELECT **OK**.

5.3.4 If applicable, PERFORM the appropriate steps listed below:

- IF "CHANGING UNITS", a pop-up screen will appear concerning initializing data, THEN SELECT **OK**.

- IF this is the "FIRST" dose assessment run, THEN SELECT **New** and **OK**. (A pop-up screen will appear concerning destroying data) **SELECT OK**.

- IF this is a "CONTINUATION" of dose assessment runs, THEN SELECT **EDIT LAST** and **SELECT OK**.

5.3.5 INPUT 15 minute average **MET Data** on the highlighted time line (Meteorological Spreadsheet - Sheet # 4).

5.3.6 SELECT **OK**

**NOTE**
For general guidance or specific guidance on selection of monitors/channels/flows to be used for dose assessment REFER to Attachment 1.

5.3.7 **IF PERFORMING** (dose calculations using instantaneous data follow additional guidance in section 5.5) dose calculations using 10 or 15 minute averages, THEN INPUT the appropriate 10 or 15 minute average **radiological and plant vent flow rate data** on the highlighted time line. (Radiation Monitor & Flow Spreadsheet - Sheet # 5). (Remember, both rad monitor reading and flow are both required for each pathway, to be calculated.)

5.3.8 SELECT **OK**.

5.3.9 SELECT the appropriate “Accident Type” from the pull-down menu. (Salem; Core Accident, Tube Rupture [SGTR] or Spent Fuel Accident) (Hope Creek; Routine Effluent, Core Accidents or Spent Fuel)

5.3.10 **LEFT CLICK** on the “Next” button then **LEFT CLICK** on “Start Calc”.

Nuclear Common Page 8 of 19 Rev. 13
5.3.11 IF a SSCL needs to be printed to the screen, or an additional SSCL printed out, THEN GO to section 5.7.1 for guidance.

5.3.12 IF another dose assessment calculation is required or to EXIT, THEN SELECT END RUN (A pop-up screen will appear).

5.3.13 PERFORM one of the following options as available:

- IF the user wishes to PERFORM another dose assessment calculation as a continuation, THEN SELECT RUN NEXT TIME STEP, CLICK OK and RETURN to Step 5.3.5.

  OR

- IF the user wishes to Save the Run and EXIT, THEN SELECT Save Run & Exit, CLICK OK and RETURN to Step 5.1.3.

  OR

- IF the user wishes to EXIT Without Saving the Run, THEN SELECT Exit Without Saving, CLICK OK and RETURN to Step 5.1.3.

  OR

- IF another dose assessment calculation is needed IMMEDIATELY, THEN SELECT Save Without Exiting, CLICK OK and RETURN to Step 5.1.4.

5.4 Manual Isotopic Entry on Spreadsheet (MENU M) Mode Instructions

5.4.1 SELECT Manual mode.

5.4.2 SELECT Isotopic Entry On Spreadsheet (Menu M).

5.4.3 SELECT OK

NOTE
A Pop-up Warning Screen will appear concerning Selecting At Least One Release Point.

5.4.4 SELECT OK

5.4.5 SELECT the appropriate release point for the isotopic sample.

[HOPE CREEK - (1) FRVS, (2) NPV, (3) SPV, (4) HTV]

  OR

[SALEM - (1) PLT Vent, (2) STM Line, (4) CTMT]
5.4.6 **SELECT Next.**

5.4.7 **ENSURE** the Times (hrs) to be Calculated are:

1. 0.25
2. 1.00
3. 4.00
4. 24.00

**OR**

**INPUT** the above values.

5.4.8 **SELECT Next**

5.4.9 **PERFORM** one of the appropriate steps listed below:

- IF “Changing Units”, a pop-up screen will appear concerning initializing data, **THEN SELECT OK**
- IF this is the “FIRST ISOTOPIC” dose assessment run, **THEN SELECT New and OK.** (A pop-up screen will appear concerning destroying data)
  - **SELECT OK** and go to step 5.4.10.
- IF “CONTINUING ISOTOPIC” of dose assessment runs, **THEN SELECT EDIT LAST.**
  - **SELECT OK** and go to step 5.4.10.

5.4.10 **ENTER** appropriate **Meteorological Data** on the Meteorological Spreadsheet - Sheet # 4.

5.4.11 **SELECT OK** (A Pop-up Screen will appear - Type Of Isotopic Values).

5.4.12 **SELECT Enter Isotopic Concentrations And Flow Rate.**

5.4.13 **SELECT OK**

5.4.14 **ENTER Plant Vent Flow Rate** under Fan Flow CFM.

5.4.15 **ENTER Appropriate Isotopic Values.**

5.4.16 **SELECT OK.**

5.4.17 **SELECT Next.**
5.4.18 **SELECT Start Calc** (The SSCL will automatically printout and the 13-mile map will be displayed).

5.4.19 **IF** a SSCL needs to be printed to the screen or an additional SSCL printed out, **THEN GO** to section 5.7.1 for guidance.

5.4.20 **IF** another dose assessment calculation is required or to EXIT, **THEN SELECT END RUN** (A pop-up screen will appear).

5.4.21 **PERFORM** one of the following selections:

- **IF** another dose assessment calculation is needed **THEN SELECT Save Without Exiting** and **RETURN** to step 5.4.1.

  **OR**

- **IF** the user wishes to EXIT, **THEN SELECT Save Run & Exit**.

5.4.22 **SELECT OK**.

### 5.5 Dose Assessment Guidance - Effluent Monitors Increase By A Factor Equal To Or Greater Than 10:

#### NOTE

Salem and Hope Creek Plant Effluent Monitors are:

- **SALEM PLANT EFFLUENT MONITORS USED FOR DOSE ASSESSMENT**
  - Unit 1 or 2 **R41 A, B, or C** (uCi/cc)
  - Unit 1 or 2 **R46 (A, B, C or D)** (mR/hr) if a Steam Generator with a primary to secondary leak is being released directly to atmosphere through the SRV(S) or the manual atmospheric vent (MS-10)

- **HOPE CREEK PLANT VENT EFFLUENT MONITORS USED FOR DOSE ASSESSMENT**
  - SPV - 9RX606, 9RX607, or 9RX581 (uCi/cc)
  - NPV - 9RX602, 9RX603, or 9RX591 (uCi/cc)
  - FRVSV - 9RX640, 9RX610, or 9RX611 (uCi/cc)
  - HTV - 9RX518 (uCi/sec)

5.5.1 **IF** any Plant Vent Effluent Monitor(s) increase by a factor of 10 or more, **THEN PERFORM** the following:

---

Nuclear Common Page 11 of 19 Rev. 13
A. **PERFORM** dose assessment calculations in the manual mode using instantaneous value(s) IAW [Section 5.3] of this procedure;

B. **WRITE** on top of Page 2 of the Station Status Checklist (SSCL), “RELEASE RATE CALCULATED FROM INSTANTANEOUS MONITOR VALUES.”

C. **RECOMMEND** radiological protective action recommendations (RAD PARs), if any, to the appropriate person [SM, radiological assessment coordinator (RAC), or radiological support manager (RSM)] using the SSCL, IAW SC.EP-EP.ZZ-0301(Q), HC.EP-EP.ZZ-0301(Q), OR NC.EP-EP.ZZ-0602(Q).

D. **ADVISE** the appropriate person SM, RAC, or RSM that, “the SSCL and RAD PAR (if any) was calculated from instantaneous Plant Vent data and may not reflect actual radiological conditions. An additional SSCL will be forthcoming in approximately 20 minutes.”

E. **PERFORM** another dose assessment in approximately 15 to 20 minutes. **SELECT END RUN** (A pop screen will appear).

F. **SELECT Save Run And Exit., CLICK OK** and **RETURN** to Step 5.1.4. Use the 15-minute average MET and 10 or 15-minute average radiological data.

G. **PROVIDE** the SSCL and RAD PAR, if applicable, to the appropriate person (SM, RAC, or RSM).
5.6  **Preplanned Alternative Guidance**

NOTE
SALEM UNIT 1 / 2 ONLY

Contact the Shift Manager (SM) prior to performing dose assessment calculations for preplanned alternative, if the 1R41 or 2R41 monitor(s) are out of service / inoperational and are needed to **PERFORM** dose assessment calculations.

5.6.1 **PERFORM** the appropriate steps listed below, to calculate a SSCL, when the normal method to **PERFORM** dose assessment at **SALEM UNIT 1 and/or SALEM UNIT 2 IS NOT** possible:

- **IMPLEMENT Section 5.3**, to **PERFORM** dose assessment calculations using **Main Steam Line (MSL) Teletector Readings**. [All contact teletector readings on the MSLs should be obtained on the curve of the line prior to the main steam isolation valve (MSIV). (See the diagram below)]. Teletector readings must be multiplied by a conversion factor prior to being used in MIDAS calculation. See NOTE in section 5.3.
5.6.2 **IF ISOTOPIC DATA** is available, **THEN IMPLEMENT Section 5.4**, to **PERFORM** dose assessment calculations based on isotopic plant vent sample values for Hope Creek, Salem Unit 1, or Salem Unit 2.

5.7 **Additional Guidance and Instructions for MIDAS**

5.7.1 **PERFORM** the following to “PRINT an additional SSCL”:

A. **SELECT** the Special Reports Box located on the lower menu bar of the map screen.

B. **IF** the SSCL Box is already highlighted, **THEN GO** to **Step D**.

C. **CLICK** on the BOX below the Special Reports Box until the highlighted **SSCL Box** appears.

D. **CLICK CONFIRM**. (The latest SSCL will be printed to the screen).

E. **CLICK** on the **Printer ICON** located on the top menu bar. (A pop-up screen will appear)

F. **SELECT OK**.

G. **SELECT** the X box in the upper right hand corner to **EXIT** out of the SSCL Screen Print and return to the Map Screen.
5.7.3 **PERFORM** the following to print a SCREEN or REPORT:

- **SELECT** the Item(s) you wish to print.
- **SELECT** the Confirm box.
- **SELECT** the PRINTER icon located on the bottom of the menu bar.

5.7.4 **PERFORM** the following to Print a Plume Map

- With the cursor on the plume map right **CLICK** the mouse.
- **SELECT** Print Map from the selection.
- **SELECT** printer from pull down menu if more than one printer is available)
- **SELECT** OK

5.7.5 **DETERMINE** distance between two points on the plume map display

- Position the cursor on the plume map at the first point of interest.
- Press down and hold the Shift key.
- Click and hold down the left mouse button and move the mouse to the second area of interest and the distance between the two points will be displayed.

5.7.6 **VIEW** different Map Features on the display

- Click on the Map Features button, from the Plume Map display screen.
- Click on all the items that should be displayed.
- **SELECT** OK (selected items will be displayed on the map)

6.0 **RECORDS**

**RETURN** completed procedures and documentation to the Emergency Preparedness Manager.
7.0 **REFERENCES**

7.1 **References**

7.1.1 EPA 400, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

7.1.2 PSEG Nuclear Emergency Plan

7.1.3 MIDAS Documentation

7.1.4 DCP 80057520 Upgrade of the 1R46 Rad Monitors

7.1.5 DCP 80057587 Upgrade of the 2R46 Rad Monitors

7.2 **Cross References**

7.2.1 NC.EP-EP.ZZ-0310 (Q), Radiation Protection Supervisor - Offsite And Field Monitoring Team Response

7.2.2 NC.EP-EP.ZZ-0313 (Q), Advanced Dose Assessment (MIDAS) Instructions

7.2.3 HC.EP-EP.ZZ-0301 (Q), Shift Radiation Protection Technician Response

7.2.4 SC.EP-EP.ZZ-0301 (Q), Shift Radiation Protection Technician Response

7.2.5 EP Aid-018, Salem SPDS Instructions for MET and Radiological Data

7.2.6 EP Aid-019, Hope Creek CRIDS/SPDS - Instructions for MET and Radiological Data

7.2.7 EP Aid-048, Salem Radiation Monitoring System Summary

7.2.8 EP Aid-049, Hope Creek Radiation Monitoring System Summary

7.2.9 EP Aid-090, HC EOF RM-11 Instructions for Radiological and Flow Data
GENERAL GUIDANCE:

- 10 or 15 Minute Average Effluent radiological monitor data and Effluent flow rates should be input every 15 Minutes. Leaving blank cells between lines of data are interpreted by MIDAS as a puff release (no release for that time period). Rad monitor data and the flow data for that pathway both need to be entered or a calculation for that pathway will not be made. Monitored release pathways for Hope Creek are: NPV, SPV, FRVS and HTV. Monitored release pathways for Salem are Plant Vent (R41), Steam Generator to atmosphere (R46) and Containment (R44). Normally occurring discharges from the stations are coming from the NPV/SPV for HC and the Plant Vent for Salem.

- The following monitors should be used for manual dose assessment at: Hope Creek -(NPV-NG, SPV-NG, FRVS - NG and HTV-NG) (WRGM channels) (Under specific conditions DAPA monitors can be used to evaluate “What If” calculations for Containment Leakage)
  Salem - (R41 and under specific conditions the R46 and or R44 monitors)

- For assistance with obtaining flow data use EP Aid-018 (Salem) and EP Aid-019 & 090 (Hope Creek).

SALEM UNIT 1 & 2 ONLY

- **Plant Vent Dose Assessment:** Follow the below guidance to help in making the correct decision for which R41 monitor value to use. Only **ONE** should be used in MIDAS for performing dose assessment.
  - R41A should be used if values are > 1E-08 uCi/cc to 9.99E-02 uCi/cc.
  - R41B should be used if values are > 1E-01 uCi/cc to 9.99E+01 uCi/cc.
  - R41C should be used if values are > 1E+02 uCi/cc to 1E+05 uCi/cc.

- **STEAM GENERATOR DOSE ASSESSMENT**
  - R46: Dose assessment may be PERFORMED using the R46 monitor value during a primary to secondary leak or Steam Generator Tube Rupture (SGTR) if the Steam Generator is being released directly to atmosphere. The R46 value is entered in the R46A-D column in MIDAS for each S/G and use the default flow rate value of 4.50E+05 lbs/hr. More accurate flow can be provided with the assistance of Operations or Engineering but don’t wait for this data to run dose assessment, use the default until updated. **If the R46 reading is erratic use substitution of TELE TECTOR readings for R46MSL values, method below.**
• **Substitution of TELETECTOR readings for R46MSL values.**
  - Teletector values should be used instead of R46 values if the R46 values are not available or trends of R46 data shows a stream of spikes making the average data unreliable.
  - **REFER** to section 5.6 of this procedure concerning where contact readings on the Main Steam Lines (MSL) should be taken.
  - The Teletector value obtained from contact reading (in mR/hr) on the MSL MUST be multiplied by the **Correction Factor of 1.16E-2** prior to being used in MIDAS.
  - The value should be entered in the R46MSL column.
  - The value 4.50E+05 lbs/hr should be used as the default flow rate.

• **Containment Leakage Dose Assessment:** R44 monitor values may be used for “WHAT IF” type Calculations or if the containment has been breached and an unmonitored release is in progress.
  - Enter the R44 value along with a projected flow rate from containment. Operations or Engineering may be able to provide assistance with determining the projected flow rate.
  - Salem UFSAR section 6.2.2.2.2 lists the Salem Containment air volume as 2.62E+06 cubic feet so the following flow rates could be useful to determine source term due to containment leakage.
    - Design Basis leak rate is 0.1% per day which would be 1.82 CFM
    - 10% per day leak rate would be 1.82E+02 CFM
    - 100% per day would be 1.82E+03 CFM
    - And for a catastrophic failure, 100% in an hour, would be 4.37E+04 CFM
Hope Creek ONLY

Follow the guidance below is for help in making the correct decision for which effluent channel value to use. **DO NOT use more than one channel per monitor.** On the RM-11 in the HC RPCP and the HC TSC the value displayed on channel icon is the instantaneous value; average values are displayed on the channel display. View the channel display by clicking on the channel icon. The Mid-Hi range sample pump for the NPV, SPV and FRVS starts at 1.00E-03 uCi/cc so values displayed below this value are not valid.

- **For SPV Monitor:**
  - Use channel 9RX606 from 1.00E-08 to 1.00E-02 uCi/cc (Low Range)
  - Use channel 9RX607 from >1.00E-02 to 1.00E+01 uCi/cc (Mid Range)
  - Use channel 9RX581 from >1.00E+01 to 1.00E+05 uCi/cc (Hi Range)

- **For NPV Monitor:**
  - Use channel 9RX602 from 1.00E-08 to 1.00E-02 uCi/cc (Low Range)
  - Use channel 9RX603 from >1.00E-02 to 1.00E+01 uCi/cc (Mid Range)
  - Use channel 9RX591 from >1.00E+01 to 1.00E+05 uCi/cc (Hi Range)

- **For FRVS Monitor:**
  - Use channel 9RX640 from 1.00E-08 to 1.00E-02 uCi/cc (Low Range)
  - Use channel 9RX610 from >1.00E-02 to 1.00E+01 uCi/cc (Mid Range)
  - Use channel 9RX611 from >1.00E+01 to 1.00E+05 uCi/cc (Hi Range)

- **For HTV Monitor** use 9RX518 (Effluent Monitor in uCi/sec)

**Hope Creek Containment Leakage “What If” calculations** use the DAPA monitor value (R/hr) along with the projected flow (CFM) for the Primary Containment leakage. According to the Hope Creek UF SAR Table 15.6-12 the air volume of the HC Primary Containment is 3.06E+05 cubic feet so the following flow rates could be useful to determine source term due to containment leakage.
  - Design Basis leak rate is 0.5% per day which would be approx. 1.10 CFM
  - 10% per day leak rate would be 2.13E+01 CFM
  - 100% per day leak rate would be 2.13E+02 CFM
  - For a catastrophic failure, 100% in an hour, would be 5.11E+03 CFM

**Hope Creek Containment Leakage “What If” calculations** use the DAPA monitor value (R/hr) along with the projected flow (CFM) for the Primary Containment leakage. According to the Hope Creek UF SAR Table 15.6-12 the air volume of the HC Primary Containment is 3.06E+05 cubic feet so the following flow rates could be useful to determine source term due to containment leakage.
  - Design Basis leak rate is 0.5% per day which would be approx. 1.10 CFM
  - 10% per day leak rate would be 2.13E+01 CFM
  - 100% per day leak rate would be 2.13E+02 CFM
  - For a catastrophic failure, 100% in an hour, would be 5.11E+03 CFM
PSEG NUCLEAR L.L.C.

EMERGENCY PREPAREDNESS

NC.EP-EP.ZZ-0310(Q) - Rev. 10

RADIATION PROTECTION SUPERVISOR - OFFSITE
AND FIELD MONITORING TEAM RESPONSE

USE CATEGORY: II

A. Biennial review performed: Yes ___ No ___ N/A ___

B. Packages and Affected Document Numbers incorporated into this revision: None

C. The following OTSCs were incorporated into this revision: None

REVISION SUMMARY:

- Changed 6.0 to have all completed procedure, attachments, and/or forms to the Station Emergency Preparedness Manager
- Attachment 1 step 1.17 - revised note to update procedure reference
- Attachment 1 step 1.18 - revised note to add "if a radiological release is in progress"
- Attachment 2 step 1.1.5 - revised to add EP Aid-019
- Attachment 2 step 1.1.6 - revised to add EP Aid-025
- Attachment 2 step 1.1.7 - revised to add EP Aid-018 and EP Aid-019
- Attachment 2 Note step 1.1.12 - deleted reference to ODCM limits
- Attachment 2 step 1.1.13 - deleted reference to ODCM limits
- Attachment 13 - deleted content and reserved for future use and added reference to EP Aid-018 and EP Aid-019
# RADIATION PROTECTION SUPERVISOR - OFFSITE AND FIELD MONITORING TEAM RESPONSE

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE..................................................................</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES..................................................</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS..................................</td>
<td>2</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED...........................................</td>
<td>3</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE................................................................</td>
<td>3</td>
</tr>
<tr>
<td>5.1</td>
<td>The RPS - Offsite Should....................................</td>
<td>3</td>
</tr>
<tr>
<td>5.2</td>
<td>The Radiation Protection (RPT - Radio) Should............</td>
<td>4</td>
</tr>
<tr>
<td>5.3</td>
<td>The Onsite Field Monitoring Team Should..................</td>
<td>4</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS..................................................................</td>
<td>4</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES.......................................................</td>
<td>4</td>
</tr>
</tbody>
</table>

### ATTACHMENTS

- ATTACHMENT 1 - TSC Pre-activation Checklist........................................... 5
- ATTACHMENT 2 - RPS-Offsite Checklist....................................................... 7
- ATTACHMENT 3 - Field Monitoring Team Briefing Guidance............................ 9
- ATTACHMENT 4 - Onsite Field Monitoring Equipment Checklist.......................... 14
- ATTACHMENT 5 - Field Monitoring Team Log................................................. 16
- ATTACHMENT 6 - Particulate Air Activity vs. Count Rate Table....................... 19
- ATTACHMENT 7 - Particulate Air Activity vs. Dose Rate Table.......................... 20
- ATTACHMENT 8 - Direct Conversion Table Of Corrected Counts Per Minute To uCi/CC I-131.......................................................... 21
- ATTACHMENT 9 - Field Monitoring Team Responsibilities and Directions............ 22
- ATTACHMENT 10 - Onsite Protective Action Guidelines................................... 24
- ATTACHMENT 11 - Hope Creek DAPA Correction Calculations............................ 26
- ATTACHMENT 12 - Package Insert For Thyro-Block Tablets................................ 29
- ATTACHMENT 13 - Reserved........................................................................... 33

### FORMS

- Form - 1 Habitability Log........................................................................... 34
- Form - 2 Dosimetry Log............................................................................... 35
1.0 **PURPOSE**

To outline and describe the Radiation Protection Supervisor – Offsite (RPS – Offsite), Radiation Protection Technician - Radio (RPT-Radio), and Onsite Field Monitoring Team’s duties.

2.0 **PREREQUISITES**

2.1 **Prerequisites To Be Followed Prior To Implementing This Procedure**

2.1.1 Implement this procedure at:
- The discretion of the Shift Manager (SM)
- The discretion of the emergency duty officer (EDO)
- The discretion of the radiological assessment coordinator (RAC).
- The manning of the technical support center (TSC).

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

3.0 **PRECAUTIONS AND LIMITATIONS**

**NOTE**

In accordance with the PSEG Nuclear LLC Emergency Plan, during a declared emergency, the Radiological Assessment Coordinator (RAC), among other duties, has complete over site of the onsite Radiation Protection and Chemistry organizations.

Although the Radiation Protection Supervisor - Exposure Control (RPS-EXP) reports directly to the Operations Support Center Coordinator (OSCC), the RAC has over site of the RPS-EXP concerning radiological matters.

Upon activation of the TSC, the following positions report directly to the RAC:
- The Radiation Protection Supervisor - Offsite located in the TSC;
- Any Radiation Protection Technicians assigned to the TSC;
- The Hope Creek Shift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Hope Creek Onshift Radiation Protection Technician (located at the Hope Creek Control Point);
- The Salem Onshift Radiation Protection Technician (located at the Salem Control Point);

The Salem Shift Radiation Protection Technician reports directly to the Shift Manager in the Salem Control Room.

All other Onsite Radiation Protection Technicians (Hope Creek or Salem) report directly to The RPS-EXP.
3.1 **Precaution and Limitations To Be Followed Prior To Implementing This Procedure**

3.1.1 The order of the steps listed in this procedure may be performed in the order deemed appropriate by the RPS - Offsite, RPT - Radio, and Onsite Field Monitoring Team.

3.1.2 Approval of the SM is required prior to the issuance of Potassium Iodide (KI) until a qualified Radiological Assessment Coordinator (RAC) assumes his duties. The authority to designate when and who should receive KI shifts from the SM to the RAC for all Onsite Personnel IAW NC.EP-EP.ZZ-0305(Q), Stable Iodine Thyroid Blocking. The duty of authorizing KI can not be delegated or assumed by any other position.

3.1.3 The RPS-Offsite should assume the RAC’s duties until relieved by a qualified RAC by referring to NC.EP-EP.ZZ-0302(Q), Radiological Assessment Coordinator Response.

3.1.4 Medical care takes priority over any radiological conditions, unless the radiological conditions are life threatening.

3.1.5 It is recommended that initials be used in the step performance check offs/sign-offs, instead of checkmarks, if more than one person is implementing this procedure.

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

3.1.7 All Onsite Emergency Response Organization members **MUST** have taken and **PASSED** Rad Worker Training/Rad Worker Requalification and have an OSL **ASSIGNED** to them. Any personnel who do not meet these requirements may be asked to evacuate the owner control area.

4.0 **EQUIPMENT REQUIRED**

As provided in the Emergency Response Facility.

5.0 **PROCEDURE**

5.1 **The RPS-Offsite Should:**

5.1.1 **IF** the RAC has not arrived at the TSC, **THEN ASSUME** the RAC’s duties until he/she arrives by implementing NC.EP-EP.ZZ-0302(Q), Radiological Assessment Coordinator Response.

5.1.2 **ASSUME** his/her own duties when a qualified RAC assumes the duties of the RAC, by implementing Attachment 1, TSC Pre-activation Checklist, of this procedure, unless directed otherwise by the RAC.
5.2 **The Radiation Protection – Radio (RPT-Radio) Should:**

**NOTE**
The RPT-Radio may use the Attachment 5’s Form-1, Field Sampling Log, to log multiple field samples and measurements.

Assume his/her duties IAW Attachment 5, Field Monitoring Team Log.

5.3 **The Onsite Field Monitoring Team(s) Should:**
Assume his/her duties IAW Attachment 9, Field Monitoring Team Responsibilities and Directions.

6.0 **RECORDS**
Return completed procedure, attachments, and/or forms to Station Emergency Preparedness Manager.

7.0 **REFERENCES**

7.1 **References**


7.1.2 NUREG/CR-0314, An Air Sampling System for Evaluating Thyroid Dose Commitment Due to Fission Products Released for Reactor Containments.


7.1.4 PSEG Nuclear Emergency Plan.

7.1.5 Salem Offsite Dose Calculation Manual.

7.1.6 Hope Creek Offsite Dose Calculation Manual.

7.2 **Cross References**

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

7.2.2 NC.EP-EW-ZZ-0603(Q) Field Monitoring.

7.2.3 NC.EP-DG.ZZ-0009(Z), Salem SPDS Operating Instructions
ATTACHMENT 1
Page 1 of 2

TSC PRE-ACTIVATION CHECKLIST

DATE: __/__/__
TIME: __:__

1.0 RPS-OFFSITE INITIAL ACTIONS

NOTE
Attachment 2, RPS-Offsite Checklist may be implemented concurrently with the implementation of this procedure.

1.1 Perform the Following:

1.1.1 PERFORM or ASSIGN a Radiation Protection Technician (RPT) to check the dose rates in the TSC.

1.1.2 PERFORM or ASSIGN a RPT to perform habitability every 30 minutes and log habitability results in Form 1, Habitability Log.

1.1.3 COMPARE the dose rates with the habitability criteria found in Attachment 10, Onsite Protective Action Guidelines.

1.1.4 IF the evacuation limits found in Attachment 10 are exceeded, THEN notify the RAC and refer him to Attachment 4, TSC Evacuation Checklist, found in NC.EP-EP.ZZ-0302(Q).

1.1.5 OBTAIN a briefing from the SRPT concerning the Plant’s radiological conditions and when the next SSCL Page 2 is due. (TIME: __________:_________)

1.1.6 OBTAIN a briefing from the RAC (or the EDO if the RAC is not available) concerning the Plant’s Operational condition.

NOTE
An inventory of the TSC Emergency Equipment Locker is not necessary if the security seal is intact.

Refer to EP-AA-124-1002, Emergency Preparedness Inventory Radiation Protection if an inventory is necessary.

1.1.7 ENSURE the TSC emergency equipment is available and in operational condition.
ATTACHMENT 1

Page 2 of 2

1.1.8 PERFORM or ASSIGN a RPT to perform the following tasks:

NOTE

The TSC radiological assessment should not be generating the official Page 2 of the Station Status Checklist (SSCL) until the TSC is activated, the SRPT is informed the TSC is activated and the TSC radiological assessment personnel will be taking over the generation of the SSCL, Page 2 if a radiological release is in progress.

- Page 2 of the SSCL is being generated in preparation of taking this function over.
- A continuous air monitor sampler (AMS 3) is set up outside the TSC entrance.
- ENSURE ALL persons in the TSC have a OSL. Have the person(s) escorted offsite, if they don’t have a OSL.

1.1.9 NOTIFY the RAC (or EDO if the RAC is not available) when this attachment is completed.

1.1.10 IF implementation of Attachment 2 has not begun, THEN implement Attachment 2.

TSC PRE-ACTIVATION CHECKLIST COMPLETED:

(TIME)

TSC ACTIVATED:

(TIME)
ATTACHMENT 2
Page 1 of 2
RPS-OFFSITE CHECKLIST

Name: ______________ / ______________ Date/Time: __-__-__ / __:
(Print/Sign)

1.0 RPS-OFFSITE
1.1 Should Perform The Following:

1.1.1 INITIATE a RPS-Offsite log book. _____

1.1.2 INFORM the RAC of all changing radiological conditions. _____

NOTE
The keys for the emergency vehicle are located in the TSC lock box and in the Control Point key box.

1.1.3 REQUEST the RAC to assign personnel for Onsite Field Monitoring Team members, as the need arises. _____

1.1.4 CONTACT a Radiation Protection Technician at the Control Point and ask for the location of the emergency vehicle. _____

1.1.5 INSTRUCT a RPT to obtain current meteorological data utilizing EPAid-018 (Salem) and EP Aid-019 (Hope Creek) if needed to operate SPDS. _____

1.1.6 INSTRUCT an RPT to obtain the meteorological forecast by calling NOAA at (automotive system – 609-261-6600; options 1 & than 2) (to speak to meteorologist at Mount Holly – 609-261-6604) or by using the internet (using EP Aid-025). _____

1.1.7 INSTRUCT a RPT to obtain current RMS data utilizing SPDS:

A. **HOPE CREEK ONLY**: using EP Aid-019 if needed _____

B. **SALEM ONLY**: using EP Aid-018 if needed _____
ATTACHMENT 2

Page 2 of 2

1.1.8 **HOPE CREEK ONLY:**

REFER to Attachment 11, Hope Creek DAPA Correction Calculations, to determine if a Bias Value is needed to be used to corrected DAPA values.

1.1.9 Brief Onsite Field Monitoring Teams IAW Attachment 3, Field Monitoring Team Briefing Guidance.

1.1.10 ENSURE/INSTRUCT the RPT-Radio to implement Attachment 5, Field Monitoring Team Log

1.1.11 PROVIDE the RPT – Radio instructions concerning where the Field Monitoring Teams should travel to and what type samples to take.

1.1.12 REVIEW RPT-Radio’s paperwork for completeness and correctness of data being recorded periodically.

**NOTE**

- Alnors, or electronic equivalent dosimetry may be used instead of self reading dosimeters (SRDs). Electronic dosimetry may be positioned throughout the TSC and SRDs, or electronic equivalent dosimetry, handed out only to people who exit the TSC.

1.1.13 ENSURE preparation is ongoing to log, record on Form-2 (Dosimetry Log), and handout dosimetry as required if:

- A radiological release > Federal Limits/ODCM Limits is in progress.
- Dose rates in the TSC are ≥ 2.5 mR/hr.
- At the discretion of the RAC.
ATTACHMENT 3

FIELD MONITORING TEAM BRIEFING GUIDANCE

NOTE

The Onsite/Offsite Field Monitoring Teams should have the actual or a copy of the briefing form prior to being sent out to perform field monitoring.

1.0 At A Minimum, The Following Items Should Be Included In The Briefing, and Recorded On Form – 1, Field Monitoring Team Briefing Form, of This Attachment:

1.1 Onsite and Offsite Field monitoring Teams Briefing Guidance

• ENSURE radio protocol is conducted in the following manner:
  o Repeat backs (Three Way Communications)
  o Use of the proper phonetic alphabet, when appropriate. (A-Alpha, B-Bravo, etc.)

• PROVIDE current meteorological conditions and forecast.

• PROVIDE phone number to contact the TSC/EOF. This can’t be a NETS phone.

• DIRECT the Teams to use the guidanace provided to them from the RPT – Radio/Field Team Coordinator concerning which monitoring locations to travel to and what type of samples to take.

• PROVIDE guidance to the Onsite/Offsite Field Monitoring Teams concerning how to handle survey equipment that is contaminated with 50k ccppm. (Consideration should be given to changing out or bagging survey equipment).

• ASSIGN a color name for the Onsite Field Monitoring Teams (Red Team, Blue Team, Green Team, etc.).

• INSTRUCT the TEAMS to use Talk Group “EPON” to contact the TSC or “EPOFF” to contact the Offsite field Monitoring Team or EOF. The TSC desktop radio is preset to “EPON” and can not be changed. Portable radios and the radio installed in the Onsite survey vehicle can switch to either talk group as necessary.
ATTACHMENT 3

ONSITE FIELD MONITORING TEAM GUIDANCE:

NOTE

1. Onsite Field Team air samples should be taken with a Low Volume air sampler if:

SALEM ONLY:
- The R41A effluent monitor is in range (1E-07 to 1E-01 uCi/cc).

HOPE CREEK ONLY
- The combined Plant vent effluent concentration is 1E-07 to 1E-01 uCi/cc

2. Onsite Field Team air samples should be taken using the marinelli emergency air sampler in accordance with NC.EP-EP ZZ-0306, Emergency Grab Air Sampling and Analysis, if:

SALEM ONLY:
- The R41B or R41C effluent monitors are in range (>1E-01 to 1E+05 uCi/cc).

HOPE CREEK ONLY
- The combined Plant vent effluent concentration is >1E-01 uCi/cc.

1.2.1 ENSURE Onsite Field Monitoring Team understand the correct type of air sample to obtain based on Plant Vent effluent concentrations.

1.2.2 INSTRUCT the Onsite Field Monitoring Teams to implement Attachment 9, Field Monitoring Team Responsibilities and Directions.

1.2.3 DETERMINE if issuance of KI is necessary for Field Monitoring Team members by referring to NC.EP-EP ZZ-0305(Q), Stable Iodine Thyroid Blocking, and recommendation to the RAC.

1.2.4 INSTRUCT the Onsite Field Monitoring team to read Attachment 12 and sign Attachment 12’s Form-1.
1.3 **Offsite Field Monitoring Team Guidance:**

**NOTE**
Offsite Field Monitoring Team members may obtain a briefing via radio or phone for early dispatching from the RPS-Offsite.

1.3.1 INSTRUCT the Offsite Field Monitoring Team members to implemented Attachment 3 of NC.EP-EP.ZZ-0603(Q).

1.3.2 INSTRUCT the teams to read and sign Attachment 10 and Form – 4, KI Side Effects/Administration Sign Off Form found in NC.EP-EP.ZZ-0603(Q).

1.3.3 ASSIGN a phonetic name for the Offsite Field Monitoring Teams (Alpha Team, Bravo Team, Charlie Team, etc.).

1.3.4 INSTRUCT the Offsite Field Monitoring Teams to implement Attachment 8, found in NC.EP-EP.ZZ-0603(Q), Field Monitoring Team Responsibilities and Directions.

1.3.5 INSTRUCT the Teams to pay, or charge on Corporate American Express card, meals and gas and then submitted for reimbursement follow one of the provisions for gas and meals listed below:

1.3.6 USE talk group “EPOFF” to contact the EOF for the Offsite Field Monitoring Team. The TSC desktop radio is preset to “EPON” and cannot be changed. Portable 900 Mhz radios and the radio installed in the Onsite survey vehicle can switch to either talk group as necessary.
ATTACHMENT 3
Page 4 of 5
FIELD MONITORING TEAM BRIEFING FORM – 1

2.0 **TEAM BRIEFING**

2.1 The RPS – Offsite Should Ensure The Following Information Is Completed:

- RPS-Offsite: __________________________/_________________/_________________
  (PRINT/SIGN) (DATE)

- Event Classification/Time: __________________________/

- Plant Conditions: __________________________

- **METEROLOGICAL CONDITIONS**
  
  **Wind Direction:** (Expected Plume Direction)
  From: ___________ (Degrees) To: ___________ (Degrees)

  **Wind Speed:** ___________ (mph)
  **Precipitation:** ___________ (Inches)
  **Warnings Or Watches:** __________________________
  **Specific Monitoring Location(s) (If Applicable):** ___________

  (Landmarks if Applicable)

- 2.1.1 Initial areas or locations to be surveyed: (Refer to Onsite Emergency Monitoring Locations Map or 10 Mile EPZ Map located in the Field Monitoring Kit, as appropriate). __________________________

- 2.1.2 Protective Clothing Requirements: __________________________
NOTE
Field Monitoring Team members must be respirator qualified prior to instructing them to wear respirators.

2.1.3 Respiratory Protection Requirements: ____________________________

2.1.4 Additional Specific Radiological Concerns: ____________________________

2.1.5 Color Name for Onsite Team and Members of Team:
- Red Team: Name of Team Leader: ____________________________
  Name of Team Member: ____________________________
- Blue Team: Name of Team Leader: ____________________________
  Name of Team Member: ____________________________
- Green Team: Name of Team Leader: ____________________________
  Name of Team Member: ____________________________

2.1.6 Phonetic Alphabet Name for Offsite Team and Members of Team:
- Alpha Team: Name of Team Leader: ____________________________
  Name of Team Member: ____________________________
- Bravo Team: Name of Team Leader: ____________________________
  Name of Team Member: ____________________________
ONSITE FIELD MONITORING EQUIPMENT CHECKLIST

NOTE

- An inventory of the Onsite Field Monitoring Team Kits is not necessary, if the kit(s)/cabinet(s) are properly sealed.
- EP-AA-124-1002, Emergency Preparedness Inventory Radiation Protection should be referred to, to perform an inventory of the Emergency Locker, if necessary.
- The Forms Kit is stored in the RPS-Offsite work area.
- Lead blankets are stored adjacent to kits.
- This checklist is to be used to help ensure needed items are not left behind while loading the emergency vehicle. It is not to be used instead of the Emergency Preparedness Procedure 1006 when performing a full inventory of the Emergency Locker.

DIRECT Onsite Field Team Members to replace missing or out of service items by asking a RPT for necessary items to complete the Onsite Field Monitoring Team kit.

1.0

DIRECT Offsite Field Team Members to replace missing or out of service items by taking necessary items to complete the Offsite Field Monitoring Team kit from the spare supplies.

EQUIPMENT/SUPPLIES CHECKLIST

- Low Volume Air Samples: Radeco H809C with battery cable and two air sample heads, or a battery operated Radeco with two air sample heads

- One Count Rate Meter: E140N with a HP210 probe or equivalent meter and probe.

- One Ion Chamber Dose Rate Meter: RO-2 or RO-2A or equivalent meter.

- One Teletector or equivalent meter.

- One GM meter: E520 with a HP177C or 270 probe or equivalent meter and probe.

- Hi Range Dosimeters (0-5 R or 0-10 R) or electronic equivalent.

- Low Range Dosimeters (0-200 mR or 0-500 mR) or electronic equivalent.

- One Dosimeter Charger. (Not required if electronic dosimeters are being used)

- Absorbent Material.
ATTACHMENT 4
Page 2 of 2

• One Ten Mile (EPZ) N.J. and Delaware Map.

NOTE

• One Onsite Map.
• One Pair of Tweezers.
• One Button Check Source.
• Silver Zeolite Cartridges.
• Box of Air Sample Filters.
• Box of Smear Papers.
• Protective Clothing/Paper Coveralls.
• Shoe Covers.
• Gloves.
• Small Envelopes for Particulate Air Sample Filters.
• Roll of Masking Tape.
• Small Plastic Bags.
• Flashlight.
• Spare Nine Volt Batteries
• Spare D Cell Batteries.
• One Bottle of KI Tablets.
• One First Aid Kit.
• Respirators.
ATTACHMENT 5

FIELD MONITORING TEAM LOG

1.0 OPERATING INSTRUCTIONS FOR TSC RAD ASSESSMENT DESKTOP RADIO

1.1 The RPT Radio Operator Should Perform The Following:

NOTE
Use this Attachment to assist in performing necessary calculations and document briefing updates.

Form-1, Field Sampling Form, of this attachment may be used to log multiple field samples and measurements.

Onsite/Offsite Field Monitoring Team’s dose should be tracked on Form-2, Dosimetry Log.

1.1.1 The desktop radio in the TSC is preset to talk group “EPON” and the Onsite team will communicate with the TSC on this channel. __________

1.1.2 When the radio is turned on, it will perform a self test. __________

1.1.3 To transmit, PUSH the “Push to Transmit” (PTT) button on the handset or on the base of the radio. __________

1.1.4 INSTRUCT the Onsite field team to set their handheld radio to “EPON” by ensuring the toggle switch is set to “Zone A” and channel switch is rotated to “10”. Talk group “EPON” will be displayed. __________

1.1.5 The radio in the Onsite survey vehicle should also be set to talk group “EPON” to communicate to the radio operator in the TSC. The talk group in the Onsite vehicle can be changed by use of a rocker switch located to the right of the display. __________

1.1.6 If the Onsite team needs to communicate with the EOF or the Offsite field teams, they can do so by connecting to talk group “EPOFF”. __________

1.1.7 PERFORM a radio check with the Onsite field team. __________
1.2 **The RPT – Radio Operator OR Designee Should Implement The Following:**
   - Form – 1 of this attachment.

2.0 **OFFSITE DATA**
2.1 **The RPT – Radio Operator OR Designee Should Perform The Following, If Applicable:**
   - Contact EOF using NETS line to the EOF Rad Assessment Staff
   - Implement Attachment 4 and Form – 1 of NC.EP-EP.ZZ-0603 (Q), for the Offsite survey team, if necessary.

3.0 **BRIEFING UPDATE**
3.1 **The RPT – Radio Operator OR Designee Should Record The Following:**
   - Time: ______: ________
   - Event Classification: ______________________________
   - Plant Conditions: _________________________________
   - Radiological Conditions: ___________________________
   - Additional Information Communicated to Offsite Team:
ATTACHMENT 5 (FORM – 1)
PAGE 3 OF 3
FIELD SAMPLING FORM

SURVEY TEAM: ___________ NAMES OF TEAM MEMBERS: ___________/_____________ DATE: ____________

<table>
<thead>
<tr>
<th>INSTRUMENT</th>
<th>SERIAL NUMBERS</th>
<th>RESPONSE CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. RO2/RO2A</td>
<td>________________</td>
<td>SAT/UNSAT ________________</td>
</tr>
<tr>
<td>2. E-140N</td>
<td>________________</td>
<td>SAT/UNSAT ________________</td>
</tr>
<tr>
<td>3. E-520</td>
<td>________________</td>
<td>SAT/UNSAT ________________</td>
</tr>
<tr>
<td>4. AIR SAMPLER</td>
<td>________________</td>
<td>SAT/UNSAT ________________</td>
</tr>
</tbody>
</table>

DOSE RATE DATA

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME</td>
<td>SAMPLE LOCATION</td>
<td>OPEN WINDOW GRND (MR/HR)</td>
<td>CLOSED WINDOW GRND (MR/HR)</td>
<td>BETA MR/HR GRND (C-D)x(5)</td>
<td>OPEN WINDOW GA (MR/HR)</td>
<td>CLOSED WINDOW GA (MR/HR)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMMUNICATE DATA BY COLUMN NUMBER

AIR SAMPLE DATA

<table>
<thead>
<tr>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME</td>
<td>SAMPLE LOCATION</td>
<td>SAMPLE ON TIME</td>
<td>SAMPLE OFF TIME</td>
<td>SAMPLE FLOW RATE</td>
<td>SAMPLE VOLUME [Columns (J-I)x(K)]</td>
<td>PART. FILT. VALUE (CPM)</td>
<td>PART. FILT. BKG. (CPM)</td>
<td>IODINE CART. VALUE (CPM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* - Refer to Attachment 5 or 6 to obtain uCi/cc
** - Refer to Attachment 7 to obtain uCi/cc

COMMUNICATE DATA BY COLUMN NUMBER
<table>
<thead>
<tr>
<th>CORRECTED CPM (ccpm)</th>
<th>SAMPLE VOLUME 5 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 10 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 15 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 20 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 25 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 30 (CUBIC FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00E+04</td>
<td>1.59E-06</td>
<td>7.95E-07</td>
<td>5.30E-07</td>
<td>3.97E-07</td>
<td>3.18E-07</td>
<td>2.65E-07</td>
</tr>
<tr>
<td>4.50E+04</td>
<td>1.43E-06</td>
<td>7.15E-07</td>
<td>4.77E-07</td>
<td>3.57E-07</td>
<td>2.86E-07</td>
<td>2.38E-07</td>
</tr>
<tr>
<td>4.00E+04</td>
<td>1.27E-06</td>
<td>6.35E-07</td>
<td>4.23E-07</td>
<td>3.17E-07</td>
<td>2.54E-07</td>
<td>2.12E-07</td>
</tr>
<tr>
<td>3.50E+04</td>
<td>1.11E-06</td>
<td>5.55E-07</td>
<td>3.70E-07</td>
<td>2.77E-07</td>
<td>2.22E-07</td>
<td>1.85E-07</td>
</tr>
<tr>
<td>3.00E+04</td>
<td>9.53E-07</td>
<td>4.76E-07</td>
<td>3.18E-07</td>
<td>2.38E-07</td>
<td>1.91E-07</td>
<td>1.59E-07</td>
</tr>
<tr>
<td>2.50E+04</td>
<td>7.94E-07</td>
<td>3.97E-07</td>
<td>2.65E-07</td>
<td>1.98E-07</td>
<td>1.59E-07</td>
<td>1.32E-07</td>
</tr>
<tr>
<td>2.00E+04</td>
<td>6.35E-07</td>
<td>3.17E-07</td>
<td>2.12E-07</td>
<td>1.59E-07</td>
<td>1.27E-07</td>
<td>1.06E-07</td>
</tr>
<tr>
<td>1.50E+04</td>
<td>4.77E-07</td>
<td>2.38E-07</td>
<td>1.59E-07</td>
<td>1.19E-07</td>
<td>9.54E-08</td>
<td>7.95E-08</td>
</tr>
<tr>
<td>1.00E+04</td>
<td>3.18E-07</td>
<td>1.59E-07</td>
<td>1.06E-07</td>
<td>7.95E-08</td>
<td>6.36E-08</td>
<td>5.30E-08</td>
</tr>
<tr>
<td>9.00E+03</td>
<td>2.86E-07</td>
<td>1.43E-07</td>
<td>9.53E-08</td>
<td>7.15E-08</td>
<td>5.72E-08</td>
<td>4.77E-08</td>
</tr>
<tr>
<td>8.00E+03</td>
<td>2.54E-07</td>
<td>1.27E-07</td>
<td>8.47E-08</td>
<td>6.35E-08</td>
<td>5.08E-08</td>
<td>4.23E-08</td>
</tr>
<tr>
<td>7.00E+03</td>
<td>2.22E-07</td>
<td>1.11E-07</td>
<td>7.40E-08</td>
<td>5.55E-08</td>
<td>4.44E-08</td>
<td>3.70E-08</td>
</tr>
<tr>
<td>6.00E+03</td>
<td>1.91E-07</td>
<td>9.55E-08</td>
<td>6.37E-08</td>
<td>4.77E-08</td>
<td>3.82E-08</td>
<td>3.18E-08</td>
</tr>
<tr>
<td>5.00E+03</td>
<td>1.59E-07</td>
<td>7.95E-08</td>
<td>5.30E-08</td>
<td>3.97E-08</td>
<td>3.18E-08</td>
<td>2.65E-08</td>
</tr>
<tr>
<td>4.00E+03</td>
<td>1.27E-07</td>
<td>6.35E-08</td>
<td>4.23E-08</td>
<td>3.17E-08</td>
<td>2.54E-08</td>
<td>2.12E-08</td>
</tr>
<tr>
<td>3.00E+03</td>
<td>9.53E-08</td>
<td>4.76E-08</td>
<td>3.18E-08</td>
<td>2.38E-08</td>
<td>1.91E-08</td>
<td>1.59E-08</td>
</tr>
<tr>
<td>2.00E+03</td>
<td>6.35E-08</td>
<td>3.17E-08</td>
<td>2.12E-08</td>
<td>1.59E-08</td>
<td>1.27E-08</td>
<td>1.06E-08</td>
</tr>
<tr>
<td>1.00E+03</td>
<td>3.18E-08</td>
<td>1.59E-08</td>
<td>1.06E-08</td>
<td>7.95E-09</td>
<td>6.39E-09</td>
<td>5.30E-09</td>
</tr>
<tr>
<td>9.00E+02</td>
<td>2.86E-08</td>
<td>1.43E-08</td>
<td>9.53E-09</td>
<td>7.15E-09</td>
<td>5.72E-09</td>
<td>4.77E-09</td>
</tr>
<tr>
<td>8.00E+02</td>
<td>2.54E-08</td>
<td>1.27E-08</td>
<td>8.47E-09</td>
<td>6.35E-09</td>
<td>5.08E-09</td>
<td>4.23E-09</td>
</tr>
<tr>
<td>7.00E+02</td>
<td>2.22E-08</td>
<td>1.11E-08</td>
<td>7.40E-09</td>
<td>5.55E-09</td>
<td>4.44E-09</td>
<td>3.70E-09</td>
</tr>
<tr>
<td>6.00E+02</td>
<td>1.91E-08</td>
<td>9.55E-09</td>
<td>6.37E-09</td>
<td>4.77E-09</td>
<td>3.82E-09</td>
<td>3.18E-09</td>
</tr>
<tr>
<td>5.00E+02</td>
<td>1.59E-08</td>
<td>7.95E-09</td>
<td>5.30E-09</td>
<td>3.97E-09</td>
<td>3.18E-09</td>
<td>2.65E-09</td>
</tr>
<tr>
<td>4.00E+02</td>
<td>1.27E-08</td>
<td>6.35E-09</td>
<td>4.23E-09</td>
<td>3.17E-09</td>
<td>2.54E-09</td>
<td>2.12E-09</td>
</tr>
<tr>
<td>3.00E+02</td>
<td>9.53E-09</td>
<td>4.76E-09</td>
<td>3.18E-09</td>
<td>2.38E-09</td>
<td>1.91E-09</td>
<td>1.59E-09</td>
</tr>
<tr>
<td>2.00E+02</td>
<td>6.35E-09</td>
<td>3.17E-09</td>
<td>2.12E-09</td>
<td>1.59E-09</td>
<td>1.27E-09</td>
<td>1.06E-09</td>
</tr>
<tr>
<td>1.00E+02</td>
<td>3.18E-09</td>
<td>1.59E-09</td>
<td>1.06E-09</td>
<td>7.95E-10</td>
<td>6.36E-10</td>
<td>5.30E-10</td>
</tr>
</tbody>
</table>

Calculation Based on: uCi/cc = \( \frac{ccpm \times 4.5E-07 \text{ uCi/dpm}}{VOL \text{ (FT}^3\text{)} \times 2.832E+4 \text{ (CC/FT}^3\text{)} \times \text{ EFF (0.10)}} \)
ATTACHMENT 7
Page 1 of 1

PARTICULATE AIR ACTIVITY VS. DOSE RATE TABLE

<table>
<thead>
<tr>
<th></th>
<th>SAMPLE VOLUME 5 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 10 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 15 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 20 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 25 (CUBIC FT.)</th>
<th>SAMPLE VOLUME 30 (CUBIC FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(mRad/hr)</td>
<td>(uCi/cc)</td>
<td>(uCi/cc)</td>
<td>(uCi/cc)</td>
<td>(uCi/cc)</td>
<td>(uCi/cc)</td>
</tr>
<tr>
<td>1.00E+03</td>
<td>1.59E-06</td>
<td>7.95E-07</td>
<td>5.30E-07</td>
<td>3.97E-07</td>
<td>3.18E-07</td>
<td>2.65E-07</td>
</tr>
<tr>
<td>5.00E+02</td>
<td>1.43E-06</td>
<td>7.15E-07</td>
<td>4.77E-07</td>
<td>3.57E-07</td>
<td>2.86E-07</td>
<td>2.38E-07</td>
</tr>
<tr>
<td>1.00E+02</td>
<td>1.27E-06</td>
<td>6.35E-07</td>
<td>4.23E-07</td>
<td>3.17E-07</td>
<td>2.54E-07</td>
<td>2.12E-07</td>
</tr>
<tr>
<td>9.50E+01</td>
<td>1.11E-06</td>
<td>5.55E-07</td>
<td>3.70E-07</td>
<td>2.77E-07</td>
<td>2.22E-07</td>
<td>1.85E-07</td>
</tr>
<tr>
<td>9.00E+01</td>
<td>9.53E-07</td>
<td>4.76E-07</td>
<td>3.18E-07</td>
<td>2.38E-07</td>
<td>1.91E-07</td>
<td>1.59E-07</td>
</tr>
<tr>
<td>8.50E+01</td>
<td>7.94E-07</td>
<td>3.97E-07</td>
<td>2.65E-07</td>
<td>1.98E-07</td>
<td>1.59E-07</td>
<td>1.32E-07</td>
</tr>
<tr>
<td>8.00E+01</td>
<td>6.35E-07</td>
<td>3.17E-07</td>
<td>2.12E-07</td>
<td>1.59E-07</td>
<td>1.27E-07</td>
<td>1.06E-07</td>
</tr>
<tr>
<td>7.50E+01</td>
<td>4.77E-07</td>
<td>2.38E-07</td>
<td>1.59E-07</td>
<td>1.19E-07</td>
<td>9.54E-08</td>
<td>7.95E-08</td>
</tr>
<tr>
<td>7.00E+01</td>
<td>3.18E-07</td>
<td>1.59E-07</td>
<td>1.06E-07</td>
<td>7.95E-08</td>
<td>6.36E-08</td>
<td>5.30E-08</td>
</tr>
<tr>
<td>6.50E+01</td>
<td>2.86E-07</td>
<td>1.43E-07</td>
<td>9.53E-08</td>
<td>7.15E-08</td>
<td>5.72E-08</td>
<td>4.77E-08</td>
</tr>
<tr>
<td>6.00E+01</td>
<td>2.54E-07</td>
<td>1.27E-07</td>
<td>8.47E-08</td>
<td>6.35E-08</td>
<td>5.08E-08</td>
<td>4.23E-08</td>
</tr>
<tr>
<td>5.50E+01</td>
<td>2.22E-07</td>
<td>1.11E-07</td>
<td>7.40E-08</td>
<td>5.55E-08</td>
<td>4.44E-08</td>
<td>3.70E-08</td>
</tr>
<tr>
<td>5.00E+01</td>
<td>1.91E-07</td>
<td>9.55E-08</td>
<td>6.37E-08</td>
<td>4.77E-08</td>
<td>3.82E-08</td>
<td>3.18E-08</td>
</tr>
<tr>
<td>4.50E+01</td>
<td>1.59E-07</td>
<td>7.95E-08</td>
<td>5.30E-08</td>
<td>3.97E-08</td>
<td>3.18E-08</td>
<td>2.65E-08</td>
</tr>
<tr>
<td>4.00E+01</td>
<td>1.27E-07</td>
<td>6.35E-08</td>
<td>4.23E-08</td>
<td>3.17E-08</td>
<td>2.54E-08</td>
<td>2.12E-08</td>
</tr>
<tr>
<td>3.50E+01</td>
<td>9.53E-08</td>
<td>4.76E-08</td>
<td>3.18E-08</td>
<td>2.38E-08</td>
<td>1.91E-08</td>
<td>1.59E-08</td>
</tr>
<tr>
<td>3.00E+01</td>
<td>6.35E-08</td>
<td>3.17E-08</td>
<td>2.12E-08</td>
<td>1.59E-08</td>
<td>1.27E-08</td>
<td>1.06E-08</td>
</tr>
<tr>
<td>2.50E+01</td>
<td>3.18E-08</td>
<td>1.59E-08</td>
<td>1.06E-08</td>
<td>7.95E-09</td>
<td>6.39E-09</td>
<td>5.30E-09</td>
</tr>
<tr>
<td>2.00E+01</td>
<td>2.86E-08</td>
<td>1.43E-08</td>
<td>9.53E-09</td>
<td>7.15E-09</td>
<td>5.72E-09</td>
<td>4.77E-09</td>
</tr>
<tr>
<td>1.50E+01</td>
<td>2.54E-08</td>
<td>1.27E-08</td>
<td>8.47E-09</td>
<td>6.35E-09</td>
<td>5.08E-09</td>
<td>4.23E-08</td>
</tr>
<tr>
<td>1.00E+01</td>
<td>2.22E-08</td>
<td>1.11E-08</td>
<td>7.40E-09</td>
<td>5.55E-09</td>
<td>4.44E-09</td>
<td>3.70E-09</td>
</tr>
<tr>
<td>5.00E+00</td>
<td>1.91E-08</td>
<td>9.55E-09</td>
<td>6.37E-09</td>
<td>4.77E-09</td>
<td>3.82E-09</td>
<td>3.18E-09</td>
</tr>
<tr>
<td>1.00E+00</td>
<td>1.59E-08</td>
<td>7.95E-09</td>
<td>5.30E-09</td>
<td>3.97E-09</td>
<td>3.18E-09</td>
<td>2.65E-09</td>
</tr>
</tbody>
</table>

Calculation Based on:
(1 mRad/hr. = 5000 ccppm)  
\[
\text{uCi/cc} = \frac{\text{ccpm} \times 4.5E-07 \text{ uCi/dpm}}{\text{VOL (FT}^3\text{)} \times 2.832E+4 \text{(CC/FT}^3\text{)} \times \text{EFF (0.10)}}
\]
DIRECT CONVERSION TABLE OF CORRECTED COUNTS PER MIN. TO μCi/CC I-131

<table>
<thead>
<tr>
<th>ccpm</th>
<th>uCi/cc</th>
<th>THYROID COMMITTED DOSE EQUIVALENT (mRem/INHALATION hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.13E+01</td>
<td>1.00E-08</td>
<td>1.30E+01</td>
</tr>
<tr>
<td>2.26E+01</td>
<td>2.00E-08</td>
<td>2.60E+01</td>
</tr>
<tr>
<td>5.65E+01</td>
<td>5.00E-08</td>
<td>6.50E+01</td>
</tr>
<tr>
<td>7.92E+01</td>
<td>7.00E-08</td>
<td>9.10E+01</td>
</tr>
<tr>
<td>1.13E+02</td>
<td>1.00E-07</td>
<td>1.30E+02</td>
</tr>
<tr>
<td>2.26E+02</td>
<td>2.00E-07</td>
<td>2.60E+02</td>
</tr>
<tr>
<td>5.65E+02</td>
<td>5.00E-07</td>
<td>6.50E+02</td>
</tr>
<tr>
<td>7.92E+02</td>
<td>7.00E-07</td>
<td>9.10E+02</td>
</tr>
<tr>
<td>1.13E+03</td>
<td>1.00E-06</td>
<td>1.30E+03</td>
</tr>
<tr>
<td>2.26E+03</td>
<td>2.00E-06</td>
<td>2.60E+03</td>
</tr>
<tr>
<td>5.65E+03</td>
<td>5.00E-06</td>
<td>6.50E+03</td>
</tr>
<tr>
<td>7.92E+03</td>
<td>7.00E-06</td>
<td>9.10E+03</td>
</tr>
<tr>
<td>1.13E+04</td>
<td>1.00E-05</td>
<td>1.30E+04</td>
</tr>
<tr>
<td>2.26E+04</td>
<td>2.00E-05</td>
<td>2.60E+04</td>
</tr>
<tr>
<td>3.40E+04</td>
<td>3.00E-05</td>
<td>3.90E+04</td>
</tr>
<tr>
<td>4.53E+04</td>
<td>4.00E-05</td>
<td>5.20E+04</td>
</tr>
</tbody>
</table>

EQUATIONS:

\[
\text{corrected counts per minute (ccpm)} = \left(\text{detector efficiency}\right) \times \left(\text{collection efficiency}\right) \times \left(\text{conversion factor - dpm to uci}\right) \times \left(\text{volume - cubic ft.}\right) \times \left(\text{conversion factor - cc to cubic ft.}\right)
\]

WHERE:

\[
\begin{align*}
2.00E-03 \text{ ccpm/dpm} & \quad = \text{DETECTOR EFFICIENCY (I – 131)} \\
90\% (0.90) & \quad = \text{COLLECTION EFFICIENCY} \\
2.22E+06 \text{ dpm/μCi} & \quad = \text{CONVERSION FACTOR} \\
10 \text{ Cubic Feet} & \quad = \text{VOLUME} \\
2.832E+04 \text{ cc to Cubic Feet} & \quad = \text{CONVERSION FACTOR}
\end{align*}
\]

\[
\left(\frac{\text{μCi/cc}}{1.30E+09 \text{ mRem/μCi/cc/hr}}\right) = \text{Dose Rate Conversion Factor (DRCF) from EPA 400}
\]
FIELD MONITORING TEAM RESPONSIBILITIES AND DIRECTIONS

1.0 RESPONSIBILITIES

1.1 The Field Monitoring Team Should Perform The Following:

1.1.1 RECEIVE a briefing from the RPS-Offsite

1.1.2 OBTAIN the Forms Kit briefcase from RPS-Offsite.

1.1.3 CHECK seals on Field Monitoring Kits. Perform an inventory of kits in accordance with NC.EP-AP.ZZ-1006, Emergency Equipment Inventory (Radiation Protection), if seal is broken.

**NOTE**
A satisfactory response check would be an upscale response on the Count Rate or Dose Rate instrument, when the instrument is on the lowest scale.

1.1.4 PERFORM response checks on instruments and replace batteries or instrument, if necessary.

1.1.5 SIGN on to appropriate Radiation Work Permit and ensure SRDs, are zeroed, if used, and electronic dosimeter is set at 80% of 4500 mRem minus current year to date dose.

1.1.6 LOAD the Onsite Field Monitoring Team Kits into the emergency vehicle using Attachment 4, Onsite Field Monitoring Equipment Checklist, to help ensure needed items are not left behind.

1.1.7 PERFORM a radio and a telephone check from the emergency vehicle:

- SET the radios to the appropriate talk group:
  - “EPON” to contact the TSC radio operator.
  - “EPOFF” to contact the Offsite Field Monitoring Team(s) or the EOF field team communicator/coordinator.

1.1.8 INFORM the RPS-Offsite if the emergency vehicle’s gas gauge indicates less than 1/2 full, prior to going into the field or at any time while in the field.
1.1.9 REPLENISH Onsite Field Monitoring Team Kits to ensure kits are kept in a ready mode IAW NC.EP-AP.ZZ-1006, Emergency Preparedness Inventory Radiation Protection at the end of a:

- Drill
- Exercise
- Declared Emergency

1.1.10 PERFORM response checks on instruments used.

1.1.11 IF instrument(s) fail a response check, THEN INFORM RPS-Offsite.

2.0 DIRECTIONS

2.1 The Field Monitoring Team Should Perform The Following:

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Onsite Field Monitoring Team should provide input to the RPS-Offsite, as necessary, concerning unusual plant conditions observed, sampling results, and moving to other than assigned locations due to changing radiological or meteorological conditions.</td>
</tr>
<tr>
<td>The Onsite Field Monitoring Team members should report conflicting radiological or meteorological conditions to the RPS-Offsite, AS SOON AS POSSIBLE.</td>
</tr>
</tbody>
</table>

| 2.1.1 ENSURE air samples taken using a low volume air sampler should be a total of 10 cubic feet taken at a flow rate not to exceed 2 cfm unless otherwise directed by the RPS-Offsite. |
| 2.1.2 PURGE iodine cartridges in low background area outside the plume after collecting the sample. |
| 2.1.3 ENSURE open and closed window readings are taken at every sampling location. |
| 2.1.4 CONTACT with the RPT-Radio should be maintained at least every 30 minutes. |
| 2.1.5 MAINTAIN contamination controls whenever handling air samples. |
| 2.1.6 STORE all samples in back area of emergency vehicle, unless otherwise directed by the RPS-Offsite. |
2.1.7 COVER all samples reading 100 mR/hr. or greater on contact with a lead blanket and contact the RPS - Offsite immediately.

2.1.8 MONITOR dose rates and check dosimetry upon exiting the plume.

2.1.9 FRISK and SURVEY appropriate equipment, as time allows, after exiting the plume to ensure contamination levels are below 50k ccppm smearable contamination.

2.1.10 CONTACT RPS-Offsite for further directions on what to do with equipment if contamination levels are 50k ccppm or greater smearable contamination.

2.1.11 REFER to the forms kit map, for the Onsite Monitoring Locations, as necessary.

2.1.12 OBTAIN a copy of Attachment 9 (Offsite Emergency Monitoring Locations) from NC.EP-EP.ZZ-0603(Q) (Field Monitoring), for the Offsite Monitoring Locations, if required.
1.0 **RADIATION LEVELS**

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 100</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider evacuation of other personnel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 100</td>
<td>Control Room</td>
<td>Consider evacuation within one hour, and/or relocation as appropriate.</td>
</tr>
<tr>
<td></td>
<td>OSC</td>
<td>Consider evacuation within one hour, and/or relocation as appropriate.</td>
</tr>
<tr>
<td></td>
<td>TSC</td>
<td>Consider evacuation within one hour, and/or relocation as appropriate.</td>
</tr>
<tr>
<td></td>
<td>Control Point</td>
<td>Consider evacuation within one hour, and/or relocation as appropriate.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1000</td>
<td>Onsite</td>
<td>Evacuation of all nonessential personnel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider immediate evacuation of remaining personnel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dose Rate (mR/hr)</th>
<th>Location</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 1000</td>
<td>Control Room</td>
<td>Consider immediate evacuation, and/or relocation upwind of the plume.</td>
</tr>
<tr>
<td></td>
<td>OSC</td>
<td>Consider immediate evacuation, and/or relocation upwind of the plume.</td>
</tr>
<tr>
<td></td>
<td>TSC</td>
<td>Consider immediate evacuation, and/or relocation upwind of the plume.</td>
</tr>
<tr>
<td></td>
<td>Control Point</td>
<td>Consider immediate evacuation, and/or relocation upwind of the plume.</td>
</tr>
</tbody>
</table>

2.0 **RADIOIODINE**

If the Iodine-131 equivalent is calculated or measured in concentrations greater than or equal to 5.0E - 07 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 Emergency Procedure NC.EP-EP.ZZ-0305(Q), Stable Iodine Thyroid Blocking, for additional information.
HOPE CREEK DAPA CORRECTION CALCULATIONS

NOTE

“THIS ATTACHMENT IS FOR USE FOR HOPE CREEK ONLY!”

1. DAPA temperature is located on the Hope Creek SPDS.

2. No correction to the DAPA Monitor is required below 245 degrees Fahrenheit (F).

1.0 DAPA CORRECTION CALCULATIONS

1.1 To Correct For DAPA High Temperature, Perform The Following:

1.1.1 REFER to Figure 1 of this attachment (Attachment 11).

1.1.2 IF the uncorrected DAPA reading lies below the curve (in the lined region), THEN the DAPA Monitor value is unreliable and should NOT be used at all.

1.1.3 PROCEED to Step 1.1.4, IF the uncorrected DAPA reading lies above the curve (above the lined region).

1.1.4 REFER to Figure 2 of this attachment (Attachment 11).

1.1.5 DETERMINE a BIAS value to add to the uncorrected DAPA reading by finding the value on the curve that corresponds to the associated average Drywell Air Temperature.

\[
\text{DAPA Monitor Reading (R/hr)} + \text{Bias Value Reading (R/hr)} = \text{Corrected DAPA Reading (R/hr)}
\]
DAPA MONITOR READING vs AVERAGE DRYWELL AIR TEMPERATURE

Average Drywell Air Temperature (°F)

DAPA MONITOR READING (R/hr)

Lined area indicates DAPA Monitor value at which alternate method for determining estimate of Drywell airborne radiation levels should be used.
FIGURE 2
DAPA MONITOR READING BIAS vs AVERAGE DRYWELL AIR TEMPERATURE

DAPA MONITOR READING BIAS (R/hr)

AVERAGE DRYWELL AIR TEMPERATURE (°F)
1.0 HOW POTASSIUM IODIDE WORKS
   • Certain forms of iodine help your thyroid gland work right. Most people get the iodine they need from foods, like iodized salt or fish. The thyroid can "store" or hold only a certain amount of iodine.
   • In a radiation emergency, radioactive iodine may be released in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably not show itself for years. Children are most likely to have thyroid damage.
   • If you take potassium iodide, it will fill your thyroid gland. This reduces the chance that harmful radioactive iodine will enter the thyroid gland.

2.0 WHO SHOULD NOT TAKE POTASSIUM IODIDE

   **NOTE**

   You may take potassium iodide if you are taking medicine for a thyroid problem (for example, a thyroid hormone or anti-thyroid drug). Pregnant and nursing women, babies and children may also take potassium iodide.

   2.1 People who should not take potassium iodide are:
   • People who are allergic to iodine.
   • People with kidney problems.
   • Persons on certain high blood pressure medications (ACE Inhibitors).

3.0 HOW AND WHEN TO TAKE POTASSIUM IODIDE

   Potassium Iodide should be taken as soon as possible after public health officials tell you. You should take one dose every 24 hours. More will not help you because the thyroid can "hold" only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told not to take the drug for more than ten days.

4.0 SIDE EFFECTS
   • Usually, side effects of potassium iodide happen when people take higher doses for a long time. You should be careful not to take more than the recommended dose or take it for longer than you are told. Side effects are unlikely because of the low dose and the short time you will be taking the drug.
Possible side effects include skin rashes, swelling of the salivary glands, and "iodine" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).

A few people have an allergic reaction with more serious symptoms. These could be fever and joint pains, or swelling of parts of the face and body and at times severe shortness of breath requiring immediate medical attention.

Taking iodine may rarely cause overactivity of the thyroid gland, underactivity of the thyroid gland or enlargement of the thyroid gland (goiter).

5.0 WHAT TO DO IF SIDE EFFECTS OCCUR

If the side effects are severe or if you have an allergic reaction, stop taking potassium iodide and call a doctor.
ATTACHMENT 12
Page 3 of 4
FORM – 1
KI SIDE EFFECTS/ADMINISTRATION SIGN OFF FORM

AUTHORIZED BY: __________________________

ADMINISTERED BY: __________________________

My signature indicates that I have read and understand Attachment 12 Package Insert For Thyroid Blocking Tablets.

<table>
<thead>
<tr>
<th>PRINT NAME</th>
<th>BADGE NUMBER</th>
<th>INDIVIDUAL’S SIGNATURE</th>
<th>DATE/TIME</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nuclear Common Page 31 of 35 Rev. 09
SII-SSA-0013-000689
### ATTACHMENT 12

Page 4 of 4

**FORM – 2**

<table>
<thead>
<tr>
<th>NAME OF INDIVIDUAL</th>
<th>BADGE NUMBER</th>
<th>KI DOSAGE</th>
<th>AUTHORIZED BY DATE/TIME</th>
<th>ADMINISTERED BY DATE/TIME</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
See

EP Aid-018 - Salem SPDS - Instruction for MET and Radiological Data

EP Aid-019 - Hope Creek CRIDS SPDS – Instructions for Met and Radiological Data

As Needed
<table>
<thead>
<tr>
<th>NAME</th>
<th>DOSIMETER NUMBER</th>
<th>ISSUED DATE</th>
<th>RTN DATE</th>
<th>INITIAL VALUE (mRem)</th>
<th>END VALUE (mRem)</th>
<th>TOTAL DOSE (mRem)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
USE CATEGORY: II

A. Biennial review performed: Yes ___ No ___ N/A _X_

B. Packages and Affected Document Numbers incorporated into this revision: None

C. The following OTSCs were incorporated into this revision: None

REVISION SUMMARY:

Due to extensive revisions, revision bars were not used.

- Revised bullets in step 2.1. This procedure is used at the EOF for Advanced Dose Assessment so bullets were removed that described ERO positions that wouldn’t be directing the implementation outside the EOF (SM, EDO, RPDS and SRPT).
- Revised Section 3.0 to incorporate changes from the latest revision of NC.EP-EP.ZZ-0309(Q).

The following changes were a result of the new MIDAS version which are summarized below:

- Revised Steps 5.1.1 - 5.1.3 to incorporate changes that are part of the LAN 2.5 network. MIDAS computers no longer require login.
- Revised step 5.1.5 to describe how the MIDAS modes are selected and what procedure section provides instructions on using that mode.
- Sections 5.2, 5.3, 5.5 and 5.8 were totally rewritten.
- Section 5.4 was deleted and reserved for future use.
- Added Attachment 3 to provide guidance on selection of a monitor and determining flows for Containment Leakage calculations.
- Added Attachment 4 to provide guidance for using the Event Trees for events.
# ADVANCED DOSE ASSESSMENT (MIDAS) INSTRUCTIONS

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS</td>
<td>2</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED</td>
<td>4</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE</td>
<td>3</td>
</tr>
<tr>
<td>5.1</td>
<td>Sign-on Instructions For MIDAS</td>
<td>5</td>
</tr>
<tr>
<td>5.2</td>
<td>Enhanced Dose Projection (Menu B [Manual] or H [Auto]) Instructions</td>
<td>6</td>
</tr>
<tr>
<td>5.3</td>
<td>Event Tree NUREG-1228 (Menu C [Manual] or I [Auto]) Instructions</td>
<td>8</td>
</tr>
<tr>
<td>5.4</td>
<td>Reserved for Future Use</td>
<td>9</td>
</tr>
<tr>
<td>5.5</td>
<td>Back Dose Calculation (Menu E-W [Manual] or K-W [Auto]) Instructions</td>
<td>9</td>
</tr>
<tr>
<td>5.6</td>
<td>The Following Steps Should Be Performed To Calculate Liquid</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Release Dose Assessment For Swimmers</td>
<td></td>
</tr>
<tr>
<td>5.7</td>
<td>Using Nomogram and X/Q Tables Calculate Dose Assessment Using</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Drywell Atmosphere Post Accident (DAPA) Values and Projected Leakage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>From The Drywell</td>
<td></td>
</tr>
<tr>
<td>5.8</td>
<td>Multiple Unit/Source Term Release Dose Calculations</td>
<td>13</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS</td>
<td>15</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES</td>
<td>15</td>
</tr>
</tbody>
</table>

## TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE 1 - 1</td>
<td>Drywell Leak Rate Nomogram</td>
<td>17</td>
</tr>
<tr>
<td>TABLE 1 - 2</td>
<td>Xu/Q Values for Elevated Releases at Hope Creek</td>
<td>18</td>
</tr>
<tr>
<td>TABLE 1 - 3</td>
<td>Xu/Q Values for Ground Releases at Hope Creek</td>
<td>19</td>
</tr>
</tbody>
</table>

## ATTACHMENTS

<table>
<thead>
<tr>
<th>Attachment</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTACHMENT 1</td>
<td>Summation Of Projected Doses For Multiple Sources</td>
<td>20</td>
</tr>
<tr>
<td>ATTACHMENT 2</td>
<td>Log-Log Plot - Projected Dose Vs. Downwind Distance</td>
<td>21</td>
</tr>
<tr>
<td>ATTACHMENT 3</td>
<td>Salem/Hope Creek Dose Assessment Guidance</td>
<td>22</td>
</tr>
<tr>
<td>ATTACHMENT 4</td>
<td>Accident Event Tree Guidance</td>
<td>24</td>
</tr>
</tbody>
</table>
1.0 PURPOSE
This procedure provides guidance and operating instructions concerning advanced dose assessment calculations.

2.0 PREREQUISITES

2.1 Prerequisites to be Followed Prior to Implementing This Procedure

Implement this procedure:
- Upon the declaration of an Unusual Event or higher emergency classification.
- In accordance with (IAW) Salem and Hope Creek applicable station procedures.
- At the request of the Radiological Support Manager (RSM) or designee.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Precautions and Limitations to be Followed Prior to Implementing this Procedure:

3.1.1 Sections/Steps in this procedure may be PERFORMED in the order deemed appropriate for the emergency situation. Only Sections/Steps that are applicable to the specific MIDAS dose assessment mode of operation being PERFORMED need to be followed.

3.1.2 Initials should be used in the place keeping sign-offs next to the step being PERFORMED. Place keeping may be suspended for simple and repetitive steps, after first use, if approved by supervisor in accordance with HU-AA-104-101.

3.1.3 This procedure provides direction to perform advanced dose assessment calculations [Enhanced Dose Projections (monitored releases), Event Tree NUREG 1228 (unmonitored releases), Dose Assessments based on Back Calculations, Liquid Release (Swimmers) Dose Assessment calculations, Containment "What If" calculations based on the High Range Containment monitors with estimated flow and situations based on Multiple Unit/Source Term releases.] This procedure can also be used in conjunction with NC.EP.EP.ZZ-0309(Q) to perform all modes of MIDAS operation at the EOF.
3.1.4 IF there are concurrent multiple releases from Salem and Hope Creek THEN REFER to section 5.8, to PERFORM dose assessment. This is necessary if the combined releases could exceed the EPA Protective Action Guideline (PAG) of $\geq 1,000$ mRem TEDE or $\geq 5000$ mRem Thyroid CDE beyond the Site Boundary.

3.1.5 IF there are multiple releases and the highest release rate is more than a factor of 100 from any other release, THEN those lower releases do NOT have to be included, if not within a factor of 100. The lower releases which are not counted would be negligible.

3.1.6 IF a “Release is in Progress” THEN CONTINUE each subsequent run using the Run Next Time Step or Save Without Exiting options in order to integrate previous cumulative dose, if possible. If Run Next Time Step is not possible the dose projection is still accurate but previous assessments will not be part of the cumulative dose. (IF changing pathways in the middle of a MIDAS run THEN MIDAS should be restarted). If running MIDAS in the Multiple Accident mode it doesn't integrate multiple runs (recap can be used to evaluate the integration of multiple runs).

3.1.7 The R-46 Main Steam Line Monitor should only be used as an effluent monitor for dose assessment if a primary to secondary leak or tube rupture is occurring and the Steam Generator is releasing directly to atmosphere through the safety relief valve(s) (SRV) or through the atmospheric vent (MS-10). If the R-46 monitor is changing, verification of an atmospheric pathway should be obtained. (Release through the condenser will go to the Plant Vent and be monitored by the R41s.)

3.1.8 Personnel who IMPLEMENT this procedure shall be trained and qualified IAW the Emergency Plan.

4.0 EQUIPMENT REQUIRED

Necessary equipment is provided in Emergency Response Facilities.
5.0 **PROCEDURE**

<table>
<thead>
<tr>
<th>NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Dose Assessment should be performed using 10 or 15-minute average RMS values and 15-minute average Meteorological data.</td>
</tr>
<tr>
<td>• EP Aid-018, Salem SPDS Instructions for MET and Radiological Data, should be referred to for operational directions for the radiological SPDS screens.</td>
</tr>
</tbody>
</table>

5.1 **Sign-on Instructions For MIDAS**

5.1.1 ENSURE the computer and monitors are both turned on. IF necessary, PRESS the POWER button to turn them on. (If the computer was off, turning it on will boot the LAN 2.5 to the desktop where the MIDAS Accident Calcs icon can be seen.)

5.1.2 IF the monitor screen is blank THEN MOVE the mouse to “wakeup” the monitor.

5.1.3 POSITION the cursor on the **Midas Accident Calcs** icon and double left click the mouse. (The Sheet # 1 screen will be displayed).

5.1.4 SELECT Unit (**Hope Creek, Salem Unit 1, or Salem Unit 2**)  

5.1.5 SELECT the desired MIDAS Mode by choosing from the pull down list in the “Accident Run Menu Selection” pull down list.

- REFER to Section 5.2 for instruction to perform **Enhanced Dose Projections (Menu B/H)**
- REFER to Section 5.3 for instruction to perform **Event Tree NUREG 1228 (Menu C/I)**
- REFER to Section 5.5 for instruction to perform **Back Calculation (Menu E-W/K-W)**
- REFER to Section 5.8.1 for instruction to perform **Multiple Unit/Source Term Releases**.
5.2 **Enhanced Dose Projection (Menu B [Manual] or H [Auto]) Instructions**

**NOTE:**

Using Enhanced Dose Projections the user has access to select any release pathway for Salem or Hope Creek, set/modify the reactor trip/shutdown time and is able to modify the start time of the release. The MET and Radiation Monitor and Flow (RM&F) spreadsheets displays are dependent on the release pathways selected, the pathway selected determines what items appear on the spreadsheets. For example; at Salem, if the S/G-ATM is not a selected pathway the 300 foot wind speed will not appear on the MET spreadsheet and the RM&F spreadsheet will not have the R46 monitors or Steam Line Flow.

If using Menu B (manual) all MET and RM&F data will have to be entered manually but if Menu H (auto) is selected data collection will populate the data fields for every parameter except Steam Line Flow (Salem) or Containment Leakage Flow (Salem and Hope Creek). If performing “What If” calculations or populated data is missing, data values can be manually typed into the spreadsheet.

The Enhanced Dose Assessment mode can determine the nuclide mix for the release four different ways:

- Using an accident event tree to specify parameters which all have associated reduction factors to modify the nuclide mix.
- Entering the Mix ID Number, if known.
- Typing in the isotopic values from a MCA analysis.
- Entering the NG to Iodine or Particulate ratios or by entering the ratios based on a MCA sample analysis.

5.2.1 **SELECT** the station, auto or manual and Enhanced Dose Projection, as appropriate and **SELECT “OK”** to proceed.

5.2.2 **ENTER** the time of reactor trip and the time for the start of the release. **SELECT “OK”** to proceed.

5.2.3 **SELECT** the appropriate release pathways depending on accident conditions and process flows. **SELECT “NEXT”** to proceed.

5.2.4 **ENSURE** the “Exposure Times (hrs) to be calculated are 0.25, 1.00, 4.00 and 24.00 and select “NEXT” to proceed.

5.2.5 **IF** this run is a continuation of the last run **THEN SELECT “Edit Last”**. **IF** this is the first run **THEN SELECT “New”** and **SELECT “OK”** to proceed.
5.2.6 **IF running Menu H (auto) THEN VERIFY** the values populating the MET spreadsheets are appropriate to the pathways selected (if S/G-ATM is selected 300 foot wind speed will not be on the spreadsheet). **IF using Menu B THEN USE** SPDS to complete the MET spreadsheets. **SELECT “OK” to proceed.**

5.2.7 **IF running Menu H (auto) THEN VERIFY** the values populating the RM&F spreadsheet are appropriate for monitors and flows (there are no flow values in the data collection for Main Steam Lines (S/G-ATM) or Containment Leakage and have to be applied manually in either Menu). **IF using Menu B, THEN USE** SPDS or RM-11 (HC Only) to complete the RM&F spreadsheets. (Refer to Attachment 3 for these flows and guidance for selecting radiation monitors. REMEMBER a monitor and flow values are both required to calculate a Release Rate). **SELECT “OK” to proceed.**

5.2.8 On the Mix Spread Sheet (Sheet #7) **PERFORM** one of the following:

- **SELECT** the “Event Tree” button to use the event tree pulldown menus to determine the nuclide mix (refer to Attachment 4 for assistance in the event tree selections). **SELECT “OK” to proceed.**

- **Or SELECT** the “Event Tree” button then the “Enter Mix ID Number” if the Mix ID is already known. **ENTER** the “mix ID” and **SELECT “OK” to proceed.**

- **Or ENTER** the nuclide concentrations, in uCi/cc, from a MCA analysis on the spreadsheet. Once the nuclides are entered a popup will request to normalize the values so it can be scaled to the monitor values to determine projected doses. On this spreadsheet also identify if the nuclide mix values are decayed or not. **SELECT “OK” to proceed.**

- **Or Once** the current line in the nuclide mix is populated the NG to Iodine ratio and or the NG to particulate ratio can be modified based on a MCA analysis to adjust the mix further. **SELECT “OK” to proceed.**

5.2.9 After reviewing all the selections on Sheet #2 and all values are as desired, **SELECT “Next” to proceed.**

5.2.10 **VERIFY** the Trip/Shutdown and the Start of the Release date/time are correct, update if necessary. **SELECT “Start Calc” to proceed.** (The plume map will display and a MIDAS SSCL page 2 will automatically print.)
5.2.11 To perform another dose calculation, SELECT "End Run" and PROCEED to continue additional runs or EXIT MIDAS.

5.3 Event Tree NUREG-1228 (Menu C [Manual] or I [Auto]) Instructions

NOTE:
The Event Tree NUREG-1228 dose assessment mode is used when there are no monitor readings or monitors are off-scale. The mode is very similar to the Enhanced Dose Projection in that it uses the same Accident Event Trees to determine the nuclide mix then applies a release rate to the nuclide mix to determine the projected doses. If running in Menu C the MET data will need to be input using SPDS data and if using Menu I the MET data will be input to the MET spreadsheet from the auto data collection.

5.3.1 SELECT the station, auto or manual and Event Tree NUREG-1228, as appropriate and SELECT "OK" to proceed.

5.3.2 ENSURE the "Exposure Times (hrs) to be calculated are 0.25, 1.00, 4.00 and 24.00 and SELECT "NEXT" to proceed.

5.3.3 IF this run is a continuation of the last run THEN SELECT "Edit Last" if this is the first run then select "New" and select "OK" to proceed.

5.3.4 IF running Menu I (auto) THEN VERIFY the values populating the MET spreadsheets are populated with current MET data. IF using Menu C THEN USE SPDS to complete the MET spreadsheets. SELECT "OK" to proceed.

NOTE:
Since this mode is used when no valid effluent monitor readings are available the RM&F spreadsheet will not be displayed.

5.3.5 On the Mix Spread Sheet (Sheet #7) PERFORM one of the following:

- USE the event tree pull-down menu to determine the nuclide mix (refer to Attachment 4 for assistance in the event tree selections). SELECT "OK" to proceed.

- Or SELECT the "Enter Mix ID Number" if the Mix ID is already known. ENTER the "mix ID" and SELECT "OK" to proceed.

5.3.6 After reviewing all the selections on Sheet #2 and all values are as desired, SELECT "Next" to proceed.
5.3.7 **VERIFY** the Trip/Shutdown and the Start of the Release date/time are correct, update if necessary. **SELECT** "Start Calc" to proceed. (The plume map will display and a MIDAS SSCL page 2 will automatically print.)

5.3.8 To perform another dose calculation, **SELECT** "End Run" and **PROCEED** to continue additional runs or **EXIT** MIDAS.

5.4 **Reserved For Future Use**

5.5 **Back Dose Calculation (Menu E-W [Manual] or K-W [Auto]) Instructions**

**NOTE:**

Back dose calculations can be used when no monitor readings are available but offsite survey data is used to create an equivalent source term OR Back Calculations can be used to validate a source term generated with monitor data from offsite survey data. If used in Auto the data collection will populate the MET spreadsheet if Manual is used the MET spreadsheet will have to be filled in with appropriate data from SPDS.

5.5.1 **SELECT** the station, auto or manual and Back Dose Calculation, as appropriate and **SELECT** "OK" to proceed.

5.5.2 **ENSURE** the “Exposure Times (hrs) to be calculated are 0.25, 1.00, 4.00 and 24.00 and **SELECT** “NEXT” to proceed.

5.5.3 **COMPLETE** the “Back Calculation Input Parameters” with data form the Offsite Field Monitoring Team.

A. **SELECT** Ground or Elevated Release (all releases are Ground Releases with the exception of S/G-ATM).

B. **ENTER** the closed window general area dose rate taken at the centerline of the plume in mR/hr.

C. **ENTER** the distance to the plant from where the survey is taken in miles.

D. **ENTER** the date and time of the survey measurements.

E. **SELECT** either “There is No Measurement Default to iodine in the mix” (no air sample taken at the location) or “Measurement Available. **ENTER** value in the box below IF entry is ZERO, THEN no iodine was measured”, **ENTER** the I-131 concentration in the box below the selection in uCi/cc.

F. **SELECT** “OK” to proceed.
5.5.4 On the Accident Event Tree sheet **Perform** one of the following:

- **USE** the event tree pull-down menu to determine the nuclide mix (refer to Attachment 4 for assistance in the event tree selections). **SELECT** "OK" to proceed.
- **SELECT** the "Enter Mix ID Number" if the Mix ID is already known. **ENTER** the mix ID and **SELECT** "OK" to proceed.

5.5.5 If running Menu K-W (auto) **VERIFY** the values populating the MET spreadsheets are populated with current MET data. **IF** using Menu E-W (Manual) **THEN USE** SPDS to complete the MET spreadsheets. **SELECT** "OK" to proceed.

5.5.6 After reviewing all the selections on Sheet #2 and all values are as desired, **SELECT** "Next" to proceed.

5.5.7 **VERIFY** the Trip/Shutdown and the Start of the Release date/time are correct, update if necessary. **SELECT** "Start Calc" to proceed. (The plume map will display and a MIDAS SSCL page 2 will automatically print.)

5.5.8 To perform another dose calculation, **SELECT** "End Run" and **PROCEED** to continue additional runs or **EXIT** MIDAS.

5.6 **The Following Steps Should Be Performed To Calculate Liquid Release Dose Assessment For Swimmers**

5.6.1 **PERFORM** the following to perform dose assessment for swimmers.

A. **OBTAIN** the gross liquid release activity from chemistry and record the value in Space A.

B. **SELECT** the Dose Rate Conversion Factor from below.

   Gamma External Dose Equivalent = 1.44E-06 mRem/hr/pCi/l  
   Beta/Gamma Skin Dose Equivalent = 1.72E-06 mRem/hr/pCi/l

C. **RECORD** the value in Space D.

D. **OBTAIN** the exposure time in hours.

E. **RECORD** in Space E.
### NOTE

- The average yearly dilution factor for routine releases is 1.00E-03.
- The default dilution factor is 1.00E+00 and should be used if the dilution factor is unknown.

<table>
<thead>
<tr>
<th>Step</th>
<th>Calculation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.</td>
<td>OBTAIN</td>
<td>Obtain the dilution factor from chemistry or use the default value.</td>
</tr>
<tr>
<td>G.</td>
<td>RECORD</td>
<td>Record value in Space E.</td>
</tr>
<tr>
<td>H.</td>
<td>MULITPLY</td>
<td>Multiply the value in Space A by the value in Space B. (The value calculated will be the total concentration of the liquid release).</td>
</tr>
<tr>
<td>I.</td>
<td>RECORD</td>
<td>Record the value in Space C.</td>
</tr>
<tr>
<td>J.</td>
<td>MULTIPLY</td>
<td>Multiply the values from Spaces C, D, E, and F to calculate the External Dose Equivalent (EDE) in mRem.</td>
</tr>
<tr>
<td>K.</td>
<td>RECORD</td>
<td>Record the value in Space G.</td>
</tr>
</tbody>
</table>

\[
A \times B = C \\
\text{A. Gross Liquid Activity (uCi/ml)} \times \text{B. 1.00E+09 Conversion Factor} = \text{C. Total Concentration (pCi/l)}
\]

\[
D \times E \times F = G \\
\text{D. DRCF (mRem/hr/pCi/l)} \times \text{E. Exposure Time (Hours)} \times \text{F. Dilution Factor (Hours)} = \text{G. EDE in mRem}
\]
5.7 **Using Nomogram and X/Q Tables Calculate Dose Assessment Using Drywell Atmosphere Post Accident (DAPA) Values and Projected Leakage from the Drywell** (This calculation can also be done in MIDAS using the Enhanced Dose Projection mode with the DAPA monitor and the projected leakage from the Drywell.)

5.7.1 **OBTAIN** the DAPA "A" or "B" monitor value (which ever one is the highest) and record this value on the horizontal axis of Table 1 - 1 (Drywell Leak Rate Nomogram) in R/hr.

5.7.2 **MULTIPLY** the leak rate in uCi/sec by 1.00E-03 to obtain percent of Drywell Leakage. [The leak rate in uCi/sec may be obtained from the RM-11. IF the Reactor Building Ventilation has been isolated, THEN **USE** 9RX580 (FRVS Effluent Monitor Reading). IF the Reactor Building Ventilation hasn't been isolated, THEN **USE** 9RX680 (SPV Effluent Monitor Reading)].

5.7.3 **RECORD** the percent of Drywell Leakage on Table 1-1 by choosing the most appropriate diagonal line.

- (100% Leakage in 2 hrs)
- (100% Leakage in 1 Day)
- (10% Leakage in 1 Day)
- (1.0% Leakage in 1 Day)
- (0.5% Leakage in 1 Day)
- (0.1% Leakage in 1 Day)

5.7.4 **LOCATE** where the DAPA monitor value and the percent leakage intersect on Table 1 - 1.

5.7.5 **DRAW** a line from this point of intersection to Scale "A" titled Release Rate (uCi/sec).

5.7.6 **PERFORM** the following steps to determine the X/Q value on Scale "B":

A. **DIVIDE** the wind speed (mph) by 2.24 to obtain the wind speed in m/sec.

B. **RECORD** the wind speed in the wind speed blank (Step 5.7.7).

C. **REFER** to Table 1 - 2 for an elevated release, **OR**

**REFER** to Table 1 - 3 for a ground release, THEN locate the specific distance of interest.
D. **FOLLOW** the appropriate table over to the right to the current Stability Class.

E. **MULTIPLY** the current Stability Class value by 1.00E-06.

F. **RECORD** the value in the Xu/Q blank (Step 5.7.7).

G. **DIVIDE** the Xu/Q value by the wind speed in m/sec and **RECORD** the value in the X/Q blank (Step 5.7.7).

\[
\frac{\text{Xu/Q}}{\text{wind speed (m/sec)}} = \frac{\text{X/Q}}{}
\]

**LOCATE** the approximate X/Q value on Scale "B" and **PLOT** the value.

5.7.8 **DRAW** a straight line from the point of interest on Scale "A" to the X/Q value located on Scale "B".

5.7.9 **CONTINUE** to **DRAW** the line to the point of intersection on Scale "C".

5.7.10 **DETERMINE** by interpolation the approximate value of the intercept point on Scale "C". [This is the projected External Dose Equivalent (EDE) offsite dose rate in mRem/hr].

5.7.11 **MULTIPLY** this value by four to obtain a four-hour projected EDE dose.

**NOTE**

The TEDE + 4 to EDE Correction Factor is 1.

5.7.12 **MULTIPLY** the EDE dose by 1 to obtain the four-hour projected TEDE dose.

5.8 **Multiple Unit/Source Term Release Dose Calculations**

5.8.1 These calculations can be done as a function of MIDAS for up to 5 different release pathways. Using MIDAS, this function is accomplished by selecting "Start New Multiple Accident Run" then select if data will be input from Automatic (data collection) or Manual from SPDS (Whatever is selected here applies to all 5 releases). **SELECT** "OK" to proceed.
NOTE

- When done with each run, MIDAS will go to the next run, which will be completed using the instructions as listed above.
- When done with the last run, MIDAS will automatically print out a Multiple Run SSCL and display a plume map of the combined multiple runs.
- By selecting "Review Multi Accident", bottom right on the screen. The user can switch between the Combined Release or each of the Individual Releases. MIDAS doesn’t print a SSCL for each individual release but once selected a SSCL can be printed.
- By using the "POI" feature in MIDAS (on the plume map) the TEDE (4 Day) Dose and the Thyroid CDE Dose can be determined at any point on the displayed map.

A. For Run 1 using the pull down menus SELECT the mode of MIDAS to be used for the first calculation and the station this run is for.

B. CONTINUE to repeat as above for remaining runs up to 5 runs. SELECT “OK” to proceed.

C. If the selected mode for the run was:
   - Enhanced Dose Projection USE instructions in Section 5.2.
   - Event Tree NUREG 1228 USE instructions in Section 5.3.
   - Isotopic Entry on Spreadsheet USE instructions in NC.EP-EP.ZZ-0309 Section 5.4.

5.8.2 If the runs were performed individually in MIDAS for multiple concurrent releases they can be added manually using the following instructions:

A. For each release performed USE the same meteorological parameters (wind speed, wind direction and stability. These may have to be entered into MIDAS manually to ensure consistency.

B. PRINT a SSCL for each assessment performed.

C. RECORD the projected dose data for “TEDE DOSE (4 Day)” and “Thyroid CDE Dose” as a function of downwind distance on the data sheet in Attachment 1.
D. **SUM** the dose values in each column in Attachment 1 for all involved sources. Make sure that dose data have the same power of ten exponents with adding.

E. **COMPARE** the summed dose values in each column with the applicable Protective Action Guide (PAG) values of 1000 mRem TEDE Dose (4 Day) and 5000 mRem Thyroid CDE Dose. **IF** these values are exceeded beyond the site boundary then protective actions **SHOULD** be provided to the states.

- **IF** the summed dose values in any column exceed the PAG values at 10 miles, **THEN TAKE** the action in Step F to project the dose as a function of distance and estimate the point at which the projected doses do not exceed PAG values. (See NC.EP-EP.ZZ-0404 if a PAR Upgrade is needed.)

**NOTE**

**IF** the TEDE Dose (4 Day) is <1000 mRem and the Thyroid CDE Dose is <5000 mRem at 10 miles **THEN DO NOT PROCEED** to Step F or G.

F. **PLOT** the TEDE Dose (4 Day) and Thyroid CDE Dose data on a log-log graph similar to the example in Attachment 2 at 2, 5 and 10 miles. **IF** the projected doses exceed PAG values of 1000 mRem TEDE Dose (4 Day) and 5000 mRem Thyroid CDE Dose, at 10 miles, **THEN** this plot or an extrapolation of the data will show the distance at which the PAG values are not exceeded.

G. **PROVIDE** a plot similar to the example in Attachment 2 to state representatives in the EOF for information.

6.0 **RECORDS**

Return completed procedure and any information or data thought to be pertinent by the dose assessor, to the Emergency Preparedness Manager.

7.0 **REFERENCES**

7.1 **References**

7.1.1 EPA 400, Manual of Protective Action Guides And Protective Actions For Nuclear Incidents

7.1.2 MIDAS Documentation Volumes 1-5

7.1.3 PSEG Nuclear Emergency Plan
7.2 Cross References

7.2.1 NC.EP-EP.ZZ-0310(Q), Radiation Protection Supervisor – Offsite and Field Monitoring Team Response

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

7.2.3 SC.EP-EP.ZZ-0301(Q), Shift Radiation Protection Response

7.2.4 EP Aid-018, Salem SPDS - Instructions For MET and Radiological Data
TABLE 1 - 2
Xu/Q VALUES FOR ELEVATED RELEASES AT HOPE CREEK
(MULTIPLY ALL VALUES BY 1.0E-06)

<table>
<thead>
<tr>
<th>MILES</th>
<th>METERS</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.06</td>
<td>100</td>
<td>47.6</td>
<td>9.5</td>
<td>103.2</td>
<td>1.1E-09</td>
<td>1.9E-18</td>
<td>6.4E-49</td>
<td>------</td>
</tr>
<tr>
<td>0.12</td>
<td>200</td>
<td>120.2</td>
<td>105.9</td>
<td>338.9</td>
<td>5.7E-01</td>
<td>1.1E-03</td>
<td>1.7E-13</td>
<td>5.5E-39</td>
</tr>
<tr>
<td>0.19</td>
<td>300</td>
<td>77.5</td>
<td>113.3</td>
<td>270.1</td>
<td>16.5</td>
<td>0.72</td>
<td>7.8E-06</td>
<td>4.7E-19</td>
</tr>
<tr>
<td>0.25</td>
<td>400</td>
<td>42.7</td>
<td>87.8</td>
<td>194.0</td>
<td>47.4</td>
<td>7.6</td>
<td>7.2E-03</td>
<td>4.8E-11</td>
</tr>
<tr>
<td>0.31</td>
<td>500</td>
<td>24.7</td>
<td>65.1</td>
<td>142.0</td>
<td>70.3</td>
<td>22.4</td>
<td>0.22</td>
<td>5.6E-07</td>
</tr>
<tr>
<td>0.37</td>
<td>600</td>
<td>15.3</td>
<td>48.9</td>
<td>107.5</td>
<td>81.2</td>
<td>39.3</td>
<td>1.5</td>
<td>1.3E-04</td>
</tr>
<tr>
<td>0.44</td>
<td>700</td>
<td>10.1</td>
<td>37.6</td>
<td>84.0</td>
<td>83.7</td>
<td>53.7</td>
<td>4.9</td>
<td>4.1E-03</td>
</tr>
<tr>
<td>0.50</td>
<td>800</td>
<td>7.0</td>
<td>29.6</td>
<td>67.4</td>
<td>81.7</td>
<td>63.9</td>
<td>10.6</td>
<td>0.042</td>
</tr>
<tr>
<td>0.56 (MEA)</td>
<td>900</td>
<td>5.1</td>
<td>23.8</td>
<td>55.3</td>
<td>77.5</td>
<td>70.3</td>
<td>18.1</td>
<td>0.22</td>
</tr>
<tr>
<td>0.79</td>
<td>1270</td>
<td>1.8</td>
<td>12.4</td>
<td>30.5</td>
<td>58.8</td>
<td>73.3</td>
<td>46.6</td>
<td>5.7</td>
</tr>
<tr>
<td>1.0</td>
<td>1609</td>
<td>1.1</td>
<td>7.8</td>
<td>20.1</td>
<td>45.6</td>
<td>65.3</td>
<td>57.9</td>
<td>15.0</td>
</tr>
<tr>
<td>1.5</td>
<td>2414</td>
<td>0.77</td>
<td>3.5</td>
<td>9.7</td>
<td>27.7</td>
<td>46.1</td>
<td>57.7</td>
<td>31.7</td>
</tr>
<tr>
<td>2.0</td>
<td>3218</td>
<td>0.59</td>
<td>2.0</td>
<td>5.8</td>
<td>18.9</td>
<td>34.0</td>
<td>49.6</td>
<td>37.6</td>
</tr>
<tr>
<td>2.5</td>
<td>4023</td>
<td>0.48</td>
<td>1.3</td>
<td>3.9</td>
<td>13.9</td>
<td>26.3</td>
<td>42.0</td>
<td>38.3</td>
</tr>
<tr>
<td>3.0</td>
<td>4827</td>
<td>0.41</td>
<td>0.89</td>
<td>2.8</td>
<td>10.8</td>
<td>21.2</td>
<td>36.0</td>
<td>37.1</td>
</tr>
<tr>
<td>3.5</td>
<td>5632</td>
<td>0.36</td>
<td>0.65</td>
<td>2.1</td>
<td>8.7</td>
<td>17.6</td>
<td>31.2</td>
<td>35.1</td>
</tr>
<tr>
<td>4.0</td>
<td>6436</td>
<td>0.32</td>
<td>0.50</td>
<td>1.7</td>
<td>7.2</td>
<td>14.9</td>
<td>27.5</td>
<td>33.0</td>
</tr>
<tr>
<td>4.5</td>
<td>7241</td>
<td>0.28</td>
<td>0.40</td>
<td>1.3</td>
<td>6.1</td>
<td>12.9</td>
<td>24.4</td>
<td>31.0</td>
</tr>
<tr>
<td>5.0 (LPZ)</td>
<td>8045</td>
<td>0.26</td>
<td>0.34</td>
<td>1.1</td>
<td>5.2</td>
<td>11.3</td>
<td>22.0</td>
<td>29.1</td>
</tr>
<tr>
<td>5.5</td>
<td>8850</td>
<td>0.24</td>
<td>0.32</td>
<td>0.93</td>
<td>4.6</td>
<td>10.1</td>
<td>19.9</td>
<td>27.4</td>
</tr>
<tr>
<td>6.0</td>
<td>9654</td>
<td>0.22</td>
<td>0.29</td>
<td>0.80</td>
<td>4.0</td>
<td>9.0</td>
<td>18.2</td>
<td>25.8</td>
</tr>
<tr>
<td>6.5</td>
<td>10459</td>
<td>0.20</td>
<td>0.27</td>
<td>0.69</td>
<td>3.6</td>
<td>8.2</td>
<td>16.7</td>
<td>24.4</td>
</tr>
<tr>
<td>7.0</td>
<td>11263</td>
<td>0.19</td>
<td>0.25</td>
<td>0.60</td>
<td>3.2</td>
<td>7.4</td>
<td>15.4</td>
<td>23.1</td>
</tr>
<tr>
<td>7.5</td>
<td>12068</td>
<td>0.18</td>
<td>0.24</td>
<td>0.53</td>
<td>2.9</td>
<td>6.8</td>
<td>14.3</td>
<td>21.9</td>
</tr>
<tr>
<td>8.0</td>
<td>12872</td>
<td>0.17</td>
<td>0.22</td>
<td>0.47</td>
<td>2.7</td>
<td>6.3</td>
<td>13.3</td>
<td>20.8</td>
</tr>
<tr>
<td>8.5</td>
<td>13677</td>
<td>0.16</td>
<td>0.21</td>
<td>0.42</td>
<td>2.4</td>
<td>5.8</td>
<td>12.5</td>
<td>19.8</td>
</tr>
<tr>
<td>9.0</td>
<td>14481</td>
<td>0.15</td>
<td>0.20</td>
<td>0.38</td>
<td>2.3</td>
<td>5.4</td>
<td>11.7</td>
<td>18.9</td>
</tr>
<tr>
<td>9.5</td>
<td>15286</td>
<td>0.14</td>
<td>0.19</td>
<td>0.35</td>
<td>2.1</td>
<td>5.1</td>
<td>11.1</td>
<td>18.1</td>
</tr>
<tr>
<td>10.0 (EPZ)</td>
<td>16090</td>
<td>0.14</td>
<td>0.18</td>
<td>0.32</td>
<td>1.9</td>
<td>4.7</td>
<td>10.4</td>
<td>17.4</td>
</tr>
<tr>
<td>15.0</td>
<td>24135</td>
<td>0.096</td>
<td>0.13</td>
<td>0.17</td>
<td>1.1</td>
<td>2.8</td>
<td>6.6</td>
<td>12.2</td>
</tr>
<tr>
<td>20.0</td>
<td>32180</td>
<td>0.074</td>
<td>0.098</td>
<td>0.13</td>
<td>0.72</td>
<td>2.0</td>
<td>4.8</td>
<td>9.4</td>
</tr>
<tr>
<td>25.0</td>
<td>40225</td>
<td>0.060</td>
<td>0.080</td>
<td>0.11</td>
<td>0.52</td>
<td>1.5</td>
<td>3.7</td>
<td>7.6</td>
</tr>
<tr>
<td>30.0</td>
<td>48270</td>
<td>0.051</td>
<td>0.068</td>
<td>0.090</td>
<td>0.40</td>
<td>1.2</td>
<td>3.0</td>
<td>6.4</td>
</tr>
<tr>
<td>35.0</td>
<td>56315</td>
<td>0.045</td>
<td>0.059</td>
<td>0.078</td>
<td>0.32</td>
<td>0.98</td>
<td>2.5</td>
<td>5.5</td>
</tr>
<tr>
<td>40.0</td>
<td>64360</td>
<td>0.040</td>
<td>0.053</td>
<td>0.069</td>
<td>0.27</td>
<td>0.83</td>
<td>2.2</td>
<td>4.8</td>
</tr>
<tr>
<td>45.0</td>
<td>72405</td>
<td>0.036</td>
<td>0.047</td>
<td>0.062</td>
<td>0.22</td>
<td>0.71</td>
<td>1.9</td>
<td>4.3</td>
</tr>
<tr>
<td>50.0</td>
<td>80450</td>
<td>0.032</td>
<td>0.043</td>
<td>0.057</td>
<td>0.19</td>
<td>0.63</td>
<td>1.7</td>
<td>3.9</td>
</tr>
</tbody>
</table>

HOPE CREEK ELEVATED RELEASES
### TABLE 1-3

#### Xu/Q VALUES FOR GROUND RELEASES AT HOPE CREEK

**(MULTIPLY ALL VALUES BY 1.0E-06)**

<table>
<thead>
<tr>
<th>MILES</th>
<th>METERS</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.06</td>
<td>100</td>
<td>351.2</td>
<td>417.0</td>
<td>473.7</td>
<td>517.9</td>
<td>534.9</td>
<td>546.9</td>
<td>552.3</td>
</tr>
<tr>
<td>0.12</td>
<td>200</td>
<td>174.6</td>
<td>257.9</td>
<td>344.4</td>
<td>439.8</td>
<td>488.7</td>
<td>525.1</td>
<td>542.6</td>
</tr>
<tr>
<td>0.19</td>
<td>300</td>
<td>83.0</td>
<td>159.0</td>
<td>243.5</td>
<td>361.4</td>
<td>435.8</td>
<td>497.1</td>
<td>529.3</td>
</tr>
<tr>
<td>0.25</td>
<td>400</td>
<td>43.0</td>
<td>103.6</td>
<td>175.7</td>
<td>295.1</td>
<td>384.3</td>
<td>466.0</td>
<td>513.3</td>
</tr>
<tr>
<td>0.31</td>
<td>500</td>
<td>24.6</td>
<td>71.5</td>
<td>131.0</td>
<td>242.5</td>
<td>337.6</td>
<td>433.8</td>
<td>495.5</td>
</tr>
<tr>
<td>0.37</td>
<td>600</td>
<td>15.2</td>
<td>51.8</td>
<td>100.8</td>
<td>201.5</td>
<td>296.7</td>
<td>402.2</td>
<td>476.4</td>
</tr>
<tr>
<td>0.44</td>
<td>700</td>
<td>10.1</td>
<td>39.0</td>
<td>79.7</td>
<td>169.4</td>
<td>261.6</td>
<td>371.9</td>
<td>456.7</td>
</tr>
<tr>
<td>0.50</td>
<td>800</td>
<td>7.0</td>
<td>30.4</td>
<td>64.5</td>
<td>144.2</td>
<td>231.7</td>
<td>343.5</td>
<td>436.7</td>
</tr>
<tr>
<td>0.56 (MEA)</td>
<td>900</td>
<td>5.0</td>
<td>24.2</td>
<td>53.3</td>
<td>124.2</td>
<td>206.3</td>
<td>317.1</td>
<td>416.7</td>
</tr>
<tr>
<td>0.79</td>
<td>1270</td>
<td>1.8</td>
<td>12.5</td>
<td>29.9</td>
<td>78.4</td>
<td>140.4</td>
<td>237.6</td>
<td>346.3</td>
</tr>
<tr>
<td>1.0</td>
<td>1609</td>
<td>1.1</td>
<td>7.9</td>
<td>19.8</td>
<td>56.3</td>
<td>104.8</td>
<td>189.0</td>
<td>296.6</td>
</tr>
<tr>
<td>1.5</td>
<td>2414</td>
<td>0.77</td>
<td>3.5</td>
<td>9.7</td>
<td>31.5</td>
<td>62.1</td>
<td>122.5</td>
<td>216.1</td>
</tr>
<tr>
<td>2.0</td>
<td>3218</td>
<td>0.59</td>
<td>2.0</td>
<td>5.8</td>
<td>20.7</td>
<td>42.4</td>
<td>88.1</td>
<td>166.9</td>
</tr>
<tr>
<td>2.5</td>
<td>4023</td>
<td>0.48</td>
<td>1.3</td>
<td>3.9</td>
<td>15.0</td>
<td>31.5</td>
<td>67.7</td>
<td>134.6</td>
</tr>
<tr>
<td>3.0</td>
<td>4827</td>
<td>0.41</td>
<td>0.89</td>
<td>2.8</td>
<td>11.4</td>
<td>24.7</td>
<td>54.4</td>
<td>112.1</td>
</tr>
<tr>
<td>3.5</td>
<td>5632</td>
<td>0.36</td>
<td>0.65</td>
<td>2.1</td>
<td>9.1</td>
<td>20.1</td>
<td>45.1</td>
<td>95.6</td>
</tr>
<tr>
<td>4.0</td>
<td>6436</td>
<td>0.32</td>
<td>0.50</td>
<td>1.7</td>
<td>7.5</td>
<td>16.9</td>
<td>38.3</td>
<td>83.1</td>
</tr>
<tr>
<td>4.5</td>
<td>7241</td>
<td>0.28</td>
<td>0.40</td>
<td>1.3</td>
<td>6.3</td>
<td>14.4</td>
<td>32.2</td>
<td>73.3</td>
</tr>
<tr>
<td>5.0 (LPZ)</td>
<td>8045</td>
<td>0.26</td>
<td>0.34</td>
<td>1.1</td>
<td>5.4</td>
<td>12.5</td>
<td>29.2</td>
<td>65.4</td>
</tr>
<tr>
<td>5.5</td>
<td>8850</td>
<td>0.24</td>
<td>0.32</td>
<td>0.93</td>
<td>4.7</td>
<td>11.0</td>
<td>26.0</td>
<td>59.0</td>
</tr>
<tr>
<td>6.0</td>
<td>9654</td>
<td>0.22</td>
<td>0.29</td>
<td>0.80</td>
<td>4.2</td>
<td>9.8</td>
<td>23.4</td>
<td>53.7</td>
</tr>
<tr>
<td>6.5</td>
<td>10459</td>
<td>0.20</td>
<td>0.27</td>
<td>0.69</td>
<td>3.7</td>
<td>8.9</td>
<td>21.2</td>
<td>49.2</td>
</tr>
<tr>
<td>7.0</td>
<td>11263</td>
<td>0.19</td>
<td>0.25</td>
<td>0.60</td>
<td>3.3</td>
<td>8.0</td>
<td>19.4</td>
<td>45.3</td>
</tr>
<tr>
<td>7.5</td>
<td>12068</td>
<td>0.18</td>
<td>0.24</td>
<td>0.53</td>
<td>3.0</td>
<td>7.3</td>
<td>17.8</td>
<td>42.0</td>
</tr>
<tr>
<td>8.0</td>
<td>12872</td>
<td>0.17</td>
<td>0.22</td>
<td>0.47</td>
<td>2.7</td>
<td>6.7</td>
<td>16.5</td>
<td>39.2</td>
</tr>
<tr>
<td>8.5</td>
<td>13677</td>
<td>0.16</td>
<td>0.21</td>
<td>0.42</td>
<td>2.5</td>
<td>6.2</td>
<td>15.3</td>
<td>36.6</td>
</tr>
<tr>
<td>9.0</td>
<td>14481</td>
<td>0.15</td>
<td>0.20</td>
<td>0.38</td>
<td>2.3</td>
<td>5.8</td>
<td>14.3</td>
<td>34.4</td>
</tr>
<tr>
<td>9.5</td>
<td>15286</td>
<td>0.14</td>
<td>0.19</td>
<td>0.35</td>
<td>2.1</td>
<td>5.4</td>
<td>13.3</td>
<td>32.4</td>
</tr>
<tr>
<td>10.0 (EPZ)</td>
<td>16090</td>
<td>0.14</td>
<td>0.18</td>
<td>0.32</td>
<td>2.0</td>
<td>5.0</td>
<td>12.5</td>
<td>30.6</td>
</tr>
<tr>
<td>15.0</td>
<td>24135</td>
<td>0.096</td>
<td>0.13</td>
<td>0.17</td>
<td>1.1</td>
<td>3.0</td>
<td>7.7</td>
<td>19.5</td>
</tr>
<tr>
<td>20.0</td>
<td>32180</td>
<td>0.074</td>
<td>0.098</td>
<td>0.13</td>
<td>0.72</td>
<td>2.1</td>
<td>5.4</td>
<td>14.2</td>
</tr>
<tr>
<td>25.0</td>
<td>40225</td>
<td>0.060</td>
<td>0.080</td>
<td>0.11</td>
<td>0.52</td>
<td>1.5</td>
<td>4.2</td>
<td>11.1</td>
</tr>
<tr>
<td>30.0</td>
<td>48270</td>
<td>0.051</td>
<td>0.068</td>
<td>0.090</td>
<td>0.40</td>
<td>1.2</td>
<td>3.3</td>
<td>9.1</td>
</tr>
<tr>
<td>35.0</td>
<td>56315</td>
<td>0.045</td>
<td>0.059</td>
<td>0.078</td>
<td>0.32</td>
<td>1.0</td>
<td>2.8</td>
<td>7.7</td>
</tr>
<tr>
<td>40.0</td>
<td>64360</td>
<td>0.040</td>
<td>0.053</td>
<td>0.069</td>
<td>0.27</td>
<td>0.8</td>
<td>2.4</td>
<td>6.7</td>
</tr>
<tr>
<td>45.0</td>
<td>72405</td>
<td>0.036</td>
<td>0.047</td>
<td>0.062</td>
<td>0.23</td>
<td>0.7</td>
<td>2.1</td>
<td>5.9</td>
</tr>
<tr>
<td>50.0</td>
<td>80450</td>
<td>0.032</td>
<td>0.043</td>
<td>0.057</td>
<td>0.19</td>
<td>0.6</td>
<td>1.8</td>
<td>5.2</td>
</tr>
</tbody>
</table>

**HOPE CREEK GROUND RELEASES**
## SUMMATION OF PROJECTED DOSES FOR MULTIPLE SOURCES

(complete one table for each projection duration)

<table>
<thead>
<tr>
<th>Source (if involved)</th>
<th>Site boundary</th>
<th>Site Boundary</th>
<th>2 mile TEDE</th>
<th>2 mile Thyroid</th>
<th>5 mile TEDE</th>
<th>5 mile Thyroid</th>
<th>10 mile TEDE</th>
<th>10 mile Thyroid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salem 1 RCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salem 1 Spent Fuel Pool</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salem 2 RCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salem 2 Spent Fuel Pool</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hope Creek RCS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hope Creek Spent Fuel Pool</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL dose projection for all involved sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GENERAL GUIDANCE:

- 10 or 15 Minute Average Effluent radiological monitor data and Effluent flow rates should be input every 15 Minutes. Leaving blank cells between lines of data are interpreted by MIDAS as a puff release (no release for that time period). Rad monitor data and the flow data for that pathway both need to be entered or a calculation for that pathway will not be made. Monitored release pathways for Hope Creek are: NPV, SPV, FRVS and HTV. Monitored release pathways for Salem are Plant Vent (R41), Steam Generator to atmosphere (R46) and Containment (R44). Normally occurring discharges from the stations are coming from the NPV/SPV for HC and the Plant Vent for Salem.

- The following monitors should be used for manual dose assessment at: Hope Creek - (NPV-NG, SPV-NG, FRVS - NG and HTV-NG) (WRGM channels) (Under specific conditions DAPA monitors can be used to evaluate “What If” calculations for Containment Leakage) Salem - (R41 and under specific conditions the R46 and or R44 monitors)

- For assistance with obtaining flow data use EP Aid-018 (Salem) and EP Aid-019 & 090 (Hope Creek).

SALEM UNIT 1 & 2 ONLY

- **Plant Vent Dose Assessment:** Follow the below guidance to help in making the correct decision for which \textbf{R41} monitor value to use. Only **ONE** should be used in MIDAS for performing dose assessment.
  
  - **R41A** should be used if values are $> 1E-08$ uCi/cc to $9.99E-02$ uCi/cc.
  - **R41B** should be used if values are $> 1E-01$ uCi/cc to $9.99E+01$ uCi/cc.
  - **R41C** should be used if values are $> 1E+02$ uCi/cc to $1E+05$ uCi/cc.
• **STEAM GENERATOR DOSE ASSESSMENT**
  
  o **R46:** Dose assessment may be **PERFORMED** using the **R46 monitor** value during a primary to secondary leak or Steam Generator Tube Rupture (SGTR) if the Steam Generator is being released directly to atmosphere. The R46 value is entered in the R46A-D column in MIDAS for each S/G and use the default flow rate value of 4.50E+05 lbs/hr. More accurate flow can be provided with the assistance of Operations or Engineering but don’t wait for this data to run dose assessment, use the default until updated. **If the R46 reading is erratic use substitution of TELETECTOR readings for R46MSL values, method below.**

  • **Substitution of TELETECTOR readings for R46MSL values.**
    
    o Teletector values should be used instead of R46 values if the R46 values are not available or trends of R46 data shows a stream of spikes making the average data unreliable.
    
    o **REFER** to section 5.6 of this procedure concerning where contact readings on the Main Steam Lines (MSL) should be taken.
    
    o The Teletector value obtained from contact reading (in mR/hr) on the MSL MUST be multiplied by the **Correction Factor of 1.16E-2** prior to being used in MIDAS.
    
    o The value should be entered in the R46MSL column.
    
    o The value 4.50E+05 lbs/hr should be used as the default flow rate.

  • **Containment Leakage Dose Assessment:** **R44** monitor values may be used for “WHAT IF” type Calculations or if the containment has been breached and an unmonitored release is in progress.
    
    o Enter the R44 value along with a projected flow rate from containment. Operations or Engineering may be able to provide assistance with determining the projected flow rate.
    
    o Salem UFSAR section 6.2.2.2.2 lists the Salem Containment air volume as 2.62E+06 cubic feet so the following flow rates could be useful to determine source term due to containment leakage.
      
      ▪ Design Basis leak rate is 0.1% per day which would be 1.82 CFM
      
      ▪ 10% per day leak rate would be 1.82E+02 CFM
      
      ▪ 100% per day would be 1.82E+03 CFM
      
      ▪ And for a catastrophic failure, 100% in an hour, would be 4.37E+04 CFM
ACCIDENT
The initial level of all the Event Trees start out at the ACCIDENT level which identifies where the release is coming from (for the purposes of determining the nuclide mix and potential reduction factors). The lists below show the ACCIDENTs that are at the lowest levels of the Event Trees for Salem and Hope Creek. RMS monitors in parenthesis could show an increase due to this release pathway. Some pathways could also have some portion that could also be unmonitored.

Salem Accident Types:
- Containment (R44/R41)
- Steam Generator (R46/R41)
- Containment Bypass (R41)
- Spent Fuel (R44/R41)
- Waste Gas Decay Tank (R41)

Hope Creek Accident Types:
- Drywell (NPV/SPV/FRVS)
- Torus (NPV/SPV/FRVS/HTV)
- Containment Bypass (NPV/SPV/FRVS)
- Spent Fuel (SPV/FRVS)

CORE CONDITION
In most accidents the next branch is to describe the CORE CONDITION. The best method of determining the CORE CONDITION is by contacting the Core Thermal Engineer whose function is to determine core damage. The Core Thermal Engineer is located in the TSC, the Technical Support Manager in the EOF is a contact.

Several documents also show relationships between the Containment High Range monitors to an amount of Core Damage. RTM-96 is such a document (copy of RTM-96 is in the dose assessment area); on page A-28 (PWR) there are diagrams showing a comparison between the containment high range monitor (R44 at Salem) and 4 levels of CORE CONDITION (normal coolant, normal coolant with spiking, gap release and in-vessel melt) Fig. A-5 (sprays on) and Fig. A-6 (sprays off). On page A-29 (BWR) there are diagrams showing a comparison between the containment high range monitor (DAPA at Hope Creek) and the same 4 levels of CORE CONDITION where Fig. A-7 (sprays on) Fig A-8 (Sprays Off).

CONTAINMENT SPRAYS
Containment sprays can be used to reduce the pressure and wash particulates/iodine out of the atmosphere in the containment. When considering if CONTAINMENT SPRAYS are on or off the important distinction about this spray function is knowing if the sprays have been on since there was an increase in containment activity.
FILTERS
The choice here is if the normal filtration systems that reduce activity from the effluent pathway are still in place or if they are damaged and not functioning. Unless there is catastrophic damage to containment or specific damage to the filter banks from fires or explosions the filters could be assumed to be functioning normally. If offsite field surveys are indicating higher than the dose calculations this could be an indicator of failed filters.

HOLD UP TIME
HOLD UP TIME is defined in RTM-96 as the time that a release of radioactive material is held in the containment structure of the reactor before it is released to the environment. The longer the material is kept inside is time for decay and plate out of iodine and particulates. The longer the time the higher the reduction factor. Also another item that effects hold up is if there is a high turnover rate for ventilation. For example at Hope Creek if the Reactor Building is being ventilated by the SPV there is a higher turnover than when FRVS is running. When FRVS is running there would definitely be a holdup of many hours.

PARTITIONING
PARTITIONING is used on a Steam Generator Tube Rupture event tree. RTM-96 defines PARTITIONING as The presence of a water-steam interface in the steam generator. When the steam generator is partitioned, particulates are retained in the steam generator water and are not released. In other words if the tube rupture is under water the particulates and iodine will be removed as it goes through the water.

FUEL CONDITION
FUEL CONDITION is used in the Event Tree to describe the type of fuel damage in a fuel accident. The conditions are Mechanical Damage (cold), Hot Gap, ZR Fire (rapid oxidation and liberation of large amounts of hydrogen) and Dry Cask.

DECAY TIME
DECAY TIME is used in fuel damage event trees. The times listed are slanted to the beginning of a refueling outage when the highest dose could be seen from fuel damage. The decay times listed are 3 days, 7 days, 30 days, 1 year and 5 years.

TORUS
The reduction factors in TORUS are based on sub-cooled where hot gases bubbling up through sub-cooled water would tend to condense and “filter” particulates and iodine from the mix. If the water is at saturation temperatures it wouldn’t remove near the amount of particulates and iodine as if the water which was sub-cooled. The final option is bypassing the TORUS water and being released outside the torus to areas in the Reactor Building.
PSEG NUCLEAR L.L.C.
EMERGENCY PREPAREDNESS
NC.EP-EP.ZZ-0404(Q) - REV. 05
PROTECTIVE ACTION RECOMMENDATIONS (PARS) UPGRADES

USE CATEGORY:

A. Biennial review performed: Yes ___ No ___ N/A ___
B. Packages and Affected Document Numbers incorporated into this revision: None
C. The following OTSCs were incorporated into this revision: None

REVISION SUMMARY:

1. Added "... THE ECG..." in the Attachment 1 figure to provide additional clarification.
2. Revised Attachment 4 with the updated EPZ evacuation time estimates dated November 2012.
3. Revised Attachment 5 with the updated 10 mile EPZ permanent population distribution dated November 2012.
5. Added the following wording to Attachment 7 step 2; 'This would include single or concurrent releases from multiple locations'.
7. Combined Steps 5.1.2 and 5.1.3 due to change in subsequent flow charts
8. Split step 5.3.1 into two steps (5.3.1 and 5.3.2) and renumbered remaining steps
9. Revised Attachment 1 (revised and added 2 pages)
10. Deleted Attachment 3
11. Revised Attachment 7 to reflect changes in previous attachments
12. Deleted previous Attachment 8 and created new

IMPLEMENTATION REQUIREMENTS

Effective Date: ________________
# PROTECTIVE ACTION RECOMMENDATIONS (PARS) UPDATES

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITE</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS:</td>
<td>3</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED</td>
<td>4</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE</td>
<td>4</td>
</tr>
<tr>
<td>5.1</td>
<td>The EC Shall Upgrade the PAR as follows:</td>
<td>4</td>
</tr>
<tr>
<td>5.2</td>
<td>The EC Should Develop a PAR</td>
<td>6</td>
</tr>
<tr>
<td>5.3</td>
<td>Complete Notification And Documentation</td>
<td>6</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS</td>
<td>6</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES</td>
<td>6</td>
</tr>
</tbody>
</table>

## ATTACHMENTS

ATTACHMENT 1 - Protective Action Recommendations Flowcharts ........................................ 8
ATTACHMENT 2 - Protective Action Recommendation Worksheet ........................................ 11
ATTACHMENT 4 - Evacuation Time Estimates ........................................................................ 12
ATTACHMENT 5 - Permanent Population Distribution By Compass Direction ............................ 13
ATTACHMENT 6 - Representative Shielding Factors From Gamma Cloud Source ...................... 14
ATTACHMENT 7 - RSM (RAC) Protective Action Recommendation Checklist ............................... 15
ATTACHMENT 8 - BASIS for PARs and PAR Upgrades ............................................................... 19
1.0 PURPOSE

Provides direction to the Emergency Response Manager (ERM) and the Emergency Duty Officer (EDO) for determining the need for and development of Protective Action Recommendation (PAR) upgrades after an initial PAR was provided upon General Emergency declaration.

2.0 PREREQUISITE

2.1. Prerequisites to be Followed Prior to Implementation

2.1.1. This procedure should be implemented by the ERM or EDO with assistance of their direct reports.

2.1.2. The initial GE classification will be issued with a pre-determined set of recommended protective actions in accordance with the Salem or Hope Creek ECG Attachment 4. There are three different initial PARs based on the plant conditions or EALs which the classification is based on.

- Rapidly Progressing Severe Accident (RPSA) PAR
  - This event has been defined by the NRC if the following conditions have occurred (if a question exists about the criteria being met, it is NOT a RPSA and this PAR will not be issued). The criteria is as follows:
    - This is the first PAR issued following the GE Classification,
    - The Containment Barrier must be failed per EALs AND
    - The High Range Containment Monitor must be ≥ the 20% Clad Damage EAL for Potential Loss OR A significant radiological release (≥ Protective Action Guidelines (PAGs) at the site boundary) is occurring in about an hour.
  - The initial PAR for a RPSA is to Evacuate all sectors 0-5 miles, Evacuate the downwind sector ± one sector 5-10 miles and Shelter all remaining sectors 5-10 miles.

- Hostile Action Based (HAB) PAR
  - If the GE classification is one that is based on a hostile action than this initial PAR will be included with the GE classification.
  - The initial PAR for a HAB is to Shelter all sectors 0-5 miles and to Monitor & Prepare all sectors 5-10 miles.

- Default PAR
  - Used for a 12 or 13 point GE from the barrier tables or any other EAL resulting in a GE, which is not a RPSA or HAB.
  - The initial Default PAR is to Evacuate all sectors 0-5 miles and to Monitor & Prepare all sectors 5-10 miles.

2.1.3. ONLY the Control Room will follow PAR Upgrade guidance in ECG Attachment 4.
2.1.4. All other PARs will be upgraded in accordance with this procedure by the TSC and EOF if Protective Action Guidelines (PAGs) could be exceeded in areas where a PAR has not been issued. PAGs are as defined in EPA-400-R-92-001.

2.1.5. At PSEG Nuclear, PAGs would be exceeded if dose projection or field survey measurements result in a 4 Day TEDE Dose ≥1000 mRem or a Thyroid CDE Dose of ≥5000 mRem as indicated on the MIDAS Station Status Checklist (SSCL). The SSCL is based on a default 4 hour release (if actual conditions vary adjustments must be made).

2.1.6. Since the 4 Day TEDE dose includes contributions from components that will not be seen by portable survey instrumentation or electronic dosimetry (internal dose commitment from inhaled radionuclides, particularly iodines and particulates, and 96 hours of dose from radionuclides deposited on the ground during the plume passage) issuing PARs based on field measurements will need to consider the time of exposure and the relationship between TEDE (mRem) and EDE (mR).

2.1.7. When upgrading a PAR in an area where the PAG is exceeded, evacuation is usually the preferred protective action but in some cases sheltering can result in an equal or greater dose savings. If this is the case the PAR should be to shelter that area. One example where sheltering could result in a dose savings could be during a short controlled venting of the containment. In this case sheltering should be evaluated as a possible PAR.

2.1.8. PARs should not be upgraded to areas that DO NOT exceed the PAG. An example of this could be from a wind shift where the wind shifts more than 4 sectors, the skipped sector should not be included unless it is believed that sector could also exceed the PAGs. If RPSA conditions exist skipped sectors should be considered to be included.

3.0 PRECAUTIONS AND LIMITATIONS

3.1. Precautions and Limitations to be Followed Prior to Implementation

3.1.1. This procedure is used for upgrading PARs in the TSC/EOF. Initial PAR development which must be made within minutes of declaring a General Emergency is performed IAW Event Classification Guide (ECG) Attachment 4, General Emergency.

3.1.2. When a PAR Upgrade is based on the results of a MIDAS run the time the SSCL prints out should be considered the start time for the PAR Upgrade decision. When the PAR Upgrade would be based on Survey Data the start time for the PAR decision should be based on the time the Field Team Coordinator is informed of the new survey data. If the PAR Upgrade is based on a changing wind...
direction, an increase in the release rate or other parameter available on SPDS the value should be trended to determine the 15 minute start time.

3.1.3. Initials should be used for place keeping sign-offs.

3.1.4. Personnel who **IMPLEMENT** this procedure shall be trained and qualified IAW the Emergency Plan.

4.0 **EQUIPMENT REQUIRED**

As provided in the Emergency Operations Facility (EOF) or Technical Support Center (TSC).

5.0 **PROCEDURE**

```
NOTE

Upon General Emergency declaration, an initial PAR will be provided on the Initial Contact Message Form (ICMF) in accordance with directions provided in the Event Classification Guide (ECG) Attachment 4, General Emergency.
```

5.1. **The Emergency Coordinator (EC) shall UPGRADE the PAR as follows:**

```
NOTE

PAR upgrades should be completed in a timely manner which is defined as within 15 minutes of when it is known or should have been known that condition changed (see 3.1.2).

If an area exceeds the PAGs and an existing PAR has not been made for that area **THEN** a PAR Upgrade will be required.

PAR Upgrades could be required if the wind changes direction by more than one sector, the wind speed slows down, the NRC Stability Class changes to a more stable condition (ex. “A” to “E” Stability Class change), radiological release rate increases...
```
5.1.1. **ENSURE** a timely PAR upgrade is considered when in General Emergency conditions and changes in plant status, radiological release status, or meteorological conditions occur. (see section 3.1.2)

5.1.2. **DIRECT** the Radiological Support Manager RSM (RAC) and the SSM (TSS) to **REVIEW / DEVELOP** a PAR upgrade utilizing ATTACHMENT 1, Protective Action Recommendations Flowcharts and ATTACHMENT 7, PAR Upgrade Decision Checklist.

5.1.3. **IF** a PAR Upgrade is required **THEN** Go to Section 5.3 and **PROVIDE** the PAR Upgrade. **DO NOT** downgrade an existing PAR (i.e., be sure that initial PAR information is carried over/ transferred to the new ICMF Form for any PAR Upgrade).

5.1.4. **IF** NO PAR Upgrade is required **THEN**, **DOCUMENT** in the EC log the reason why a PAR upgrade was not required.
5.2. The EC Should DEVELOP a PAR for Beyond Ten Miles if Needed as Follows:

5.2.1. DIRECT the RSM (RAC) to DETERMINE if the Protective Action Guidelines (PAGs), ≥1000 mRem TEDE Dose or ≥5000 mRem Thyroid CDE dose, have been or are expected to be exceeded beyond the 10 mile EPZ using actual field team measurements or based on valid dose assessment projection using 15 minute average real time meteorological data. (Evaluation of the MIDAS plume map using the POI feature will show how far beyond 10 miles the PAR should be expanded).

5.2.2. DEVELOP PARs beyond ten miles as needed. DISCUSS PAR basis with representatives from New Jersey Bureau of Nuclear Engineering (BNE) and/or the Delaware Emergency Management Agency (DEMA) before expanding the PAR beyond 10 miles.

5.3. COMPLETE Notification and Documentation:

5.3.1. DOCUMENT the PAR Upgrade on an ICMF from ECG Attachment 4

5.3.2. DIRECT the EOF (TSC) Communicator to make notifications per ECG Attachment 6.

5.3.3. NOTIFY all emergency response facilities of the PAR upgrade.

5.3.4. DIRECT/ENSURE that EOF state leads are briefed on the basis for the PAR Upgrade.

6.0 RECORDS

Forward all completed EPEPs/Forms/Attachments to the EP Manager.

7.0 REFERENCES

7.1. References

7.1.1. RIS 2004-13, Consideration of Sheltering in Licensee’s Range of PARs.
7.1.2. Salem – Hope Creek Nuclear Generating Station Development of Evacuation Time Estimates, KLD Engineering, P.C., November 2012
7.1.3. NUREG-0654 FEMA-REP-1 Supplement 3, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants
7.1.4  EP FAQ 2013-004 Final Response
7.1.5  EPA-400-R-92-001 Manual of Protective Action Guides and Protection Actions for Nuclear Incidents

7.2.  Cross References

7.2.1  PSEG Nuclear Emergency Plan
ATTACHMENT 1
PROTECTIVE ACTION RECOMMENDATIONS FLOWCHART – HOSTILE ACTION BASED PAR

PAGE 1 of 3

From Initial HAB PAR:
- Shelter All Sectors 0-5 miles
- Monitor & Prepare All Sectors 5-10 miles

Has the Hostile Action Event been terminated?
- No
  - Is a Radioactive Release in Progress?
    - Yes
      - PAR Upgrade
        - Evaluate Dose Assessment to determine if any areas exceed PAGs\(^{(1)}\).
        - Determine if field surveys show any areas exceeding PAGs\(^{(1)}\).
    - No
      - Are PAGs\(^{(1)}\) Exceeded in any Area not included in previous PARs?
        - Yes
          - Upgrade PAR to include ALL areas where PAGs\(^{(1)}\) are exceeded:
            - If within 0-5 Miles then:
              - Evacuate All Sectors 0-5 miles
              - Monitor & Prepare All Sectors 5-10 miles
            - OR
              - If between 5-10 Miles then:
                - Evacuate All Sectors 0-5 miles
                - Evacuate Downwind 5-10 miles ± one sector
                - Monitor & Prepare All Remaining Sectors.
        - No
          - Continue Monitoring Radiological Conditions until termination of the event

- Yes
  - Do General Emergency Conditions Remain?
    - No
      - No PAR Upgrade Required
    - Yes
      - Upgrade PAR:
        - Evacuate All Sectors 0-5 Miles
        - Monitor & Prepare All Sectors 5-10 miles

- Any further PAR upgrades will be based on Default PAR Flow Chart

- Continue Monitoring Radiological Conditions until termination of the event

- PAGs\(^{(1)}\) maybe exceeded based on:
  - Wind Shift
  - Change in Stability
  - Change in Wind Speed
  - Change in Release Rate

- Continue to DEFAULT PAR
  - DO NOT continue to use this flow chart

---

\(^{(1)}\) EPA-400 PAGs recommends evacuation at values of \(\geq 1,000 \text{ mRem 4 day TEDE} \) or \(\geq 5,000 \text{ mREM Thyroid CDE} \)
From Initial Default PAR:
- Evacuate All Sectors 0-5 miles
- Monitor & Prepare All sectors 5-10 miles

Do conditions still exist which would require the classification of a GE per the EALS?
- Yes: Continue to perform dose assessment and field surveys
- No: Continue to monitor Radiological conditions until termination of the event. PAR upgrades should be recommended if PAGs\(^{(1)}\) are exceeded

Does dose assessment or field surveys identify any new areas where PAGs\(^{(1)}\) are exceeded (5-10 miles)?
- No: No PAR Upgrade Required
- Yes: Upgrade PAR to include areas where PAGs\(^{(1)}\) are exceeded.
  - Evacuate the new downwind sectors and ± one sector *(areas where the plume sweeps across sectors without the possibility of exceeding a PAG\(^{(1)}\) should NOT be included)*
  - Monitor & Prepare All Sectors 5-10 miles

EPA-400 PAGs recommends evacuation at values of $\geq 1,000$ mRem 4 day TEDE or $\geq 5,000$ mREM Thyroid CDE

(2) See attachment 7, step 2.0 of this procedure for guidance
Initial RPSA PAR:
- Evacuate All Sectors 0-5 miles
- Evacuate Down Wind 5-10 miles + one sector
- Shelter in place All Remaining sectors 5-10 miles

ATTACHMENT 1
PROTECTIVE ACTION RECOMMENDATIONS FLOWCHART - RPSA PAR

Initial RPSA PAR:

- Evacuate All Sectors 0-5 miles
- Evacuate Down Wind 5-10 miles + one sector
- Shelter in place All Remaining sectors 5-10 miles

Do conditions still exist which would require the classification of a GE per the EALS?

- Yes: Continue to perform dose assessment and field surveys
- No: Continue to monitor Radiological conditions until termination of the event. PAR upgrades should be recommended if PAGs[1] are exceeded

Does dose assessment or field surveys identify any new areas where PAGs[1] are exceeded (5-10 miles)?

- Yes:
  - Is the containment barrier still failed?
  - AND
    - SALEM - Is R44A or R44B indicating ≥ 2000 R/ Hour?
    - OR
    - HC - DAPA monitors ≥ 10,000 R/ Hour?
    - Expand PARs to all areas where PAGs are exceeded.
    - Consider evacuation of sectors where the plume sweeps across[2]
    - Continue to evaluate entry point on this page

- No: No PAR Upgrade Required

Only expand PAR to new areas where PAGs[1] are exceeded

EPA-400 PAGs recommends evacuation at values of ≥1,000 mRem 4 day TEDE or ≥ 5,000 mREM Thyroid CDE

See attachment 7, step 2.0 of this procedure for guidance

[1] EPA-400 PAGs recommends evacuation at values of ≥1,000 mRem 4 day TEDE or ≥ 5,000 mREM Thyroid CDE
[2] See attachment 7, step 2.0 of this procedure for guidance
ATTACHMENT 2
PROTECTIVE ACTION RECOMMENDATION WORKSHEET

PAGE 1 OF 1

<table>
<thead>
<tr>
<th>WIND DIRECTION FROM DEGREES</th>
<th>COMPASS</th>
<th>PAR AFFECTED SECTORS DOWNWIND ±1 SECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>349 - 011</td>
<td>N</td>
<td>SSE - S - SSW</td>
</tr>
<tr>
<td>011 - 034</td>
<td>NNE</td>
<td>S - SSW - SW</td>
</tr>
<tr>
<td>034 - 056</td>
<td>NE</td>
<td>SSW - SW - WSW</td>
</tr>
<tr>
<td>056 - 079</td>
<td>ENE</td>
<td>SW - WSW - W</td>
</tr>
<tr>
<td>079 - 101</td>
<td>E</td>
<td>WSW - W - WNW</td>
</tr>
<tr>
<td>101 - 124</td>
<td>ESE</td>
<td>W - WNW - NW</td>
</tr>
<tr>
<td>124 - 146</td>
<td>SE</td>
<td>WNW - NW - NNW</td>
</tr>
<tr>
<td>146 - 169</td>
<td>SSE</td>
<td>NW - NNW - N</td>
</tr>
<tr>
<td>169 - 191</td>
<td>S</td>
<td>NNW - N - NNE</td>
</tr>
<tr>
<td>191 - 214</td>
<td>SSW</td>
<td>N - NNE - NE</td>
</tr>
<tr>
<td>214 - 236</td>
<td>SW</td>
<td>NNE - NE - ENE</td>
</tr>
<tr>
<td>236 - 259</td>
<td>WSW</td>
<td>NE - ENE - E</td>
</tr>
<tr>
<td>259 - 281</td>
<td>W</td>
<td>ENE - E - ESE</td>
</tr>
<tr>
<td>281 - 304</td>
<td>WNW</td>
<td>E - ESE - SE</td>
</tr>
<tr>
<td>304 - 326</td>
<td>NW</td>
<td>ESE - SE - SSE</td>
</tr>
<tr>
<td>326 - 349</td>
<td>NNW</td>
<td>SE - SSE - S</td>
</tr>
</tbody>
</table>

NOTE: CONSIDER ADDING A SECTOR TO THE PAR IF THE WIND DIRECTION (FROM) IS WITHIN ±3° OF A SECTOR DIVIDING LINE.
### Evacuation Zone (2)

#### ERPA – Emergency Response Planning Area

<table>
<thead>
<tr>
<th>Quadrant</th>
<th>ERPA</th>
<th>Daytime (mins)</th>
<th>Evening (mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Normal</td>
<td>Adverse (3, 4)</td>
</tr>
<tr>
<td>Full 0-5 miles</td>
<td>(1,8 A,D)</td>
<td>105</td>
<td>155</td>
</tr>
<tr>
<td>Full EPZ</td>
<td>(1-8, A-D)</td>
<td>145</td>
<td>210</td>
</tr>
</tbody>
</table>

#### Evacuate 5-Mile Radius and Downwind to the EPZ Boundary

<table>
<thead>
<tr>
<th>Downwind Sector(s)</th>
<th>ERPA</th>
<th>Daytime (mins)</th>
<th>Evening (mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Normal</td>
<td>Adverse (3, 4)</td>
</tr>
<tr>
<td>S, SSW, SW</td>
<td>(1,8, A,B,D)</td>
<td>130</td>
<td>195</td>
</tr>
<tr>
<td>WSW, W, WNW</td>
<td>(1,8, A-D)</td>
<td>140</td>
<td>205</td>
</tr>
<tr>
<td>NW</td>
<td>(1,8, A,C,D)</td>
<td>130</td>
<td>195</td>
</tr>
<tr>
<td>NNW</td>
<td>(1,3,5,8, A,C,D)</td>
<td>135</td>
<td>200</td>
</tr>
<tr>
<td>N</td>
<td>(1,3,4,5,8, A,C,D)</td>
<td>135</td>
<td>200</td>
</tr>
<tr>
<td>NNE, NE</td>
<td>(1-5,8, A,D)</td>
<td>130</td>
<td>185</td>
</tr>
<tr>
<td>ENE</td>
<td>(1-4,6,8, A,D)</td>
<td>130</td>
<td>180</td>
</tr>
<tr>
<td>E, ESE</td>
<td>(1,2,6,7,8, A,D)</td>
<td>115</td>
<td>170</td>
</tr>
<tr>
<td>SE</td>
<td>(1,6,7,8, A,D)</td>
<td>105</td>
<td>155</td>
</tr>
<tr>
<td>SSE</td>
<td>(1,7,8, A,B,D)</td>
<td>130</td>
<td>195</td>
</tr>
</tbody>
</table>

#### Delaware

<table>
<thead>
<tr>
<th>Quadrant</th>
<th>ERPA</th>
<th>Daytime (mins)</th>
<th>Evening (mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Normal</td>
<td>Adverse (3, 4)</td>
</tr>
<tr>
<td>ERPA - A</td>
<td>(A)</td>
<td>110</td>
<td>160</td>
</tr>
<tr>
<td>ERPA - B</td>
<td>(B)</td>
<td>130</td>
<td>190</td>
</tr>
<tr>
<td>ERPA - C</td>
<td>(C)</td>
<td>130</td>
<td>195</td>
</tr>
<tr>
<td>All</td>
<td>(A–D)</td>
<td>145</td>
<td>210</td>
</tr>
</tbody>
</table>

**NOTES:**

1. Times have been rounded to nearest five minutes. All evacuation times listed here include time to notify, time to prepare the home for evacuation, and travel time out of the EPZ. Values provided are for 90% of the population to clear the indicated area. (Source: Salem-Hope Creek Nuclear Generating Station, Development of Evacuation Time Estimates, Table 7-1, Nov. 2012 by KLD Associates, Inc. for PSEG Nuclear)

2. See EOF Status Board Maps for emergency planning/sector areas locations. Emergency planning areas “8” and “D” represent river areas in New Jersey & Delaware for which the US Coast Guard will be responsible.

3. Adverse weather assumes worst case scenario of midweek daytime snow.

4. ETEs under these conditions are caused by impediments to evacuation. Agreements with OROs preclude PSEG from considering impediments to evacuation. These conditions only exist a very small percent of the year.
ATTACHMENT 5
PERMANENT POPULATION DISTRIBUTION BY COMPASS DIRECTION

NOTE:
Above and below estimates are of permanent population. Transient and recreational population could result in a total 0-10 mile population of approximately 56,000 persons. Values include total 10 mile EPZ.

<table>
<thead>
<tr>
<th></th>
<th>0 - 2 MI</th>
<th>0 - 5 MI</th>
<th>0 - 10 MI Delaware</th>
<th>0 - 10 MI New Jersey</th>
<th>0 - 10 MI NJ &amp; DE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1,395</td>
<td>40,943</td>
<td>11,394</td>
<td>52,337</td>
</tr>
</tbody>
</table>
### NOTES

1. The ratio of the dose received inside the structure to the dose that would be received outside the structure.

2. A wood frame house with brick or stone veneer is approximately equivalent to a masonry house for shielding purposes.

3. This range is mainly due to different wall materials and different geometry.

4. The shielding factor depends on where the personnel are located within the building, such as in the basement or an inside room.

Source: SAND – 77-1725 (Unlimited Release)

<table>
<thead>
<tr>
<th>Structure Description</th>
<th>Shielding Factor (^{(1)})</th>
<th>Representative Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside</td>
<td>1.0</td>
<td>--</td>
</tr>
<tr>
<td>Vehicles</td>
<td>1.0</td>
<td>--</td>
</tr>
<tr>
<td>Wood-frame house (2) (No Basement) (no basement)</td>
<td>0.9</td>
<td>--</td>
</tr>
<tr>
<td>Wood-Frame House (Basement)</td>
<td>0.6</td>
<td>0.1 to 0.7 (^{(3)})</td>
</tr>
<tr>
<td>Masonry House (No Basement)</td>
<td>0.6</td>
<td>0.4 to 0.7 (^{(3)})</td>
</tr>
<tr>
<td>Large Office or Industrial Building</td>
<td>0.2</td>
<td>0.1 to 0.3 (^{(3,4)})</td>
</tr>
</tbody>
</table>
ATTACHMENT 7
RSM (RAC) / TSS (TSM) PAR Upgrade Decision Checklist
Page 1 of 4

NOTE
PAR upgrades should be completed in a timely manner which is defined as within 15 minutes of when it is known or should have been known that condition changed (see 3.1.2). If an area exceeds the PAGs and an existing PAR has not been made for that area THEN a PAR Upgrade will be required.

NOTE
Protective Action Guidelines established in EPA 400-R-92-001 recommend initiating evacuation (or in some situations sheltering) of the public, if the Total Effective Dose Equivalent (TEDE), projected dose, is 1000 mRem or the Committed Dose Equivalent (CDE), projected dose, to the Thyroid is 5000 mRem.

Date/Time Started: ____________ / ____________

1.0 Once the initial PAR has been issued, if radiological conditions change a PAR Upgrade may be required. Review current Dose Assessment and Offsite Field Survey results (While it is best to have station radiation monitor based dose assessments backed up with field survey data but PAR decisions shouldn’t be delayed to obtain field surveys).

2.0 Evaluations for a PAR Upgrades are required any time conditions could cause a Protective Action Guideline (PAG) to be exceeded in any location where a PAR has not been previously provided to the states. Consider the following:

- A change in wind direction causing PAGs to be exceeded in a new downwind location OR
- Any conditions which could cause an increase in the Projected TEDE Dose (4 Day) to ≥1000 mRem or the Projected Thyroid CDE Dose ≥5000 mRem on page 2 of the SSCL (MIDAS Output) to an area where PARs have not yet been provided OR
- Field radiological survey data shows a PAG could be exceeded. Remember the default release time is 4 hours for the SSCL and that the TEDE to EDE ratio may need to be considered.
3.0 If there have been any PAR Upgrades since the initial PAR, determine what EPZ areas are affected and what recommendations have already been made (If this is the initial PAR Upgrade go to 4.0 below).

- Once a PAR Upgrade has been made the flowchart used for the upgrade can direct the user to a different flowchart so the current flowchart being used will have to be determined and used to make the PAR Upgrade.
- Review additional considerations in 5.0 below and determine if a PAR Upgrade is required. Complete the PAR Upgrade IAW section 5.3 of this procedure.

4.0 If this is the initial PAR Upgrade determine the appropriate flowchart from Attachment 1 to perform the PAR Upgrade evaluation. Based on the GE Classification SELECT the appropriate PAR Upgrade Flowchart from Attachment 1 (HAB PAR, Default PAR or RPSA PAR)

- If initial PAR was due to a Hostile Action, then go to Attachment 1 page 1 of 3. (Initial upgrade could evacuate or possibly shelter the 0-5 mile EPZ or beyond). Review additional considerations in 5.0 below and complete the PAR Upgrade IAW section 5.3 of this procedure, if required.
- If the initial PAR was the Default due to a 12 or 13 point GE from the Barrier Table or any other GE EAL (with the exception of a HAB or RPSA) then go to Attachment 1 page 2 of 3. (Initial upgrade could evacuate or possibly shelter sectors between the 5-10 mile EPZ or beyond, see Attachment 2) Review additional considerations in 5.0 below and complete the PAR Upgrade IAW section 5.3 of this procedure, if required.
- If the initial PAR was due to a RPSA then go to Attachment 1 page 3 of 3. (Initial upgrade could evacuate additional downwind sectors in the 5-10 mile EPZ or beyond, See Attachment 2.) Review additional considerations in 5.0 below and complete the PAR Upgrade IAW section 5.3 of this procedure, if required.
5.0 Additional Considerations (the items listed below could allow adjustments to the recommendations to the current PAR Upgrade flowchart)

- If the containment barrier has not failed and is a 12 point GE consideration should be given to two items before a PAR Upgrade is determined.
- What is the condition of containment and if conditions are degrading to where the containment could fail AND:
  - Determine the amount of radioactivity bottled up inside the containment? If the containment high range monitors (DAPA at Hope Creek and the R44 at Salem) exceed the EAL for potential containment failure (based on 20% gap activity) Then consideration should be given to evacuating the downwind sectors, if it is believed that the containment barrier could fail. On a wind shift the same logic should be followed. (Based on the high range containment monitor and a projected containment leakage MIDAS can perform a "what if" calculation to determine offsite dose in this situation.
  - If PAGs have already been provided in a downwind sector and the only thing that has happened is the wind direction has shifted to a new sector then perform a PAR Upgrade to evacuate the new downwind sectors.
  - The reverse is true, if the downwind sectors have not exceeded a PAG and the only change is the wind direction, then no PAR Upgrade should be given. In this case it would not be necessary to wait for dose assessment (MIDAS) or field readings.
  - If a wind shift has occurred and the change in direction is 4 sectors or more then there will be sectors that may not exceed the PAG as the plume just smeared across those sectors. Sectors where the plume smears through should not be included in the PAR Upgrade unless it is determined that the PAGs could have been exceeded in these sectors. If RPSA conditions exist these areas could be included.
- If the release is a short controlled release, such as venting the containment, then use Attachment 4, 5 and 6 to determine if a dose savings could be obtained by Sheltering verses Evacuation. If sheltering provides a dose savings than it is preferred over evacuation.
ATTACHMENT 7
RSM (RAC) / TSS (TSM) PAR Upgrade Decision
Page 4 of 4

- Be aware that if the PAG is to shelter and the public is not at risk for exceeding the PAGs, sheltering is counterproductive and prevents families from reuniting when it would be beneficial for evacuation readiness. Sheltering for areas not affected by an actual or potential radiological release should not be recommended nor implemented as it has the potential to detract from public health and safety. Monitor and Prepare may be more beneficial.
ATTACHMENT 8
BASIS for PARs and PAR Upgrades
PAGE 1 OF 1

The PAR process used at PSEG Nuclear, LLC is based on guidance contained in EPA-400-R-92-001, NUREG 0654 Supplement 3 and agreements reached with NJOEM, NJBNE and DEMA. In general there are few deviations to how the guidance is used but three situations are detailed below:

• The PSEG Nuclear Emergency Plan does not address a 0-2 mile Emergency Planning Zone (EPZ) for PARs. There are no residences with 2 miles of the station and the 0-5 mile EPZ has a very small population due to the river and surrounding marsh lands. This is addressed in our ETE study October 2012 which was submitted to the NRC.

• During the PAR Scheme review discussions with both NJ (NJOEM & NJBNE) and DE (DEMA) informed PSEG to not consider impediments to evacuation when determining our Protective Action Recommendations (PAR). Impediments will be considered by the states prior to making their Protective Action Decisions (PAD). These discussions between the licensee and ORO’s are required by Sup 3.

• Supplement 3 to NUREG 0654 recommends the use of staged evacuation to reduce exposure in certain circumstances. The PSEG Nuclear’s Evacuation Time Estimate (ETE) Study (October 2012), which evaluated the use of staged evacuation, concluded in section 7.6 of the report as follows. “In summary, the staged evacuation option provides no benefits to those evacuating from within 5 miles of the SHCNGS and adversely impacts those evacuees located beyond 5 miles from the plant.” PSEG Nuclear will not be using staged evacuation in our PAR Scheme.

• A General Emergency is expected to be declared, based on plant conditions, before a radiological release could potentially begin. Licensees will perform radiological assessment throughout the emergency and will recommend to OROs the need to take or expand protective actions if dose projections show that protective action criteria could be exceeded. Dose projections that are based on effluent monitor data and verified by field monitoring data would provide the strongest basis for a PAR; however, effluent monitor data alone can be sufficient if other data (e.g., plant conditions, area or process monitors, verify the occurrence of a radiological release. Although verification of dose projection data is desirable, the licensee should not delay PARs unduly while waiting for field monitoring data or sample analysis.
A. Biennial review performed: Yes ____ No ____ N/A X _

B. Packages and Affected Document Numbers incorporated into this revision: None

C. The following OTSCs were incorporated into this revision: None

REVISION SUMMARY:

- Revised Attachment 1 step 1.1.5 to include EOF Dose Assessors taking turnover from the SRPT if dose assessment is not being performed in the TSC.
- Revised Attachment 2 step 1.1.2 to require dose assessment and SSCL page 2 to be produced every 30 minutes when a radiological release is in progress.
- Deleted note above step 1.1.9 of Attachment 2 as ODCM calculated trigger levels no longer define a Release in Progress.
- Revised Attachment 2 step 1.1.9. First bullet changed to reflect the decision that a Release is in Progress is determined by the ERM or designee and the Radiological Assessment Staff needs to be notified when the decision is made. Added a new third bullet included to have the ERM informed if radiological conditions indicate a PAG could be exceeded. Last bullet added the consideration of using state Emergency Worker/Vehicle Decon Facilities.
- Added references to EP Aids throughout the procedure (Attachment 3 step 2.1, 2.2, 2.4, 2.5
- Revised Attachment 3 step 2.1 to remove reference to the old ODCM trigger values for a release.
- Revised Attachment 3 step 2.2, 4th bullet to refer to EP Aid-025
- Revised Attachment 3 step 2.3 to describe conditions where a PAG could be exceeded under the new PAR Upgrade requirements from NUREG 0654 Supplement 3.
- Revised Attachment 5 to RESERVE the attachment and reference EP Aids that replaced the attachments content.
(Continued on next page)

IMPLEMENTATION REQUIREMENTS

Effective Date: ________________
REVISION SUMMARY (Continued):

- Revised Attachment 6 to RESERVE the attachment and reference EP Aids that replaced the attachments content.
- Revised Form-4, Hope Creek MIDAS Input to add section on “What If” Drywell leakage and section for identifying information relevant to Multiple Unit/Source Term Releases. Also removed references to DI values and the default NG to Iodine ratios as all calculations are now based on event specific nuclide mixes.
- Revised Form-5, Salem MIDAS Input to add section for identifying information relevant to Multiple Unit/Source Term Releases. Also removed references to DI values and the default NG to Iodine ratios as all calculations are now based on event specific nuclide mixes.
# RADIOLOGICAL SUPPORT MANAGER AND
# RADIOLOGICAL ASSESSMENT STAFF RESPONSE

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE ..................................................................................</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES .........................................................................</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS ..................................................</td>
<td>2</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED ...................................................................</td>
<td>2</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE ..................................................................................</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>5.1 RSM Duties ..........................................................................</td>
<td>2</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS .....................................................................................</td>
<td>3</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES ................................................................................</td>
<td>3</td>
</tr>
</tbody>
</table>

### ATTACHMENTS

- ATTACHMENT 1 - Pre-activation RSM Duties ........................................ | 4    |
- ATTACHMENT 2 - RSM Checklist ........................................................... | 6    |
- ATTACHMENT 3 - State Liaison And RMS Trending Instructions .............. | 9    |
- ATTACHMENT 4 - Habitability, EOF Emergency Ventilation And Laboratory and Testing Services (LTS) Instructions | 12   |
- ATTACHMENT 5 - RESERVED ................................................................ | 15   |
- ATTACHMENT 6 - RESERVED ................................................................ | 19   |

### FORMS

- Form - 1 EOF Dosimetry Log ............................................................. | 20   |
- Form - 2 DLR Issue Log ..................................................................... | 21   |
- Form - 3 EOF Habitability Log .......................................................... | 22   |
- Form - 4 Hope Creek MIDAS Input ..................................................... | 23   |
- Form - 5 Salem MIDAS Input .............................................................. | 24   |
1.0 **PURPOSE**

To outline and describe the Radiological Support Manager’s (RSM) duties during a declared emergency

2.0 **PREREQUISITES**

Implement this procedure at:

- The discretion of the ERM
- Upon staffing of the EOF

3.0 **PRECAUTIONS AND LIMITATIONS**

3.1 **Precaution and Limitations To Be Followed Prior To Implementing This Procedure**

- Medical care takes priority over any radiological conditions unless the radiological conditions are life threatening.
- Initials are to be used in the place keeping sign-offs.
- Personnel who implement this procedure shall be trained and qualified IAW the Emergency Plan.
- Steps listed in this procedure may be performed in the order deemed appropriate for the emergency situations. Only steps applicable to the specific emergency need be performed.

4.0 **EQUIPMENT REQUIRED**

As provided in the EOF.

5.0 **PROCEDURE**

5.1 **The RSM shall:**

5.1.1 **CONTACT** the RAC or SRPT and **OBTAIN** a briefing on the current on/offsite radiological conditions.

5.1.2 **REPORT** to the ERM and **OBTAIN** a briefing of the current status of the emergency.

5.1.3 **UPDATE** the ERM on radiological conditions, as appropriate.

5.1.4 **IMPLEMENT** Attachment 1, Pre-activation RSM Checklist.
6.0 **RECORDS**

*RETURN* completed procedure and any information or data thought to be pertinent to the Manager - Emergency Preparedness.

7.0 **REFERENCES**

7.1 **References**

None

7.2 **Cross References**

7.2.1 NC.EP-EP.ZZ-0602(Q) Radiological Dose Assessment

7.2.2 NC.EP-EP.ZZ-0603(Q) Field Team Monitoring

7.2.3 EP-AA-120-1010, Emergency Preparedness Training Administration

7.2.4 EP Aid-018, Salem SPDS Instructions for MET and Rad Data

7.2.5 PSEG Nuclear LLC Emergency Plan
1.0 PRE-ACTIVATION RSM CHECKLIST

1.1 RSM should **ENSURE** the following items are performed:

- **INITIATE** the RSM log. 

- **CONTACT** the RAC and **OBTAIN** a briefing of the on/offsite radiological conditions. 

- **ASSIGN** the Radiological Assessment Staff Members (D02’s & D03) to the following job assignments:
  
  - **Dose Assessment (D02A)**
    (Refer to NC.EP-EP.ZZ-0602(Q), Radiological Dose Assessment):
    
    __________________/___________________
    (Name) (Name)

  - **State Liaison, assisting states with RMS and Meteorological data (D02B)**
    (Refer to Attachment 3, State Liaison and RMS Trending Instructions):
    
    __________________/___________________
    (Name) (Name)

  - **Habitability, EOF Emergency Vent. and Environ. Sampling Issues (D02C)**
    (Refer to Attachment 4, Habitability, EOF Emergency Ventilation and Laboratory and Testing Services (LTS) Instructions):
    
    __________________/___________________
    (Name) (Name)

  - **Coordinating and Tracking Offsite Field Teams Location and Sampling (D03)**
    (Refer to NC.EP-EP.ZZ-0603 (Q), Field Monitoring):
    
    __________________/___________________
    (Name) (Name)

1.1.1 **ENSURE** the Radiological Assessment Staff is fully staffed to perform the D02/D03 tasks as outlined above, as thought appropriate for current conditions. (**LOG** any deviations)
1.1.2 ASSIGN an individual to act as an Assistant RSM for when the RSM is in Leads meetings or temporarily out of the EOF. (ENSURE this individual understands that he/she cannot perform items identified in Attachment 2 which may not be delegated.)

1.1.3 VERIFY the following tasks are being performed:

- If appropriate and a General Emergency has been declared, DIRECT EOF habitability be performed every 30 minutes IAW Attachment 4.

- EOF Radiological Assessment equipment is functioning properly.

- EOF AMS is turned on and the alarm set for 2 times the current background.

- Dose Assessment is being performed IAW NC.EP-EP.ZZ-0602(Q), Radiological Dose Assessment.

- Offsite Field Monitoring Teams are functional or in the process of becoming functional.

- Current and forecasted meteorological data has been acquired or is in the process of being acquired.

1.1.4 INFORM the ERM that the Radiological Assessment Staff is ready to activate.

1.1.5 WHEN directed by the ERM to take turnover of dose assessment THEN:

- DIRECT the EOF Dose Assessor to take turnover of dose assessment from the TSC/SRPT.

- CONTACT the RAC to coordinate turnover of the dose assessment duties from the TSC/SRPT to the EOF.

- IMPLEMENT Attachment 2, RSM Checklist
NOTE

The following steps may be performed in the order deemed appropriate by the RSM. Asterisk (*) steps may NOT be delegated (These steps have RSM designated below the place keeping initial line).

1.0 RSM CHECKLIST

1.1 The RSM Should Ensure The Following Items are Performed:

1.1.1 CONTINUE/MAINTAIN the RSM log

1.1.2 ENSURE Offsite Radiological Dose Projections are being performed IAW NC. EP-EP.ZZ-0602(Q), Radiological Dose Assessment, and the SSCL Page 2 is being produced every 30 minutes when a radiological release is in progress.

NOTE

Medical care takes priority over any radiological conditions unless the radiological conditions are life threatening.

1.1.3 If necessary, COORDINATE the transportation of any contaminated injured person offsite with the RAC.

1.1.4 *AUTHORIZE issuance of KI, as appropriate, IAW NC. EP-EP.ZZ-305(Q), Stable Thyroid Blocking.

1.1.5 BRIEF EOF Radiological Assessment Staff as changing conditions warrant.

1.1.6 ASSIST with Event Classification.

1.1.7 *PROVIDE Protective Action Recommendations (PARs), as appropriate, IAW NC. EP-EP.ZZ-0404(Q), Protective Action Recommendations (PAR).
1.1.8 ENSURE LTS is contacted IAW Att 4, Instructions For Habitability, EOF Emergency Ventilation, and Laboratory and Testing Services (LTS).

1.1.9 PERFORM the following applicable steps if a RADIOLOGICAL RELEASE is in progress:

- INFORM the Radiological Assessment Staff immediately when it is known a radiological release is in progress.
- OBTAIN frequent briefings concerning the Offsite Field Team’s assignments from Offsite Team Coordinator (OTC) reports.
- INFORM ERM if Dose Assessment or radiological field surveys show a Protective Action Guideline (PAG) could be exceeded in an area not already covered by a PAR.
- CONSIDER moving essential equipment from the Guard House and the Processing Center.
- OBTAIN ERM approval for the Coast Guard or Helicopter assistance in tracking the plume, if thought necessary.
- INITIATE Contamination Controls IAW Step 1.1.10, first bullet this Attachment.
- REQUEST the RAC to obtain a plant vent isotopic sample and provide the results to the Dose Assessor as soon as possible after the start of a release.
- INSTRUCT the D02A to PERFORM an isotopic dose assessment from the plant vent sample results, determine the NG to Iodine ratio and to communicate the results to the representatives from Delaware Emergency Management Agency (DEMA) and New Jersey Bureau of Nuclear Energy (NJBNE).
• **COORDINATE** with the RAC and recommend travel routes, modes of transportation, and appropriate controls in/out of Salem and Hope Creek Stations for all vehicles and personnel. 

• **DIRECT** the setup of a vehicle decon area, IAW NC,EP-EP.ZZ-0308(Q), Personnel/Vehicle Survey and Decontamination, if necessary. (Discuss with the EPC the use of State Emergency Worker/Vehicle Decon Facilities)

1.1.10 **PERFORM** the following applicable steps upon the declaration of a GENERAL EMERGENCY, if thought appropriate:

• **IMPLEMENT** Contamination Controls. 
  - **NO EATING OR DRINKING IN THE EOF**
  - **SETUP** Step-Off-Pads (SOP).
  - **ESTABLISH** Radiological Postings.

• **ENSURE** habitability is being performed every 30 minutes IAW Attachment 4 of this procedure.

• **IF** a radiological release is in progress and the current or forecast meteorological conditions show a radiological plume will enter the NNE Sector, (EOF Location), **THEN ENSURE** Emergency Ventilation is turned on IAW Attachment 4 of this procedure.
1.0 **STATE LIAISON**

1.1 The State Liaison should **PERFORM** the following:

- **ESTABLISH** communications with the representatives from the States of New Jersey, Delaware, and the NRC, upon their arrival at the EOF.

- **ASSIST** State personnel 15 minute updates of MET/RMS data when radiological monitors are in warning, alarm, or as thought appropriate. (Delaware Emergency Management Agency (DEMA) and the New Jersey Bureau of Nuclear Engineering (NJBNE) personnel have station SPDs display terminals in their areas to obtain MET/RMS data but may need some assistance.)

- **IF** no radiological release is in progress, **THEN PROVIDE** DEMA and NJBNE EOF personnel 30 minute updates of radiological plant vent effluent and meteorological data using Form-4 for Hope Creek or Form-5 for Salem dose assessment input. (This data can be obtained from the EOF dose assessors)

- **IF** a radiological release is in progress, **THEN PROVIDE** DEMA and NJBNE EOF personnel 15 minute updates of radiological plant vent effluent and meteorological data using Form-4 for Hope Creek or Form-5 for Salem dose assessment input. (This data can be obtained from the EOF dose assessors)

- **REFER** State and Federal personnel to the RMS Status Board for current and trended RMS data if SPD is not operable in the EOF.

- **REFER** State and Federal personnel to appropriate contacts for other support in the EOF, when applicable.

2.0 **RMS and MET Data**

2.1 **OBTAIN** radiological and effluent flow data from the following sources:

- **(HOPE CREEK)** SPDs and the RM-11 Displays (Refer to EP Aid-019 and EP Aid-090 respectively, for instructions in obtaining data).
• (SALEM) SPDS Radiation Monitoring Screens (refer to EP Aid-018 for instructions to obtain data) and/or from Control Room FAX from the SRPT (SC.EP-EP.ZZ-0301 Attachment 2 for Unit #1 and Attachment 3 for Unit #2).

- INFORM the RSM immediately, INCLUDING INTERRUPTING MEETINGS, if any of the High Range Containment Monitor increases to the following values. (Also alert the RSM of increases in effluent monitors at Salem and Hope Creek.)

(HOPE CREEK ONLY)

- DAPA “A” or DAPA “B” = ≥2,000 R/hr - (indication fuel clad barrier has been lost)
- DAPA “A” or DAPA “B” >10,000 R/hr - (indication for potential loss of Containment.)

(SALEM UNITS 1 & 2 ONLY)

- R44 “A” or R44 “B” >300 R/hr - (indication fuel clad and RCS barriers have been lost)
- R44 “A” or R44 “B” >2,000 R/hr - (indication of potential loss of Containment)

2.2 OBTAIN MET data from one of the following sources:

- Hope Creek or Salem SPDS
- Salem/Hope Creek TSC or Control Room
- National Weather Service (NWS) (609-261-6604 or 609-261-6602)
- Internet (Use EP Aid-025 for an appropriate example)
2.3  **INFORM** the RSM & Duty Dose Assessor of conditions that could initiate a PAR Upgrade (Must be at a General Emergency).

- Wind Shift to a new sector
- Any meteorological change which could increase the concentration of the release, such as decreasing wind speed, increasing stability class or less rain.
- Increasing Projected TEDE Dose ≥1,000 mRem or increasing Projected Thyroid Dose ≥5,000 mRem as seen on a MIDAS SSCL page 2.
- Reports from an Offsite Field Team with increasing dose rates that could indicate exceeding a PAG.

2.4  **REFER** to EP Aid-048 (Salem) or EP Aid-049 (Hope Creek), for information on Effluent and Area Radiation Monitors.

2.5  **REFER** to EP Aid-018 (Salem) or EP Aid-019 (Hope Creek), or EP Aid-090 (HC EOF RM-11), for instructions on using SPDS to obtain MET and Radiological information including effluent process flows.

2.6  **IF SPDS is not available in the EOF, THEN ENSURE** the MET/RMS data is being recorded and updated on the RMS Status Board approximately every 15 minutes unless directed otherwise by the RSM.
1.0 **HABITABILITY**

1.1 Habitability Should Be Performed In The Following Manner:

- **PLACE** at least 3 electronic dosimeters within the EOF and in adjoining rooms that are occupied to monitor exposure.

- **SETUP** the AIR Monitoring Sampler and set background at 2 times the current background (monitor background 30 minutes after starting).

1.1.1 IF a GENERAL EMERGENCY is declared, THEN PERFORM EOF Habitability surveys every 30 minutes.

1.1.2 **LOG** results on Form 3, EOF Habitability Log.

1.1.3 **INFORM** the RSM if any criteria below is exceeded:

- External dose equivalent (EDE) dose rates are > 500 mR/hr within the facility, immediate evacuation should be considered.

- EDE dose rates are > 250 mR/hr, but < 500 mR/hr within the facility, evacuation within (1) hour should be considered.

- The EDE dose rates are > 50 mR/hr, but < 250 mR/hr, within the facility, evacuation within (2) hours should be considered.

1.1.4 **PERFORM** a survey of areas inside and outside the Energy and Environmental Resource Center (EERC), as thought appropriate by the RSM, and LOG on Form – 3, EOF Habitability Log.
2.0 **EOF EMERGENCY VENTILATION**

**NOTE**

There are two Bypass Switches which can be used to initiate the Pressurized Mode of the EOF Ventilation System. Switch #1 is located in the Mechanical Room (Room 46) (the switch is located on the right hand wall) and Switch #2 is located in the EOF Dose Assessment area of the EOF. Both switches are three-way switches and both operate the system. A light on the switch will illuminate when the system is running.

2.1 **PLACE** the EOF Ventilation In Pressurized Mode as follows:

2.1.1 **LOCATE** EOF Bypass Switch #1 or #2.

2.1.2 **POSITION** the Bypass Switch to the "ON" position (switch illuminates when the system is "ON").

2.1.3 **LOCATE** the DP Gauge next to the Lead’s Conference Room in the EOF. **RECORD** the DP Gauge reading on the line below:

(NOTIFY the RSM if the gauge reading is < 0.025 inches)

2.1.4 **NOTIFY** the RSM when EOF Ventilation is in the Pressurized Mode.

2.1.5 **RETURN** the EOF Ventilation to the Normal Mode when Pressurized operation is no longer needed by changing position of the Bypass Switch and verifying that the light goes out.

3.0 **EOF VENTILATION MAINTENANCE**

3.1 As needed, **PERFORM** The Following Maintenance On The EOF Ventilation:

3.1.1 **IF** the following conditions exist, **THEN PERFORM** the following maintenance/ALARA tasks on the EOF Emergency Ventilation HEPA Units.

- **IF** the EOF is in the plume path, **THEN ENSURE** that dose rates are obtained on the HEPA filter every hour after EOF ventilation in placed in the Pressurized mode.

- **IF** the contact dose rate is > 500 mR/hr, **THEN CONSIDER** changing out the HEPA unit filter.
The Radiation Protection Supervisor – Offsite may be contacted for additional technical support (people, advice concerning handling, storage, etc.) in changing out the HEPA filters, as necessary.

3.1.2 **IF** any of the following occurs, **THEN ENSURE** the HEPA units are changed out IAW NC.EP-FT.ZZ-0008(Q), Test Procedures for EOF Backup Generator, Vent System and HVAC Filter Replacement.

- Dose rates are > 1000 mR/hr on contact of the HEPA units.
- At a high DP gauge reading (> 1.75 inches) or at the RSM’s discretion (gauge on front of HEPA housing)

### 4.0 LABORATORY AND TESTING SERVICES (LTS)

**NOTE**

LTS phone number may be obtained from the EP Phone Directory available in the Administrative Support Area

- **CONTACT** LTS if a radioactive release is thought to be likely or a radioactive release is in progress:

- **REQUEST** Personnel From LTS Perform The Following:
  - **ASSEMBLE** LTS Emergency Environmental Sampling personnel at the EOF and **REPORT** to the RSM.
  - **REQUEST** the coordinator from LTS **REPORT** to the EOF, if environmental sampling is necessary.
  - **CONSIDER** the change out of air samples and dosimetry in the downwind sector from the radioactive plume and two sectors to each side.
  - **ASSIST** the RSM in determination of an environmental sampling plan.
  - After the radioactive plume is terminated, **DISPATCH** the environmental sampling teams to collect samples, in accordance with LTS procedures.
RESERVED

See
EP Aid-048 (Salem)
or
EP Aid-049 (Hope Creek)

For RMS Quick Reference
See
EP Aid-018 (Salem) or EP Aid-019 (HC)
For aid in using Salem SPDS or HC CRIDS/SPDS
Or
EP Aid-090 (HC EOF RM-11)
For aid in using the HC EOF RM-11 Displays
<table>
<thead>
<tr>
<th>NAME</th>
<th>SRD NUMBER</th>
<th>BADGE OR EMPLOYEE NUMBER</th>
<th>ISSUED DATE</th>
<th>RTN DATE</th>
<th>INITIAL VALUE (mRem)</th>
<th>END VALUE (mRem)</th>
<th>TOTAL DOSE (mRem)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To the best of my knowledge, my current annual exposure is _______ mrem.
**DATE:** __________

**Instrument Type:** ______  **Serial Number:** ______  **Calibration Due Date:** ______

**Source Check Sat:** □ Yes  □ No

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TIME</th>
<th>DOSE RATE (mR/hr)</th>
<th>CONTAMINATION (CPM)</th>
<th>INITIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Date: ___/___/___ Time: ________________

RX POWER: _______ % / RX TRIP at: __________ hrs. / ATWS: □ YES / □ NO

Meteorological Information:

Wind Speed @ 33': _______ mph  Wind Speed @ 300': _______ mph
Wind Direction (From) @ 33': _______ degrees
Delta T: _______ °C (□ 300'-33') OR (Stability Class for _______ □ 150'-33' Delta T)
Rainfall: _______ inches/15 minutes

Hope Creek Vent Flow and Radiological Data: (Only use this section if HC is in Emergency Classification)

<table>
<thead>
<tr>
<th>NPV Flow:</th>
<th>CFM</th>
<th>SPV Flow:</th>
<th>CFM</th>
<th>FRVS Flow:</th>
<th>CFM</th>
<th>HTV Flow:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPV NG:</td>
<td>µCi/cc</td>
<td>SPV NG:</td>
<td>µCi/cc</td>
<td>FRVS NG:</td>
<td>µCi/cc</td>
<td>HTV NG:</td>
</tr>
</tbody>
</table>

For NPV, SPV and FRVS use:
- Low Range if between 1.00E-08 and 1.00E-02 µCi/cc
- Mid Range if between 1.00E-02 and 1.00E+01 µCi/cc
- High Range if between 1.00E+01 and 1.00E+05 µCi/cc

Flow Values: The flow is based on the expected Drywell Leakage in CFM. If at the design basis leak rate of 0.5% of the containment volume per day, then assume 1.1 CFM. 10% per day leakage is 2.13E+01 CFM. 100% per day leakage is 2.13E+02 CFM and Catastrophic failure is 100% in and hour and is 5.11E+03 CFM.

Hope Creek "What If" Containment Leakage

<table>
<thead>
<tr>
<th>Drywell DAPA Monitor Value</th>
<th>R/hr</th>
</tr>
</thead>
</table>

Enhanced Mode and MULTIPLE Unit/Source Term MIDAS (Nuclide Mix ID Values)

<table>
<thead>
<tr>
<th>Run 1 Unit = _______</th>
<th>Run 2 Unit = _______</th>
<th>Run 3 Unit = _______</th>
<th>Run 4 Unit = _______</th>
<th>Run 5 Unit = _______</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu = _______</td>
<td>Menu = _______</td>
<td>Menu = _______</td>
<td>Menu = _______</td>
<td>Menu = _______</td>
</tr>
<tr>
<td>Mix ID = _______</td>
<td>Mix ID = _______</td>
<td>Mix ID = _______</td>
<td>Mix ID = _______</td>
<td>Mix ID = _______</td>
</tr>
</tbody>
</table>

Comments:

Nuclear Common
### Meteorological Information:
- Wind Speed @ 33': ________ mph
- Wind Speed @ 300': ________ mph
- Wind Direction (From) @ 33': ________ degrees
- Delta T: ________ °C (☐ 300'-33') OR (Stability Class for ________
- Rainfall: ________ inches/15 minutes

### Salem Vent Flow and Radiological Data:

<table>
<thead>
<tr>
<th>Plant Vent:</th>
<th>CFM</th>
<th>If process flow exists for this release pathway, enter the appropriate flow, otherwise mark N/A. If process flow exists for this release pathway, enter the appropriate NG value for the R41 or R45 value (ONLY one).</th>
</tr>
</thead>
<tbody>
<tr>
<td>R41 __ NG:</td>
<td>µCi/cc</td>
<td><strong>For R41 use:</strong>&lt;br&gt;R41A if between 1.00E-08 and 1.00E-02 µCi/cc&lt;br&gt;R41B if between 1.00E-02 and 1.00E+01 µCi/cc&lt;br&gt;R41C if between 1.00E+01 and 1.00E+05 µCi/cc</td>
</tr>
<tr>
<td>S/G to Atm Release:</td>
<td>Lbs/hr</td>
<td>ONLY enter S/G to atmosphere flow if a tube leakage or a tube rupture makes this a release pathway through a steam relief or a MS-10 valve. The default flow rate is 4.50E+05 Lbs/hr but as pressure decreases so will flow. Engineering support can provide flow data but use default to avoid delaying dose assessment results. Use actual flow value when available.</td>
</tr>
<tr>
<td>R46 __:</td>
<td>mR/hr</td>
<td>ONLY enter R46 value if a S/G release to atmosphere is in progress. S/G leakage is monitored by the plant vent monitor if not through the relief or MS-10.</td>
</tr>
<tr>
<td>Containment Leakage</td>
<td>CFM</td>
<td>This would normally be a “What If” calculation when high activities are bottled up in Containment. The Design Basis leakage is 0.1% per day which is about 1.82 CFM (1.0% per day = 18 CFM, 10% per day = 182 CFM, 100% per day = 1820 CFM, 100% in an hour = 43,700 CFM for Catastrophic Failure). Engineering can assist in determining the leak rates if this is the release pathway.</td>
</tr>
<tr>
<td>R44 __:</td>
<td>R/Hr</td>
<td>R44 response to high levels of activity released to containment during a LOCA should result in both R44 monitors reading approximately the same. Use the highest valid reading from the R44s.</td>
</tr>
</tbody>
</table>

### Enhanced Mode and MULTIPLE Unit/Source Term MIDAS (Nuclide Mix ID Values)

<table>
<thead>
<tr>
<th>Run 1</th>
<th>Run 2</th>
<th>Run 3</th>
<th>Run 4</th>
<th>Run 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit = ______</td>
<td>Unit = ______</td>
<td>Unit = ______</td>
<td>Unit = ______</td>
<td>Unit = ______</td>
</tr>
<tr>
<td>Menu = ______</td>
<td>Menu = ______</td>
<td>Menu = ______</td>
<td>Menu = ______</td>
<td>Menu = ______</td>
</tr>
<tr>
<td>Mix ID = ______</td>
<td>Mix ID = ______</td>
<td>Mix ID = ______</td>
<td>Mix ID = ______</td>
<td>Mix ID = ______</td>
</tr>
</tbody>
</table>

**Comments:**

**Rx POWER:** ______ %  /  **Rx TRIP at:** ________ hrs.  /  **ATWS:** ☐ YES / ☐ NO
PSEG NUCLEAR L.L.C.
EMERGENCY PREPAREDNESS
NC.EP-EP.ZZ-0602(Q) - REV. 07

EOF RADIOLOGICAL DOSE ASSESSMENT

USE CATEGORY: II

A. Biennial review performed: Yes ____  No ____  N/A X

B. Packages and Affected Document Numbers incorporated into this revision: None

C. The following OTSCs were incorporated into this revision: None

REVISION SUMMARY:

- Added 2 bullets to Step 3.1
- Revised step 5.1.1 to add "including the units affected"
- Deleted Note 5.1 – Rad release definition updated
- Revised remainder of section 5.1
- Step 5.1.1 – reordered steps and deleted former steps C and D
- Step 7.2.3 - corrected procedure title
- Deleted step 7.2.5 – not a cross reference, renumbered section
- Deleted step 7.2.6 – replaced with EP Aids 018, 019 and 090
- Attachment 1 – reserved
- Attachment 2 – reserved
- Attachment 3 – updated descriptions and deleted TEDE Dose Rate and Thyroid CDE Dose Rate prints
- Attachment 4 - reserved

IMPLEMENTATION REQUIREMENTS

Effective Date: ________________
# EOF RADIOLOGICAL DOSE ASSESSMENT

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE</td>
<td>2</td>
</tr>
<tr>
<td>2.0</td>
<td>PREREQUISITES</td>
<td>2</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS</td>
<td>2</td>
</tr>
<tr>
<td>4.0</td>
<td>EQUIPMENT REQUIRED</td>
<td>2</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>5.1 Radiological Assessment Duties</td>
<td>2</td>
</tr>
<tr>
<td>6.0</td>
<td>RECORDS</td>
<td>6</td>
</tr>
<tr>
<td>7.0</td>
<td>REFERENCES</td>
<td>6</td>
</tr>
</tbody>
</table>

## ATTACHMENTS

- ATTACHMENT 1 - Reserved .............................................................. 7
- ATTACHMENT 2 - Reserved .............................................................. 8
- ATTACHMENT 3 - MIDAS Report Guidance ........................................... 9
- ATTACHMENT 4 - Reserved .............................................................. 10
- ATTACHMENT 5 - Iodine Correction Factor ........................................ 11
1.0 **PURPOSE**
Provide direction to EOF Radiological Dose Assessment staff for proper performance of their duties and responsibilities.

2.0 **PREREQUISITES**

2.1 **Prerequisites To Be Followed Prior To Implementing This Procedure**

2.1.1 Implement this procedure:

- At the discretion of the ERM.
- Upon staffing of the EOF.

2.1.2 Personnel who implement this procedure shall be trained and qualified IAW the Emergency Plan.

3.0 **PRECAUTIONS AND LIMITATIONS**

3.1 **Precaution and Limitations To Be Followed Prior To Implementing This Procedure**

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

- Since the Quick Dose Projection does not decay correct for time since reactor shut down, this mode should not be used ≥ 90 minutes from reactor shutdown. Use Enhanced Dose Projections, NUREG 1228, Multiple Accident or Back Dose Calculations.

- Run dose projections using Multiple Accident mode even on a single unit if the different release pathways would have a different nuclide mix.

4.0 **EQUIPMENT REQUIRED**
As provided in the EOF.

5.0 **PROCEDURE**

5.1 **RADIOLOGICAL ASSESSMENT DUTIES**

5.1.1 OBTAIN a briefing on current radiological conditions and the emergency status from the Radiological Support Manager (RSM) or RSM designee. The following information should be provided during the briefing including the units affected.
A. WHAT is the Emergency classification and the basis?  

B. HAVE any Fission Product Barriers (RCS, Fuel, Containment) been breached?  

C. IF YES, THEN which barriers have been breached?  

D. IS a radiological release in progress?  

E. IF YES, THEN what magnitude is the radiological release _______ uCi/Sec and the time it started _______?  

5.1.2 IF a log book is being kept, THEN RECORD any pertinent information or data in the EOF Dose Assessment Log Book, as time permits.  

NOTE  
A blank Station Status Checklist (SSCL) may be obtained from ECG Attachment 8.  

5.1.3 Review the current meteorological forecast (EP Aid-025 contains information on suggested Website) and onsite MET conditions (EP Aid-018 (Salem) and EP Aid-019 (HC) contain instructions for obtaining MET data).  

5.1.4 Review the effected station SPDS (also EOF RM-11 for HC) to determine current potential release pathways looking at ventilation process flows (Salem - Plant Vent or if a SGTR exists / Hope Creek – SPV, NPV, FRVS or HTV). EP Aid-018 (Salem), EP Aid-019 or 090 For assistance using Salem SPDS, HC CRIDS/SPDS or HC EOF RM-11.  

5.1.5 Review the effected stations SPDS or for HC also use the EOF RM-11 to look at the potential effluent radiological detectors for increasing trends. (EP Aids listed in 5.1.4 may be helpful.) EP-Aid-048 (Salem) and EP Aid-049 (HC) provide additional information on RMS monitors at the stations. The normal effluent pathways are:  

- Salem – Plant Vent  
- Hope Creek – SPV and NPV  

5.1.6 If a radiological release has been declared perform the following:  
(if no radiological release is currently in progress go to step 5.1.7)  

- Review any SSCLs that may be in the EOF Dose Assessment in baskets.
- Contact the individual currently performing dose assessment (SRPT or TSC) and compare effluent monitors and potential release pathways being calculated on current SSCLs.
- When instructed to take turnover for dose assessment complete turnover including when the next SSCL is due. Inform the RSM when complete.
- If the reactor is still at power implement either NC.EP-EP.ZZ-0309(Q) to run MIDAS in Quick Dose Projection or for entering an Isotopic on a Spreadsheet or NC.EP-EP.ZZ-0313(Q) to use Enhanced Dose Projections.
- If the reactor is shutdown or if there are multiple unit releases or multiple release pathways from a single unit then prepare to start dose assessment using NC.EP-EP.ZZ-0313(Q).
- After the EOF is activated produce a SSCL every 30 minutes, if a radiological release is in progress.

5.1.7 If a radiological release is not currently in progress then make preparations to perform dose assessment:
- If the reactor is still at power implement either NC.EP-EP.ZZ-0309(Q) to run MIDAS in Quick Dose Projection or for entering an Isotopic on a Spreadsheet or NC.EP-EP.ZZ-0313(Q) to use Enhanced Dose Projections.
- If the reactor is shutdown or if there are multiple unit releases or multiple release pathways from a single unit then prepare to start dose assessment using NC.EP-EP.ZZ-0313(Q).
- Start MIDAS and make dose assessment run on the effected unit.
- Run any "What If" calculations as requested by the RSM.
- Commence dose assessment, if a Radiological Release is declared and provide the SSCL page 2, from MIDAS to the RSM.

5.1.8 After the EOF is activated and responsible for dose assessment, INFORM the RSM, if:
- The Projected TEDE (4 Day) dose is >1000 mRem, also include distance from the plant were it is exceeded from the SSCL.
- The Projected Thyroid CDE dose is >5000 mRem, also include distance from the plant were it is exceeded from the SSCL.
- Or, if the Projected TEDE or Thyroid CDE dose moves to a location further from the station (For example the Projected TEDE dose was 1200 mRem at 2 miles for the last hour and now it is 1200 mRem at 5 miles).
- If the Primary Containment High Range monitors are increasing (R44 at Salem or the DAPA monitors at Hope Creek. If increasing the RSM should provide specific values where he wants to be informed.)
- If in a General Emergency Classification, in addition to above be aware of any conditions which could cause a radiological release to become more concentrated such as a significant drop in wind speed,
an increase in NRC Stability Class (delta T increasing), less rainfall
OR increases in effluent

5.1.9 PRODUCE the SSCL every 30 minutes and present it to the RSM
under any of the following conditions:

- IF a radiological release is in progress.
- IF asked to do so by the RSM.

5.1.10 DETERMINE which MIDAS reports to print out and present to the
RSM, IAW Attachment 3, MIDAS Report Guidance.

5.1.11 TRACK and trend the affected Plant’s radiological conditions by
monitoring the RMS. Refer to Step 5.1.4 and 5.1.5 for methods to
obtain RMS data.

**NOTE:**

- **To obtain a release rate from a concentration:**
  \[
  \left[ (\text{uCi/cc} \times \text{Plant Vent Flow Rate}) \times 472 \right] \text{ uCi/second}
  \]

- **To obtain a concentration from a release rate:**
  \[
  \left[ \frac{\text{uCi/second}}{\text{Plant Vent Flow Rate}} \right] \times 472 \text{ uCi/cc}
  \]

5.1.12 IF a radiological release is in progress, THEN calculate a Noble
Gas to Iodine Correction Factor (ICF), IAW Attachment 5, Iodine
Correction Factor after a plan effluent sample has been analyzed.

5.1.13 CONVERT MIDAS adult committed dose equivalent (CDE) to child
CDE by multiplying the MIDAS CDE by 2 if needed.

6.0 **RECORDS**

Return completed procedure and any information or data thought to be pertinent by the
dose assessor, to the Emergency Preparedness Manager.

7.0 **REFERENCES**

7.1 References

None
7.2 Cross References

7.2.1 NC.EP-EP.ZZ-0309(Q), Dose Assessment
7.2.2 NC.EP-EP.ZZ-0313(Q), Advanced Dose Assessment (MIDAS) Instructions
7.2.3 HC.RP-AR.SP-0001(Q), Radiation Monitoring System Alarm Response
7.2.4 NC.EP-EP.ZZ-0601(Q), Radiological Dose Assessment
7.2.5 PSEG Nuclear Emergency Plan
7.2.6 EP Aid-018 Salem SPDS - Instruction for MET and Radiological Data
7.2.7 EP Aid-019 Hope Creek CRIDS SPDS – Instructions for Met and Radiological Data
7.2.8 EP Aid-090 HC EOF RM-11 - Instructions for Radiological and Flow Data
RESERVED

See

EP Aid-018 - Salem SPDS - Instruction for MET and Radiological Data

EP Aid-019 - Hope Creek CRIDS SPDS – Instructions for Met and Radiological Data

EP Aid-090 - HC EOF RM-11 - Instructions for Radiological and Flow Data

As Needed
RESERVED

PAR Upgrades are performed IAW NC.EP-EP.ZZ-0404(Q)
NOTE
This Attachment is to be used only as guidance. Reports will be provided at the request of the RSM

1.0 NO RADIOLOGICAL RELEASE IN PROGRESS

Print Out The Following Plots
• TEDE 4-DAY DOSE PLOT OR Thyroid CDE Dose Plot
• As requested by the RSM.

2.0 RADIOLOGICAL RELEASE IN PROGRESS

IF Requested Print the Following Plots And Prints
• MIDAS MAP TEDE 4-DAY PLOT (FOR LEADS MEETINGS).
• MIDAS PROJECTED DOSE SUMMARY PRINT
• MIDAS MET AND RAD SUMMARY PRINT
See

EP Aid-048 - Salem Radiation Monitoring System Summary
EP Aid-049 - Hope Creek Radiation Monitoring System Summary

As Needed
1.0 IODINE CORRECTION FACTOR CALCULATION USING PLANT VENT DATA

1.1 Perform The Following To Obtain An Iodine Correction Factor:

1.1.1 Obtain the Plant Vent Iodine 131 data in uCi/cc from the Radiation Protection Supervisor-Offsite (RPS-Offsite) located in the TSC.

1.1.2 Obtain the Plant Vent RMS Noble Gas value in uCi/cc from the appropriate effluent monitor that the radiological release is being discharged from.

1.1.3 Divide the Iodine value by the Plant Vent Noble Gas value. This will produce the Iodine Correction Factor (ICF).

\[
\frac{\text{Iodine 131 (uCi/cc)}}{\text{Plant Vent RMS Noble Gas Value (uCi/cc)}} = \text{ICF}
\]

1.1.4 Multiply most current RMS Noble Gas monitor value by the ICF. The product will be the Corrected Iodine Value.

1.1.5 Obtain the Corrected Iodine Value at least every 30 minutes by multiplying the most current Plant Vent RMS Noble Gas monitor value by the ICF.

1.1.6 Implement NC.EP-EP.ZZ-0309(Q), Dose Assessment MIDAS Instructions, Attachment 3, Manual Dose Assessment, and follow appropriate steps.

1.1.7 Input the Corrected Iodine Value into the appropriate RMS – DI location on the MIDAS spreadsheet (i.e., FRVS - DI, etc.).
NOTE
Use the current Plant Vent flow rate for the –DI flow rate.

1.1.8 UPDATE the ICF whenever more recent Plant Vent Iodine 131 is available.

2.0 IODINE CORRECTION FACTOR CALCULATION USING FIELD TEAM DOSE PROJECTION DATA

NOTE

- The following method will only work if the Field Monitoring Team data is collected at the MIDAS projected center line at a distance of 2, 5, or 10 miles.
- The primary methodology of obtaining the ICF should be performed IAW Section 1.0 of this Attachment

2.1 Perform The Following To Obtain An ICF From Field Monitoring Data:

2.1.1 RUN an automatic SSCL. Use the Plant Vent Noble Gas RMS monitor value and current 15 minute MET data if in Manual MIDAS mode.

2.1.2 RECORD the Projected Dose Rate of interest (SSCL TEDE DOSE RATE) in Space A., the distance in miles in Space B., and the direction in Space C.

A.______(mRem/hour TEDE Rate) B.______(Miles) C.______(Degrees)
2.1.3 RECORD the Projected X/Q of interest (SSCL X/Q) in Space D. ______

D. ______

2.1.4 RECORD the Field Team's measured CLOSED WINDOW reading at the location of interest in Space E. ______

E. ______ mR/hour

2.1.5 RECORD the Field Team Iodine 131 Sample in uCi/cc in Space F. IAW NC.EP-EP.ZZ-0603(Q), Field Monitoring. ______

F. ______ uCi/cc

2.1.6 CALCULATE the Iodine 131 Release Rate as follows and record in Space G.:

\[
\frac{A}{E} \times \frac{1}{D} \times F \times 1.00E+06 = G. \text{ ______ (uCi/Sec)}
\]

\[
\text{ (1.00E+06 = Conversion Factor from Cubic Meters to cc)}
\]

2.1.7 OBTAIN the Noble Gas Release Rate (uCi/Sec) using the same SSCL the TEDE DOSE RATE and X/Q that were obtained from and record in Space H. ______

H. ______

2.1.8 DETRERMINE the Iodine Correction Factor (ICF) as follows: ______

\[
\text{Iodine Release Rate in uCi/Sec (Space G.) ______ = ICF}
\]

\[
\text{Noble Gas Release Rate in uCi/Sec (Space H.)}
\]

2.1.9 FOLLOW the directions in 1.0, Steps 1.1.4 - 1.1.9 of this Attachment for instructions in the proper use of the ICF. ______
A. Classification

1. CALL communicators to the Control Room

2. If time allows, DIRECT Classification Independent Verification to be performed

3. After Classification Independent Verification is obtained:
   - DECLARE the UNUSUAL EVENT (enter time and date on ICMF)
   - COMPLETE / APPROVE the ICMF

4. If time allows OBTAIN accuracy peer check of the completed ICMF

5. Continue with NOTIFICATION AND ACTIVATION as follows:
   - If desired, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (Optional at UE) (EP 96-003)
   - DIRECT the Primary Communicator to implement ECG Attachment 6
   - DIRECT the Secondary Communicator to implement ECG Attachment 8 for an UNUSUAL EVENT
   - If ACTIVATION was performed, VERIFY / DIRECT VERIFICATION of ERO Emergency Callout activation
   - UPDATE Crew/Facility with Emergency Classification Level and potential escalation criteria
   - IMPLEMENT NC.EP-EP.ZZ-0102, EC Response
INITIAL CONTACT MESSAGE FORM

I. THIS IS ____________________, COMMUNICATOR IN THE CONTROL ROOM
   (NAME)

   AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) No.______

II. THIS IS NOTIFICATION OF AN UNUSUAL EVENT WHICH WAS
   DECLARED AT _________________ ON __________ ON __________
   (Time - 24 HR CLOCK) (DATE)
   EAL # ________________ DESCRIPTION OF EVENT ________________

   Any release above normal, attributable to the event. See Basis
   for examples.

III. ☐ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
    ☐ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT

IV. 33 FT. LEVEL WIND DIRECTION (From): __________________________
    WIND SPEED: __________________________
    (From MET Computer /SPDS) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

   EC Initials
   (Approval to Transmit ICMF)

SGS               Rev.02
Classification

- **Non-Delegable Actions:** Actions taken in the process of emergency classification maybe delegated as needed with the exception of the 4 non-delegable actions listed below (1)
  - Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  - Make decisions to notify and recommend protective actions to offsite agencies
  - Provide overall direction, control and coordination of PSEG Nuclear’s Emergency Response
  - Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

- **Communicators:** Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

- **Independent Verification:**
  - When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  - Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions. (2)
    - STA or designee performs Independent Verification for SM
    - SM or designee performs Independent Verification for EDO
    - EDO or designee performs Independent Verification for ERM
  - During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
• **Accuracy Peer Check:** Have the STA, TSS, SSM or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:
  o verification that the correct form has been used for the classification
  o review of all applicable fields that have been completed by the EC during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
  o EC approval initials have been completed.

• **Classification Timeliness:** Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length. (3)

• **Rad Release Determination (Salem):** Any of the following conditions constitutes a release in progress due to the event:
  o Increase in Plant Vent Release Rate (NOT caused by operational transients or ventilation changes) which is caused by the EVENT.
  o A Steam Generator rupture which is faulted to the atmosphere (SRV, Atmospheric Vent or Line Break)
  o Evidence of an UNMONITORED release to atmosphere, examples include:
    ▪ Primary to Secondary leak and the steam driven feed pump is in service
    ▪ Bypass release from the Aux Building through the Electrical Pen
    ▪ Leakage from the Containment directly to atmosphere after a LOCA
    ▪ Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line
**Notification**

- **Callout Activation: UE**
  - Emergency Response Organization (ERO) Emergency Callout Activation is optional for an Unusual Event and may be implemented at the discretion of the Emergency Coordinator (EC).
  - Activation maybe delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  - Activate the ERO Emergency Callout system using the posted instructions titled “Emergency Callout Activation”.
  - ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicators phone. If callout fails, then utilize backup procedures to alert the ERO (EP Aid-0032)

**References:**
(1) Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
(2) ECG Introduction and Usage Section 8.4.8
(3) ECG Introduction and Usage Section 8.2.1
(4) EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
A. CLASSIFICATION

1. CALL communicators to the Control Room.

2. IF a Security Event is in progress, THEN IMPLEMENT the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.

3. If time allows, DIRECT Classification Independent Verification to be performed

4. After Classification Independent Verification is obtained:
   • DECLARE the ALERT (enter time and date on ICMF)
   • COMPLETE / APPROVE the ICMF

5. If time allows OBTAIN accuracy peer check of the completed ICMF

6. Continue with NOTIFICATION AND ACTIVATION as follows:
   • If not previously performed, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (EP 96-003)
   • DIRECT the Primary Communicator to implement ECG Attachment 6
   • DIRECT the Secondary Communicator to implement ECG Attachment 8 for an ALERT
   • If not previously performed, VERIFY / DIRECT VERIFICATION of ERO Emergency Callout activation
   • UPDATE Crew/Facility with Emergency Classification Level and potential escalation criteria
   • IMPLEMENT NC.EP-EP.ZZ-0102, EC Response
INITIAL CONTACT MESSAGE FORM

I. THIS IS ____________________, COMMUNICATOR IN THE ☐ CONTROL ROOM ☐ TSC
   AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) No. ______

II. THIS IS NOTIFICATION OF AN ALERT WHICH WAS
   DECLARED AT ____________________ ON ________________
       (Time - 24 HR CLOCK) (DATE)
   EAL # ________________ DESCRIPTION OF EVENT ________________

   Any release above normal, attributable to the event. See Basis for examples.

III. ☐ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
     ☐ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT

IV. 33 FT. LEVEL WIND DIRECTION (From): ________________ WIND SPEED: _________
    (From MET Computer/SPDS) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

__________________________________________
EC Initials (Approval to Transmit ICMF)

SGS
Rev. 02
BASIS – ALERT ICMF

Classification

• **Non-Delegable Actions:** Actions taken in the process of emergency classification maybe delegated as needed with the exception of the 4 non-delegable actions listed below (1)
  
  o Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  
  o Make decisions to notify and recommend protective actions to offsite agencies
  
  o Provide overall direction, control and coordination of PSEG Nuclear’s Emergency Response
  
  o Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

• **Communicators:** Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

• **Independent Verification:**
  
  o When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  
  o Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions. (2)
    
    ▪ STA or designee performs Independent Verification for SM
    
    ▪ SM or designee performs Independent Verification for EDO
    
    ▪ EDO or designee performs Independent Verification for ERM
  
  o During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
• **Accuracy Peer Check:** Have the STA, TSS, SSM or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:
  o verification that the correct form has been used for the classification
  o review of all applicable fields that have been completed by the SM during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
  o EC approval initials have been completed.

• **Classification Timeliness:** Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length. (3)

• **Rad Release Determination (Salem):** Any of the following conditions constitutes a release in progress due to the event:
  o Increase in Plant Vent Release Rate (NOT caused by operational transients or ventilation changes) which is caused by the EVENT.
  o A Steam Generator rupture which is faulted to the atmosphere (SRV, Atmospheric Vent or Line Break)
  o Evidence of an UNMONITORED release to atmosphere, examples include:
    ▪ Primary to Secondary leak and the steam driven feed pump is in service
    ▪ Bypass release from the Aux Building through the Electrical Pen
    ▪ Leakage from the Containment directly to atmosphere after a LOCA
    ▪ Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line
Notification

- **Callout Activation (Alert, SAE, GE):**
  - Emergency Response Organization (ERO) Emergency Callout Activation **is required** for an Alert or higher classification.
  - Activation maybe delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  - Activate the ERO Emergency Callout system using the posted instructions titled "Emergency Callout Activation".
  - ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicators phone. If callout fails, then utilize backup procedures to alert the ERO (EP Aid-0032)

References:
(1) Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
(2) ECG Introduction and Usage Section 8.4.8
(3) ECG Introduction and Usage Section 8.2.1
(4) EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
ATTACHMENT 3
SITE AREA EMERGENCY

A. CLASSIFICATION

1. CALL communicators to the Control Room.

2. IF a Security Event is in progress, THEN IMPLEMENT the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.

3. If time allows, DIRECT Classification Independent Verification to be performed

4. After Classification Independent Verification is obtained:
   - DECLARE the SITE AREA EMERGENCY (enter time and date on ICMF)
   - COMPLETE / APPROVE the ICMF

5. If time allows OBTAIN accuracy peer check of the completed ICMF

6. Continue with NOTIFICATION AND ACTIVATION as follows:
   - If not previously performed, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (EP 96-003)
   - DIRECT the Primary Communicator to implement ECG Attachment 6
   - DIRECT the Secondary Communicator to implement ECG Attachment 8 for a SITE AREA EMERGENCY
   - If not previously performed, VERIFY / DIRECT VERIFICATION of ERO Emergency Callout activation
   - UPDATE Crew/Facility with Emergency Classification Level and potential escalation criteria
   - IMPLEMENT NC.EP-EP.ZZ-0102, EC Response
INITIAL CONTACT MESSAGE FORM

I. THIS IS ____________________, COMMUNICATOR IN THE ☐ CONTROL ROOM ☐ TSC
   AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) No. _____

II. THIS IS NOTIFICATION OF AN SITE AREA EMERGENCY WHICH WAS
    DECLARED AT ___________________ ON ___________________ (Time - 24 HR CLOCK) (DATE)
    EAL # ___________________, _____________________, ___________________
    DESCRIPTION OF EVENT: __________________________________________
    __________________________________________
    __________________________________________
    __________________________________________

III. ☐ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
     ☐ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT
     Any release above normal, attributable to the event. See Basis for examples.

IV. 33 FT. LEVEL WIND DIRECTION (From): ___________ WIND SPEED: ___________
    (From MET Computer /SPDS) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

________________________________________________________________________

EC Initials
(Approval to Transmit ICMF)

SGS
Rev. 03
BASIS – SAE ICMF

Classification

- **Non-Delegable Actions:** Actions taken in the process of emergency classification maybe delegated as needed with the exception of the 4 non-delegable actions listed below (1)
  - Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  - Make decisions to notify and recommend protective actions to offsite agencies
  - Provide overall direction, control and coordination of PSEG Nuclear’s Emergency Response
  - Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

- **Communicators:** Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

- **Independent Verification:**
  - When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  - Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions. (2)
    - STA or designee performs Independent Verification for SM
    - SM or designee performs Independent Verification for EDO
    - EDO or designee performs Independent Verification for ERM
  - During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
• **Accuracy Peer Check:** Have the STA, TSS, SSM or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:
  - verification that the correct form has been used for the classification
  - review of all applicable fields that have been completed by the SM during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
  - EC approval initials have been completed.

• **Classification Timeliness:** Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length. (3)

• **Rad Release Determination (Salem):** Any of the following conditions constitutes a release in progress due to the event:
  - Increase in Plant Vent Release Rate (NOT caused by operational transients or ventilation changes) which is caused by the EVENT.
  - A Steam Generator rupture which is faulted to the atmosphere (SRV, Atmospheric Vent or Line Break)
  - Evidence of an UNMONITORED release to atmosphere, examples include:
    - Primary to Secondary leak and the steam driven feed pump is in service
    - Bypass release from the Aux Building through the Electrical Pen
    - Leakage from the Containment directly to atmosphere after a LOCA
    - Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line
**Notification**

- **Callout Activation (Alert, SAE, GE):**
  - Emergency Response Organization (ERO) Emergency Callout Activation **is required** for an Alert or higher classification.
  - Activation maybe delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  - Activate the ERO Emergency Callout system using the posted instructions titled “Emergency Callout Activation”.
  - ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicator’s phone. If callout fails, then utilize backup procedures to alert the ERO. (EP Aid-0032)

**References:**
(1) Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
(2) ECG Introduction and Usage Section 8.4.8
(3) ECG Introduction and Usage Section 8.2.1
(4) EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
ATTACHMENT 4
GENERAL EMERGENCY

A. CLASSIFICATION

1. CALL communicators to the Control Room.

2. IF a Security Event is in progress, THEN IMPLEMENT the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.

3. If time allows, DIRECT Classification Independent Verification to be performed

4. After Classification Independent Verification is obtained:
   - DECLARE the GENERAL EMERGENCY (enter time and date on ICMF)
   - COMPLETE / APPROVE the ICMF

5. If time allows OBTAIN accuracy peer check of the completed ICMF

6. Continue with NOTIFICATION AND ACTIVATION as follows:
   - If not previously performed, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (EP 96-003)
   - DIRECT the Primary Communicator to implement ECG Attachment 6
   - DIRECT the Secondary Communicator to implement ECG Attachment 8 for a GENERAL EMERGENCY
   - If not previously performed, VERIFY / DIRECT VERIFICATION of ERO Emergency Callout activation
   - UPDATE Crew/Facility with Emergency Classification Level and potential escalation criteria
   - IMPLEMENT NC.EP-EP.ZZ-0102, EC Response
INITIAL CONTACT MESSAGE FORM

I. THIS IS ____________________, COMMUNICATOR IN THE ☐ CONTROL ROOM ☐ TSC ☐ EOF
   AT THE SALEM NUCLEAR GENERATING STATION, UNIT(s) No. ______

IIa. ☐ THIS IS NOTIFICATION OF AN GENERAL EMERGENCY WHICH WAS
    DECLARED AT ________________________________________ ON ____________________
        (Time - 24 HR CLOCK) (DATE)

    EAL # __________________, __________________, __________________
    DESCRIPTION OF EVENT: ____________________________________________
        ____________________________________________

    OR

IIb. ☐ THIS IS NOTIFICATION OF A PROTECTIVE ACTION RECOMMENDATION
     UPGRADE MADE AT __________________ HRS ON __________________
         (Time - 24 HR CLOCK) (DATE)
     Reason for PAR Upgrade: ____________________________________________

III. ☐ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
    ☐ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT
       (Any release above normal, attributable to the event. See Basis for examples.)

IV. 33 FT. LEVEL WIND DIRECTION (From): __________________
    WIND SPEED: (From MET Computer /SPDS) (DEGREES) (MPH)

V. ☐ WE RECOMMEND EVACUATION AS FOLLOWS
       __________________ __________________
       __________________ __________________

☐ WE RECOMMEND SHELTERING AS FOLLOWS

☐ WE RECOMMEND MONITOR AND PREPARE
   AS FOLLOWS

☐ WE RECOMMEND THE USE OF KI IN ACCORDANCE WITH STATE
   PROCEDURES

EC Initials
   (Approval to Transmit ICMF)

SGS

Rev. 02
Classification

- **Non-Delegable Actions:** Actions taken in the process of emergency classification maybe delegated as needed with the exception of the 4 non-delegable actions listed below \(^1\)
  - Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  - Make decisions to notify and recommend protective actions to offsite agencies
  - Provide overall direction, control and coordination of PSEG Nuclear’s Emergency Response
  - Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

- **Communicators:** Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

- **Independent Verification:**
  - When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  - Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions. \(^2\)
    - STA or designee performs Independent Verification for SM
    - SM or designee performs Independent Verification for EDO
    - EDO or designee performs Independent Verification for ERM
  - During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
• **Accuracy Peer Check:** Have the STA, TSS, SSM or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:
  - verification that the correct form has been used for the classification
  - review of all applicable fields that have been completed by the SM during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
  - EC approval initials have been completed

• **Classification Timeliness:** Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length. (3)

• **PAR Upgrades:** ECG Attachment 4 is used for declaration of a General Emergency and also for PAR upgrades IAW NC.EP-EP.ZZ-0102 and NC.EP-EP.ZZ-0404. When completing the form for a PAR upgrade, steps not applicable to the PAR upgrade process should be N/A'd as appropriate.

• **Rad Release Determination (Salem):** Any of the following conditions constitutes a release in progress due to the event:
  - Increase in Plant Vent Release Rate (NOT caused by operational transients or ventilation changes) which is caused by the EVENT.
  - A Steam Generator rupture which is faulted to the atmosphere (SRV, Atmospheric Vent or Line Break)
  - Evidence of an UNMONITORED release to atmosphere, examples include:
    - Primary to Secondary leak and the steam driven feed pump is in service
    - Bypass release from the Aux Building through the Electrical Pen
    - Leakage from the Containment directly to atmosphere after a LOCA
    - Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line

SGS  
Rev. 02
Notification

- **Callout Activation (Alert, SAE, GE):**
  - Emergency Response Organization (ERO) Emergency Callout Activation **is required** for an Alert or higher classification.
  - Activation may be delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  - Activate the ERO Emergency Callout system using the posted instructions titled “Emergency Callout Activation”.
  - ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicator’s phone. If callout fails, then utilize backup procedures to alert the ERO. (EP Aid-0032)

References:
(1) Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
(2) ECG Introduction and Usage Section 8.4.8
(3) ECG Introduction and Usage Section 8.2.1
(4) EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
APPENDIX 1
PREDETERMINED PROTECTIVE ACTION RECOMMENDATIONS
Page 1 of 2

General Emergency?

Initial PAR?

Is PAR from Control Room?

No

Yes

Is PAR a Rapidly Progressing Severe Accident?

Yes

No

Go to Page 2

TSC/EOF:
Go to PAR Upgrade Procedure

Initial PARs

RPSA PAR
- Evacuate All Sectors 0-5 miles
- Evacuate ± 1 Sector Downwind 5-10 miles
- Shelter All Remaining Sectors 5-10 miles

HAB PAR
- Shelter All Sectors 0-5 miles
- Monitor & Prepare All Sectors 5-10 miles

Default PAR (No RPSA)
- Evacuate All Sectors 0-5 miles
- Monitor & Prepare All Sectors 5-10 miles

SEE LAST PAGE OF ATTACHMENT TO DETERMINE DOWNWIND SECTORS

(1) RPSA is a Rapidly Progressing Severe Accident
(2) RG1.1 defines a significant release in progress
APPENDIX 1
PREDETERMINED PROTECTIVE ACTION RECOMMENDATIONS

Page 2 of 2

From Page 1
CONTROL ROOM ONLY

Entry Condition:
A Wind Shift has occurred - Consider PAR Upgrade
(Start with previous PAR)

Was the Initial PAR a Hostile Action Event or Default?

No

Yes

No PAR Upgrade Required

*R PSA PAR Upgrade
Evacuate New Downwind Sectors 5-10 miles
Evacuate New Downwind ± 1 Sector 5-10 miles
Shelter All Remaining Sectors 5-10 miles

SEE LAST PAGE OF ATTACHMENT TO DETERMINE DOWNWIND SECTORS

*R PSA is a Rapidly Progressing Severe Accident
APPENDIX 1 (continued)

PROTECTIVE ACTION RECOMMENDATION WORKSHEET

<table>
<thead>
<tr>
<th>WIND DIRECTION FROM DEGREES</th>
<th>COMPASS</th>
<th>PAR AFFECTED SECTORS</th>
<th>DOWNWIND ±1 SECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>349 - 011</td>
<td>N</td>
<td></td>
<td>SSE - S - SSW</td>
</tr>
<tr>
<td>011 - 034</td>
<td>NNE</td>
<td></td>
<td>S - SSW - SW</td>
</tr>
<tr>
<td>034 - 056</td>
<td>NE</td>
<td></td>
<td>SSW - SW - WSW</td>
</tr>
<tr>
<td>056 - 079</td>
<td>ENE</td>
<td></td>
<td>SW - WSW - W</td>
</tr>
<tr>
<td>079 - 101</td>
<td>E</td>
<td></td>
<td>WSW - W - WNW</td>
</tr>
<tr>
<td>101 - 124</td>
<td>ESE</td>
<td></td>
<td>W - WNW - NW</td>
</tr>
<tr>
<td>124 - 146</td>
<td>SE</td>
<td></td>
<td>WNW - NW - NNW</td>
</tr>
<tr>
<td>146 - 169</td>
<td>SSE</td>
<td></td>
<td>NW - NNW - N</td>
</tr>
<tr>
<td>169 - 191</td>
<td>S</td>
<td></td>
<td>NNW - N - NNE</td>
</tr>
<tr>
<td>191 - 214</td>
<td>SSW</td>
<td></td>
<td>N - NNE - NE</td>
</tr>
<tr>
<td>214 - 236</td>
<td>SW</td>
<td></td>
<td>NNE - NE - ENE</td>
</tr>
<tr>
<td>236 - 259</td>
<td>WSW</td>
<td></td>
<td>NE - ENE - E</td>
</tr>
<tr>
<td>259 - 281</td>
<td>W</td>
<td></td>
<td>ENE - E - ESE</td>
</tr>
<tr>
<td>281 - 304</td>
<td>WNW</td>
<td></td>
<td>E - ESE - SE</td>
</tr>
<tr>
<td>304 - 326</td>
<td>NW</td>
<td></td>
<td>ESE - SE - SSE</td>
</tr>
<tr>
<td>326 - 349</td>
<td>NNW</td>
<td></td>
<td>SE - SSE - S</td>
</tr>
</tbody>
</table>

NOTE: CONSIDER ADDING A SECTOR TO THE PAR IF THE WIND DIRECTION (FROM) IS WITHIN ±3° OF A SECTOR DIVIDING LINE.
ATTACHMENT 24
UNUSUAL EVENT (COMMON SITE)

NOTE
ONLY one Shift Manager (SM) is required to declare this event and assume the responsibilities of Emergency Coordinator (EC). The other SM should perform support duties in accordance with NC.EP-EP.ZZ-0101, Actions Required at Unaffected Station.

CAUTION
In the event of offsite toxic gas release affecting the site, evacuation of non-essential personnel takes precedence over notifications.

I. COMMON SITE EVENT ASSESSMENT/EC DETERMINATION

A. NOTIFICATION OF HOPE CREEK SHIFT MANAGER

1. CONTACT the Hope Creek SM (NETS 5234, DID 3027 or 3059) and BRIEF on the specific circumstances as follows:
   a. SHARE information about the externally initiated event in progress.
   b. OBTAIN agreement on the Unusual Event classification.
   c. DETERMINE which SM will assume EC responsibilities.

   Emergency Coordinator: ________________________________

2. IF the Hope Creek SM is the EC, THEN:
   a. IMPLEMENT NC.EP-EP.ZZ-0101, Actions Required at the Unaffected Station.
   b. CONTACT the Salem Operations Manager, Emergency Duty Officer and Salem NRC resident and PROVIDE them with a briefing on the UE.
   c. ASSIST the Hope Creek SM as needed.
   d. EXIT this attachment.
II. CLASSIFICATION and NOTIFICATION

A. CLASSIFICATION

1. CALL communicators to the Control Room.

2. IF a Security Event is in progress, THEN IMPLEMENT the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.

3. If time allows, DIRECT Classification Independent Verification to be performed

4. After Classification Independent Verification is obtained:
   • DECLARE the UNUSUAL EVENT (enter time and date on ICMF)
   • COMPLETE / APPROVE the ICMF

5. If time allows OBTAIN accuracy peer check of the completed ICMF

6. Continue with NOTIFICATION AND ACTIVATION as follows:

   **NOTE**
   - Emergency Response Organization (ERO) Emergency Callout Activation is **required** for an Unusual Event based on a Security Event.
   - Emergency Response Organization (ERO) Emergency Callout Activation is **optional** and may be implemented at the discretion of the Emergency Coordinator (EC) for all other Unusual Events.

   • If desired, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (EP 96-003)

   • DIRECT the Primary Communicator to implement ECG Attachment 6

   • DIRECT the Secondary Communicator to implement ECG Attachment 8 for an UNUSUAL EVENT

   • If ACTIVATION was performed, VERIFY / DIRECT VERIFICATION of ERO Emergency Callout activation

   • UPDATE Crew with Emergency Classification Level and potential escalation EALS

   • IMPLEMENT NC.EP-EP.ZZ-0102, EC Response
I. THIS IS ________________________, COMMUNICATOR IN THE CONTROL ROOM (NAME)

AT THE SALEM NUCLEAR GENERATING STATION.

II. THIS IS NOTIFICATION OF A COMMON SITE UNUSUAL EVENT AFFECTING BOTH SALEM AND HOPE CREEK WHICH WAS DECLARED AT ______________ ON ____________ (Time - 24 HR CLOCK) (DATE)

EAL # ______________ DESCRIPTION OF EVENT ______________

III. ☐ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT ☐ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT

Any release above normal, attributable to the event. See Basis for examples.

IV. 33 FT. LEVEL WIND DIRECTION (From): ______________ WIND SPEED: ______________ (From MET Computer/SPDS) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EC Initials (Approval to Transmit ICMF)

SGS Rev. 02
Classification

- **Non-Delegable Actions**: Actions taken in the process of emergency classification maybe delegated as needed with the exception of the 4 non-delegable actions listed below \(^{(1)}\)
  - Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  - Make decisions to notify and recommend protective actions to offsite agencies
  - Provide overall direction, control and coordination of PSEG Nuclear’s Emergency Response
  - Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

- **Communicators**: Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

- **Independent Verification**:  
  - When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  - Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions \(^{(2)}\)
    - STA or designee performs Independent Verification for SM
    - SM or designee performs Independent Verification for EDO
    - EDO or designee performs Independent Verification for ERM
  - During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
• **Accuracy Peer Check**: Have the STA, Primary Communicator or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:
  - verification that the correct form has been used for the classification
  - review of all applicable fields that have been completed by the SM during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
  - SM approval initials have been completed

• **Classification Timeliness**: Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length.  

• **Rad Release Determination (Salem)**: Any of the following conditions constitutes a release in progress due to the event:
  - Increase in Plant Vent Release Rate (NOT caused by operational transients or ventilation changes) which is caused by the EVENT.
  - A Steam Generator rupture which is faulted to the atmosphere (SRV, Atmospheric Vent or Line Break)
  - Evidence of an UNMONITORED release to atmosphere, examples include:
    - Primary to Secondary leak and the steam driven feed pump is in service
    - Bypass release from the Aux Building through the Electrical Pen
    - Leakage from the Containment directly to atmosphere after a LOCA
    - Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line
Notification

- Callout Activation: UE
  - Emergency Response Organization (ERO) Emergency Callout Activation is required for an Unusual Event based on a Security Event. Activation is optional for all other Unusual Events and may be implemented at the discretion of the Emergency Coordinator (EC).
  
  - Activation maybe delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  
  - Activate the ERO Emergency Callout system using the posted instructions titled “Emergency Callout Activation”.
  
  - ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicators phone. If callout fails, then utilize backup procedures to alert the ERO (EP Aid-0032)

References:
(1) Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
(2) ECG Introduction and Usage Section 8.4.8
(3) ECG Introduction and Usage Section 8.2.1
(4) EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
A. CLASSIFICATION

1. CALL communicators to the Control Room

2. If time allows, DIRECT Classification Independent Verification to be performed

3. After Classification Independent Verification is obtained:
   - DECLARE the UNUSUAL EVENT (enter time and date on ICMF)
   - COMPLETE / APPROVE the ICMF

4. If time allows OBTAIN accuracy peer check of the completed ICMF

5. Continue with NOTIFICATION AND ACTIVATION as follows:
   - If desired, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (Optional at UE) (EP 96-003)
   - DIRECT the Primary Communicator to implement ECG Attachment 6
   - DIRECT the Secondary Communicator to implement ECG Attachment 8 for an UNUSUAL EVENT
   - If ACTIVATION was performed, VERIFY / DIRECT VERIFICATION of ERO Emergency Callout activation
   - UPDATE Crew/Facility with Emergency Classification Level and potential escalation criteria
   - IMPLEMENT NC.EP-EP.ZZ-0102, EC Response
INITIAL CONTACT MESSAGE FORM

I. THIS IS ________________________, COMMUNICATOR IN THE CONTROL ROOM
   AT THE HOPE CREEK NUCLEAR GENERATING STATION.

II. THIS IS NOTIFICATION OF AN UNUSUAL EVENT WHICH WAS DECLARED AT _____________ ON ____________
    (Time - 24 HR CLOCK) (DATE)
    EAL # ____________ DESCRIPTION OF EVENT ______________________________
    ______________________________
    ______________________________
    ______________________________
    ______________________________
    ______________________________

III. ☐ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
     ☐ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT

     Any release above normal, attributable to the event. See Basis for examples.

IV. 33 FT. LEVEL WIND DIRECTION (From): ____________ WIND SPEED: ____________
     (From MET Computer /SPDS) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

     EC Initials
     (Approval to Transmit ICMF)

HCGS
Rev. 02
Classification

- **Non-Delegable Actions:** Actions taken in the process of emergency classification may be delegated as needed with the exception of the 4 non-delegable actions listed below (1)
  - Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  - Make decisions to notify and recommend protective actions to offsite agencies
  - Provide overall direction, control and coordination of PSEG Nuclear’s Emergency Response
  - Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

- **Communicators:** Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

- **Independent Verification:**
  - When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  - Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions. (2)
    - STA or designee performs Independent Verification for SM
    - SM or designee performs Independent Verification for EDO
    - EDO or designee performs Independent Verification for ERM
  - During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
• **Accuracy Peer Check:** Have the STA, Primary Communicator or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:
  - verification that the correct form has been used for the classification
  - review of all applicable fields that have been completed by the SM during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
  - SM approval initials have been completed
  - review/repeat back by the primary communicator would be considered a sufficient accuracy peer check

• **Classification Timeliness:** Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length. (3)

• **Rad Release Determination (HC):** Any of the following conditions constitutes a release in progress due to the event:
  - INCREASE in the total SPV, NPV or FRVS release rates resulting from the EVENT. (NOT caused by normal or shutdown plant operations or ventilation lineup changes.)
  - Opening the HTV to atmosphere post RCS leakage/LOCA.
  - Evidence of an UNMONITORED release to atmosphere, examples include:
    - Steam from blowout panels directly to atmosphere
    - Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line
Notification

- **Callout Activation: UE**
  - Emergency Response Organization (ERO) Emergency Callout Activation is optional for an Unusual Event and may be implemented at the discretion of the Emergency Coordinator (EC).
  - Activation may be delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  - Activate the ERO Emergency Callout system using the posted instructions titled “Emergency Callout Activation”.
  - ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicators phone. If callout fails, then utilize backup procedures to alert the ERO (EP Aid-0032)

References:
(1) Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
(2) ECG Introduction and Usage Section 8.4.8
(3) ECG Introduction and Usage Section 8.2.1
(4) EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
A. CLASSIFICATION

1. CALL communicators to the Control Room.

2. IF a Security Event is in progress, THEN IMPLEMENT the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.

3. If time allows, DIRECT Classification Independent Verification to be performed

4. After Classification Independent Verification is obtained:
   - DECLARE the ALERT (enter time and date on ICMF)
   - COMPLETE / APPROVE the ICMF

5. If time allows OBTAIN accuracy peer check of the completed ICMF

6. Continue with NOTIFICATION AND ACTIVATION as follows:
   - If not previously performed, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (EP 96-003)
   - DIRECT the Primary Communicator to implement ECG Attachment 6
   - DIRECT the Secondary Communicator to implement ECG Attachment 8 for an ALERT
   - If not previously performed, VERIFY / DIRECT VERIFICATION of ERO Emergency Callout activation
   - UPDATE Crew/Facility with Emergency Classification Level and potential escalation criteria
   - IMPLEMENT NC.EP-EP.ZZ-0102, EC Response
INITIAL CONTACT MESSAGE FORM

I. THIS IS ________________, COMMUNICATOR IN THE □ CONTROL ROOM □ TSC
   AT THE HOPE CREEK NUCLEAR GENERATING STATION.

II. THIS IS NOTIFICATION OF AN ALERT WHICH WAS DECLARED AT ___________ ON ___________
    (Time - 24 HR CLOCK) (DATE)

   EAL # _______________ DESCRIPTION OF EVENT _______________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

III. □ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
     □ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT
     Any release above normal, attributable to the event. See Basis for examples.

IV. 33 FT. LEVEL WIND DIRECTION (From): ___________ WIND SPEED: ___________
    (From MET Computer/SPDS) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

EC Initials
(Approval to Transmit ICMF)

HCGS
Rev. 02
BASIS – ALERT ICMF

Classification

- **Non-Delegable Actions**: Actions taken in the process of emergency classification may be delegated as needed with the exception of the 4 non-delegable actions listed below:\(^1\)
  - Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  - Make decisions to notify and recommend protective actions to offsite agencies
  - Provide overall direction, control and coordination of PSEG Nuclear's Emergency Response
  - Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

- **Communicators**: Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

- **Independent Verification**:\(^2\)
  - When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  - Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions.
    - STA or designee performs Independent Verification for SM
    - SM or designee performs Independent Verification for EDO
    - EDO or designee performs Independent Verification for ERM
  - During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
• **Accuracy Peer Check:** Have the STA, Primary Communicator or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:
  - verification that the correct form has been used for the classification
  - review of all applicable fields that have been completed by the SM during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
  - SM approval initials have been completed.
  - review/repeat back by the primary communicator would be considered a sufficient accuracy peer check

• **Classification Timeliness:** Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length.\(^{(3)}\)

• **Rad Release Determination (HC):** Determination of a release: any of the following conditions constitutes a release in progress due to the event:
  - INCREASE in the total SPV, NPV or FRVS release rates resulting from the EVENT. (NOT caused by normal or shutdown plant operations or ventilation lineup changes.)
  - Opening the HTV to atmosphere post RCS leakage/LOCA.
  - Evidence of an UNMONITORED release to atmosphere, examples include:
    - Steam from blowout panels directly to atmosphere
    - Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line
Notification

- **Callout Activation (Alert, SAE, GE):**
  
  o Emergency Response Organization (ERO) Emergency Callout Activation **is required** for an Alert or higher classification.
  
  o Activation maybe delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  
  o Activate the ERO Emergency Callout system using the posted instructions titled “Emergency Callout Activation”.
  
  o ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicators phone. If callout fails, then utilize backup procedures to alert the ERO (EP Aid-0032)

**References:**

1. Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
2. ECG Introduction and Usage Section 8.4.8
3. ECG Introduction and Usage Section 8.2.1
4. EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
ATTACHMENT 3
SITE AREA EMERGENCY

A. CLASSIFICATION

1. CALL communicators to the Control Room.

2. IF a Security Event is in progress, THEN IMPLEMENT the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.

3. If time allows, DIRECT Classification Independent Verification to be performed.

4. After Classification Independent Verification is obtained:
   - DECLARE the SITE AREA EMERGENCY (enter time and date on ICMF)
   - COMPLETE / APPROVE the ICMF

5. If time allows OBTAIN accuracy peer check of the completed ICMF

6. Continue with NOTIFICATION AND ACTIVATION as follows:
   - If not previously performed, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (EP 96-003)
   - DIRECT the Primary Communicator to implement ECG Attachment 6
   - DIRECT the Secondary Communicator to implement ECG Attachment 8 for a SITE AREA EMERGENCY
   - If not previously performed, VERIFY / DIRECT VERIFICATION of ERO Emergency Callout activation
   - UPDATE Crew/Facility with Emergency Classification Level and potential escalation criteria
   - IMPLEMENT NC.EP-EP.ZZ-0102, EC Response
INITIAL CONTACT MESSAGE FORM

I. THIS IS ____________________, COMMUNICATOR IN THE □ CONTROL ROOM □ TSC
   AT THE HOPE CREEK NUCLEAR GENERATING STATION.

II. THIS IS NOTIFICATION OF AN SITE AREA EMERGENCY WHICH WAS
   DECLARED AT ______________________ ON ______________________
   (Time - 24 HR CLOCK) (DATE)
   EAL # ____________________ , ______________________ , ______________________
   DESCRIPTION OF EVENT: ____________________________________________
   _________________________________________________________________
   _________________________________________________________________
   _________________________________________________________________
   _________________________________________________________________
   _________________________________________________________________

III. □ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
     □ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT

IV. 33 FT. LEVEL WIND DIRECTION (From): ____________________ WIND SPEED: _______
     (From MET Computer /SPDS) (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

_____________________________________________________________________

   EC Initials
   (Approval to Transmit ICMF)

HCGS Rev. 03
BASIS – SAE ICMF

Classification

- **Non-Delegable Actions:** Actions taken in the process of emergency classification may be delegated as needed with the exception of the 4 non-delegable actions listed below (1)
  - Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  - Make decisions to notify and recommend protective actions to offsite agencies
  - Provide overall direction, control and coordination of PSEG Nuclear’s Emergency Response
  - Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

- **Communicators:** Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

- **Independent Verification:**
  - When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  - Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions (2)
    - STA or designee performs Independent Verification for SM
    - SM or designee performs Independent Verification for EDO
    - EDO or designee performs Independent Verification for ERM
  - During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
• **Accuracy Peer Check**: Have the STA, Primary Communicator or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:
  - verification that the correct form has been used for the classification
  - review of all applicable fields that have been completed by the SM during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
  - SM approval initials have been completed.
  - review/repeat back by the primary communicator would be considered a sufficient accuracy peer check

• **Classification Timeliness**: Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length.\(^3\)

• **Rad Release Determination (HC)**: Determination of a release: any of the following conditions constitutes a release in progress due to the event:
  - INCREASE in the total SPV, NPV or FRVS release rates resulting from the EVENT. (NOT caused by normal or shutdown plant operations or ventilation lineup changes.)
  - Opening the HTV to atmosphere post RCS leakage/LOCA.
  - Evidence of an UNMONITORED release to atmosphere, examples include:
    - Steam from blowout panels directly to atmosphere
    - Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line
Notification

- **Callout Activation (Alert, SAE, GE):**
  - Emergency Response Organization (ERO) Emergency Callout Activation **is required** for an Alert or higher classification.
  - Activation maybe delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  - Activate the ERO Emergency Callout system using the posted instructions titled “Emergency Callout Activation”.
  - ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicators phone. If callout fails, then utilize backup procedures to alert the ERO (EP Aid-0032)

References:

1. Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
2. ECG Introduction and Usage Section 8.4.8
3. ECG Introduction and Usage Section 8.2.1
4. EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
ATTACHMENT 4
GENERAL EMERGENCY

A. CLASSIFICATION

1. CALL communicators to the Control Room.

2. IF a Security Event is in progress, THEN IMPLEMENT the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.

3. If time allows, DIRECT Classification Independent Verification to be performed

4. After Classification Independent Verification is obtained:
   - DECLARE the GENERAL EMERGENCY (enter time and date on ICMF)
   - COMPLETE / APPROVE the ICMF

5. If time allows OBTAIN accuracy peer check of the completed ICMF

6. Continue with NOTIFICATION AND ACTIVATION as follows:
   - If not previously performed, ACTIVATE / DIRECT ACTIVATION of ERO Emergency Callout (EP 96-003)
   - DIRECT the Primary Communicator to implement ECG Attachment 6
   - DIRECT the Secondary Communicator to implement ECG Attachment 8 for a GENERAL EMERGENCY
   - If not previously performed, VERIFY / DIRECT VERIFICATION of ERO Emergency Callout activation
   - UPDATE Crew/Facility with Emergency Classification Level and potential escalation criteria
   - IMPLEMENT NC.EP-EP.ZZ-0102, EC Response
INITIAL CONTACT MESSAGE FORM

I. THIS IS ________________, COMMUNICATOR IN THE □ CONTROL ROOM □ TSC □ EOF
   AT THE HOPE CREEK NUCLEAR GENERATING STATION.

IIa. □ THIS IS NOTIFICATION OF AN GENERAL EMERGENCY WHICH WAS
    DECLARED AT __________________ ON __________________
        (Time - 24 HR CLOCK) (DATE)

    EAL # __________________ , __________________ , __________________

    DESCRIPTION OF EVENT: __________________________________________
    ____________________________________________________________________
    ____________________________________________________________________
    ____________________________________________________________________
    ____________________________________________________________________

    OR

IIb. □ THIS IS NOTIFICATION OF A PROTECTIVE ACTION RECOMMENDATION
     UPGRADE MADE AT ___________ HRS ON __________________
         (Time - 24 HR CLOCK) (DATE)

     Reason for PAR Upgrade: ____________________________________________
     ____________________________________________________________________
     ____________________________________________________________________
     ____________________________________________________________________

III. □ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
     □ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT
     Any release above normal, attributable to the event. See Basis for examples.

IV. 33 FT. LEVEL WIND DIRECTION (From): ______ WIND SPEED: ______
    (From MET Computer /SPDS) (DEGREES) (MPH)

V. □ WE RECOMMEND EVACUATION AS FOLLOWS
    ________________________________________________________________
    ________________________________________________________________
    ________________________________________________________________

    □ WE RECOMMEND SHELTERING AS FOLLOWS
    ________________________________________________________________
    ________________________________________________________________

    □ WE RECOMMEND MONITOR AND PREPARE AS FOLLOWS
    ________________________________________________________________
    ________________________________________________________________
    WE RECOMMEND THE USE OF KI IN ACCORDANCE WITH STATE

    ✔ PROCEDURES

______________________________________________________________
EC Initials
(Approval to Transmit ICMF)

HCGS Rev. 02
BASIS – GE ICMF

Classification

- **Non-Delegable Actions:** Actions taken in the process of emergency classification may be delegated as needed with the exception of the 4 non-delegable actions listed below (1)
  - Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  - Make decisions to notify and recommend protective actions to offsite agencies
  - Provide overall direction, control and coordination of PSEG Nuclear’s Emergency Response
  - Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

- **Communicators:** Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

- **Independent Verification:**
  - When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  - Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions. (2)
    - STA or designee performs Independent Verification for SM
    - SM or designee performs Independent Verification for EDO
    - EDO or designee performs Independent Verification for ERM
  - During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
**Accuracy Peer Check:** Have the STA, Primary Communicator or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:

- verification that the correct form has been used for the classification
- review of all applicable fields that have been completed by the SM during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
- SM approval initials have been completed
- review/repeat back by the primary communicator would be considered a sufficient accuracy peer check

**Classification Timeliness:** Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length. \(^{(3)}\)

**PAR Upgrades:** ECG Attachment 4 is used for declaration of a General Emergency and also for PAR upgrades IAW NC.EP-EP.ZZ-0102 and NC.EP-EP.ZZ-0404. When completing the form for a PAR upgrade, steps not applicable to the PAR upgrade process should be N/A'd as appropriate.

**Rad Release Determination (HC):** Determination of a release: any of the following conditions constitutes a release in progress due to the event at Creek

- INCREASE in the total SPV, NPV or FRVS release rates resulting from the EVENT. (NOT caused by normal or shutdown plant operations or ventilation lineup changes.)
- Opening the HTV to atmosphere post RCS leakage/LOCA.
- Evidence of an UNMONITORED release to atmosphere, examples include:
  - Steam from blowout panels directly to atmosphere
  - Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line
Notification

- **Callout Activation (Alert, SAE, GE):**
  - Emergency Response Organization (ERO) Emergency Callout Activation **is required** for an Alert or higher classification.
  - Activation maybe delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  - Activate the ERO Emergency Callout system using the posted instructions titled “Emergency Callout Activation”.
  - ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicators phone. If callout fails, then utilize backup procedures to alert the ERO (EP Aid-0032)

**References:**
(1) Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
(2) ECG Introduction and Usage Section 8.4.8
(3) ECG Introduction and Usage Section 8.2.1
(4) EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
APPENDIX 1
PREDETERMINED PROTECTIVE ACTION RECOMMENDATIONS

General Emergency?

Yes

Initial PAR?

No

Is PAR from Control Room?

No

TSC/EOF:
Go to PAR Upgrade Procedure
NC.EP-EP.ZZ-0404

Yes

Go to Page 2

Is a DAPA monitor indicating \( \geq 10,000 \) R/hr?

OR

A release in progress

\( \geq 5.25 \times 10^8 \) uCi/sec

(\( \text{EAL RG1.1} \) \(^{(1)} \))

Yes

No

GE based on Loss of Three Fission Product Barriers (13 Pts.)?

Yes

No

Is there a Hostile Action Event in Progress affecting the GE?

Yes

No

Initial PARs

\(^{(1)}\) RPSA PAR
- Evacuate All Sectors 0-5 miles
- Evacuate \( \pm 1 \) Sector Downwind 5-10 miles
- Shelter All Remaining Sectors 5-10 miles

HAB PAR
- Shelter All Sectors 0-5 miles
- Monitor & Prepare All Sectors 5-10 miles

Default PAR (No RPSA)
- Evacuate All Sectors 0-5 miles
- Monitor & Prepare All Sectors 5-10 miles

SEE LAST PAGE OF ATTACHMENT TO DETERMINE DOWNWIND SECTORS

(1) RPSA is a Rapidly Progressing Severe Accident
(2) RG1.1 defines a significant release in progress
APPENDIX 1
PREDETERMINED PROTECTIVE ACTION RECOMMENDATIONS
Page 2 of 2

From Page 1
CONTROL ROOM ONLY

Entry Condition:
A Wind Shift has occurred – Consider PAR Upgrade
(Start with previous PAR)

Was the Initial PAR a Hostile Action Event or Default?

No

Yes

No PAR Upgrade Required

*RPSA PAR Upgrade
Evacuate New Downwind Sectors 5-10 miles
Evacuate New Downwind ± 1 Sector 5-10 miles
Shelter All Remaining Sectors 5-10 miles

SEE LAST PAGE OF ATTACHMENT TO DETERMINE DOWNWIND SECTORS

*RPSA is a Rapidly Progressing Severe Accident
### APPENDIX 1 (continued)

**RECOMMENDED PROTECTIVE ACTION WORKSHEET**

<table>
<thead>
<tr>
<th>WIND DIRECTION FROM</th>
<th>PAR AFFECTED SECTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEGREES</strong></td>
<td><strong>COMPASS</strong></td>
</tr>
<tr>
<td>349 - 011</td>
<td>N</td>
</tr>
<tr>
<td>011 - 034</td>
<td>NNE</td>
</tr>
<tr>
<td>034 - 056</td>
<td>NE</td>
</tr>
<tr>
<td>056 - 079</td>
<td>ENE</td>
</tr>
<tr>
<td>079 - 101</td>
<td>E</td>
</tr>
<tr>
<td>101 - 124</td>
<td>ESE</td>
</tr>
<tr>
<td>124 - 146</td>
<td>SE</td>
</tr>
<tr>
<td>146 - 169</td>
<td>SSE</td>
</tr>
<tr>
<td>169 - 191</td>
<td>S</td>
</tr>
<tr>
<td>191 - 214</td>
<td>SSW</td>
</tr>
<tr>
<td>214 - 236</td>
<td>SW</td>
</tr>
<tr>
<td>236 - 259</td>
<td>WSW</td>
</tr>
<tr>
<td>259 - 281</td>
<td>W</td>
</tr>
<tr>
<td>281 - 304</td>
<td>WNW</td>
</tr>
<tr>
<td>304 - 326</td>
<td>NW</td>
</tr>
<tr>
<td>326 - 349</td>
<td>NNW</td>
</tr>
</tbody>
</table>

**NOTE:** CONSIDER ADDING A SECTOR TO THE PAR IF THE WIND DIRECTION (FROM) IS WITHIN ±3° OF A SECTOR DIVIDING LINE.

---

**Diagram:**

A circular diagram illustrating the wind direction with sectors shaded for different directions. The compass points are labeled, and the sectors are shaded accordingly. The diagram is divided into 360 degrees, with major compass points marked at intervals of 10 degrees.
ATTACHMENT 24  
UNUSUAL EVENT (COMMON SITE)

NOTE

**ONLY** one Shift Manager (SM) is required to declare this event and assume the responsibilities of **Emergency Coordinator (EC)**. The other SM should perform support duties in accordance with NC.EP-EP.ZZ-0101, Actions Required at Unaffected Station.

CAUTION

In the event of offsite toxic gas release affecting the site, evacuation of non-essential personnel takes precedence over notifications.

I. COMMON SITE EVENT ASSESSMENT/EC DETERMINATION

A. NOTIFICATION OF SALEM SHIFT MANAGER

1. **CONTACT** the SALEM SM (NETS 5124, DID 5200) and **BRIEF** on the specific circumstances as follows:
   
   a. **SHARE** information about the externally initiated event in progress.
   
   b. **OBTAIN** agreement on the Unusual Event classification.
   
   c. **DETERMINE** which SM will assume EC responsibilities.

   Emergency Coordinator: ________________________________

2. **IF** the SALEM SM is the EC, **THEN**, 

   a. **IMPLEMENT** NC.EP-EP.ZZ-0101, Actions Required at the Unaffected Station.

   b. **CONTACT** the Salem Operations Manager, Emergency Duty Officer and Salem NRC resident and **PROVIDE** them with a briefing on the UE.

   c. **ASSIST** the Hope Creek SM as needed.

   d. **EXIT** this attachment
II. CLASSIFICATION and NOTIFICATION

A. CLASSIFICATION

1. CALL communicators to the Control Room.

2. **IF** a Security Event is in progress, **THEN IMPLEMENT** the prompt actions of NC.EP-EP.ZZ-0102, EC Response, Attachment 10, prior to classification.

3. If time allows, **DIRECT** Classification Independent Verification to be performed

4. After Classification Independent Verification is obtained:
   - **DECLARE** the UNUSUAL EVENT (enter time and date on ICMF)
   - **COMPLETE / APPROVE** the ICMF

5. If time allows, **OBTAIN** accuracy peer check of the completed ICMF

6. Continue with **NOTIFICATION AND ACTIVATION** as follows:

   **NOTE**
   - Emergency Response Organization (ERO) Emergency Callout Activation **is required** for an Unusual Event based on a Security Event.
   - Emergency Response Organization (ERO) Emergency Callout Activation **is optional** and may be implemented at the discretion of the Emergency Coordinator (EC) for all other Unusual Events.

   - **If desired, ACTIVATE / DIRECT ACTIVATION** of ERO Emergency Callout (EP 96-003)
   - **DIRECT** the Primary Communicator to implement ECG Attachment 6
   - **DIRECT** the Secondary Communicator to implement ECG Attachment 8 for an UNUSUAL EVENT
   - **If ACTIVATION** was performed, **VERIFY / DIRECT VERIFICATION** of ERO Emergency Callout activation
   - **UPDATE** Crew with Emergency Classification Level and potential escalation EALS
   - **IMPLEMENT** NC.EP-EP.ZZ-0102, EC Response
INITIAL CONTACT MESSAGE FORM

I. THIS IS __________________, COMMUNICATOR IN THE CONTROL ROOM
   (NAME)
   AT THE HOPE CREEK NUCLEAR GENERATING STATION.

II. THIS IS NOTIFICATION OF A COMMON SITE UNUSUAL EVENT AFFECTING BOTH
    SALEM AND HOPE CREEK WHICH WAS
    DECLARED AT ______________________ ON ______________________
    (Time - 24 HR CLOCK) (DATE)
    EAL # ____________ DESCRIPTION OF EVENT ________________

    Any release above normal, attributable to the event. See Basis
    for examples.

III. □ THERE IS A RELEASE IN PROGRESS DUE TO THE EVENT
    □ THERE IS NO RELEASE IN PROGRESS DUE TO THE EVENT

IV. 33 FT. LEVEL WIND DIRECTION (From): __________________________
    (From MET Computer /SPDS) WIND SPEED: ______________________
    (DEGREES) (MPH)

V. NO PROTECTIVE ACTIONS ARE RECOMMENDED AT THIS TIME

____________________________________________
EC Initials
(Approval to Transmit ICMF)

SGS
Rev. 02
BASIS – COMMON SITE UE ICMF

Classification

- **Non-Delegable Actions:** Actions taken in the process of emergency classification maybe delegated as needed with the exception of the 4 non-delegable actions listed below\(^{(1)}\)
  - Classify emergencies in accordance with the Salem and Hope Creek Event Classification Guides – Includes final determination of the classification and approval of the ICMF
  - Make decisions to notify and recommend protective actions to offsite agencies
  - Provide overall direction, control and coordination of PSEG Nuclear’s Emergency Response
  - Authorize the expenditure of company funds and commit corporate resources as necessary to implement emergency procedures and/or to mitigate the accident

- **Communicators:** Call communicators to the Control Room as soon as possible to provide time for them to respond from the field

- **Independent Verification:**
  - When the Shift Manager (SM) is the Emergency Coordinator, the Shift Technical Advisor (STA) is responsible to perform an independent verification of the EAL classification. The STA verification does not alleviate the requirement of the SM to make a timely classification. Should the SM fill the STA role, independent verification of the EAL classification will be delegated to another on-shift SRO, the Independent Assessor.
  - Independent verification, while recommended, is not required and should be performed at the SM/ECs discretion as time allows and based on plant conditions.\(^{(2)}\)
    - STA or designee performs Independent Verification for SM
    - SM or designee performs Independent Verification for EDO
    - EDO or designee performs Independent Verification for ERM
  - During the verification phase begin filling in the ICMF, completing the EAL declaration time once the EC and Independent Verifier have conferred and agree on a classification.
• **Accuracy Peer Check:** Have the STA, Primary Communicator or other knowledgeable individual perform an accuracy peer check of the ICMF. The peer check should include:
  o verification that the correct form has been used for the classification
  o review of all applicable fields that have been completed by the SM during completion of the ICMF (date, time, EAL, Description etc.) to ensure data is correct/accurate
  o SM approval initials have been completed

• **Classification Timeliness:** Classification must occur after verification and before the 15 minute EAL clock expires. Assessment of an Emergency Condition should be completed in a timely manner, which is considered to be within 15 minutes of when events are known or should have been known. If an EAL specifies a duration time (e.g., loss of annunciators for 15 minutes or longer), the assessment time runs concurrently with the EAL duration time and is the same length. (3)

• **Rad Release Determination (Hope Creek):** Any of the following conditions constitutes a release in progress due to the event:
  o INCREASE in the total SPV, NPV or FRVS release rates resulting from the EVENT. (NOT caused by normal or shutdown plant operations or ventilation lineup changes.)
  o Opening the HTV to atmosphere post RCS leakage/LOCA.
  o Evidence of an UNMONITORED release to atmosphere, examples include:
    ▪ Steam from blowout panels directly to atmosphere
    ▪ Elevated background radiation levels downwind from the station as monitored/reported by Radiation Protection Technician at fence line
Notification

- **Callout Activation: UE**
  - Emergency Response Organization (ERO) Emergency Callout Activation **is required** for an Unusual Event based on a Security Event. Activation **is optional** for all other Unusual Events and may be implemented at the discretion of the Emergency Coordinator (EC).
  - Activation maybe delegated to the communicators if available, but must be performed as soon as possible after classification. The SM shall perform the callout if communicators are not available.
  - Activate the ERO Emergency Callout system using the posted instructions titled “Emergency Callout Activation”.
  - ERO callout system activation will be confirmed by a return call from the Everbridge system to the Communicators phone. If callout fails, then utilize backup procedures to alert the ERO (EP Aid-0032)

**References:**
(1) Emergency Plan, Section 3.0 – Organization, Paragraph 4.0 – Emergency Direction and Control
(2) ECG Introduction and Usage Section 8.4.8
(3) ECG Introduction and Usage Section 8.2.1
(4) EP 96-003 – Enhance callout system by correcting deficiencies and capturing time inefficiencies
Email sent from outside of PSEG. Use caution before using links/attachments.

The NRC received your General Form submission on: 01/21/2015 at 02:35 PM. It is being tracked as submission ID# 3862.

If it is a 'Publicly Available' submission after 6 work days from today the submission's attached document(s) will be available for viewing and download from the Agency's Public Web Based ADAMS website (http://www.adams.nrc.gov/wba) by searching for the following document accession number(s): [ML15021A436]. If this is a 'Non-Public submission the submission's attachment(s) will be retained in NRC's document management system (ADAMS) and will not be published to the public website.

Should you have questions about this submission please contact our Help Desk by phone at 866-672-7640 or by e-mail at mshd.resource@nrc.gov. When doing so, please refer to the Submission ID# shown above.

Note: The Help Desk is staffed daily from 9:00AM to 7:00PM Eastern Time Monday through Friday (except for Federal holidays)
PSEG Nuclear LLC
P.O. Box 236, Hancocks Bridge, New Jersey 08038-0236

10 CFR 50.54(q)
10 CFR 50.4(b)(5)

LR-N15-0006
JAN 14 2015

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Salem Nuclear Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-70 and DPR-75
NRC Docket Nos. 50-272 and 50-311

Hope Creek Generating Station
Renewed Facility Operating License No. NPF-57
NRC Docket No. 50-354


Pursuant to 10 CFR 50.54(q) and 10 CFR 50.4(b)(5), PSEG Nuclear LLC (PSEG) hereby submits 10 CFR 50.54(q) Summary Analysis Reports (ID#2014-63, ID#2014-64) for Emergency Plan Document revisions implemented December 17, 2014 (Attachment 1) and copies of the revised documents in their entirety (Enclosure 1) associated with the PSEG Nuclear LLC Emergency Plan. There are no regulatory commitments contained in this letter.

The documents in Enclosure 1 (SC.EP-EP.ZZ-0204(Q), Emergency Response Backup Callout, Rev. 6, HC.EP-EP.ZZ-0204(Q), Emergency Response Backup Callout, Rev. 6, EP-HC-111-F6, Rev. 11, Hope Creek Primary Communicator Log, and EP-SA-111-F6, Rev. 11, Salem Primary Communicator Log) contain personally identifiable information for which protection is requested under the provisions of 10 CFR 2.390.
This letter and Attachment 1 do not contain any personal privacy, proprietary, or safeguards information for which protection is requested under the provisions for 10 CFR 2.390. If you have any questions or require additional information, please contact Phil Quick, Emergency Preparedness Program Manager, at 856-339-3262.

Respectfully,

Craig Banner
Manager - Emergency Preparedness

Attachment – 10 CFR 50.54(q) Summary Analysis Reports
Enclosure – SC,EP-EP.ZZ-0204(Q) Rev.6, Emergency Response Backup Callout
HC,EP-EP.ZZ-0204(Q) Rev.6, Emergency Response Backup Callout
EP-HC-111-F6, Rev. 11, Hope Creek Primary Communicator Log
EP-SA-111-F6, Rev. 11, Salem Primary Communicator Log

cc (without enclosure): D. Dorman, Administrator, Region I, NRC
C. Sanders - Parker, Project Manager - USNRC
NRC Senior Resident Inspector - Salem
NRC Senior Resident Inspector - Hope Creek
P. Mullican, Manager IV, NJBNE
T. Cachaza - Commitment Tracking Coordinator - Salem
L. Marabella – Corporate Commitment Tracking Coordinator
T. MacEwen – Commitment Tracking Coordinator - Hope Creek
Attachment 1

10 CFR 50.54(q) Summary Analysis Reports
### 10 CFR 50.54(g) SUMMARY ANALYSIS REPORT

**50.54Q I.D. Number:** 2014-63

**50.54Q Title:** SC.EP-EP.ZZ-0204(Q) Rev.6, Emergency Response Backup Callout

<table>
<thead>
<tr>
<th>Description of the change made to the Emergency Plan/Procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised ERO callout procedures to reflect personnel changes and changes to personnel contact information such as phone numbers or ERO pager numbers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>All changes are editorial in nature. Changes are to names of personnel added to or removed from the ERO or to personnel phone numbers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on regulations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorial changes are not considered as changes that could reduce the effectiveness of the Emergency Plan or associated procedures.</td>
</tr>
</tbody>
</table>
### 10 CFR 50.54(q) SUMMARY ANALYSIS REPORT

<table>
<thead>
<tr>
<th>50.54Q I.D. Number:</th>
<th>2014-64</th>
</tr>
</thead>
</table>

| 50.54Q Title: | EP-HC-111-F6, Rev. 11, Hope Creek Primary Communicator Log  
EP-SA-111-F6, Rev. 11, Salem Primary Communicator Log |

<table>
<thead>
<tr>
<th>Description of the change made to the Emergency Plan/Procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorial revisions updated EDOs, Emergency Preparedness contact information, added new External Affairs contact information and corrected NRC Resident cell phone number.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of why the change is editorial (if not editorial, N/A this block):</th>
</tr>
</thead>
<tbody>
<tr>
<td>All changes are editorial in nature. Changes are to names of personnel added to or removed from the ERO or to personnel phone numbers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of how the change to the Emergency Plan/Procedures still complies with regulation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No impact on regulations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A description of why the proposed change was not a reduction in the effectiveness of the Emergency Plan/Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorial changes are not considered as changes that could reduce the effectiveness of the Emergency Plan or associated procedures.</td>
</tr>
</tbody>
</table>
Enclosure 1

Emergency Plan Document Revisions
Emergency Plan Document Revisions Implemented December 17, 2014

- SC.EP-EP.ZZ-0204(Q) Rev.6, Emergency Response Backup Callout (contains Personally Identifiable Information)
- HC.EP-EP.ZZ-0204(Q) Rev.6, Emergency Response Backup Callout (contains Personally Identifiable Information)
- EP-HC-111-F6, Rev. 11, Hope Creek Primary Communicator Log (contains Personally Identifiable Information)
- EP-SA-111-F6, Rev. 11, Salem Primary Communicator Log (contains Personally Identifiable Information)
Email sent from outside of PSEG. Use caution before using links/attachments.

The NRC received your General Form submission on: 01/15/2015 at 02:42 PM. It is being tracked as submission ID# 3814.

If it is a 'Publicly Available' submission after 6 work days from today the submission's attached document(s) will be available for viewing and download from the Agency's Public Web Based ADAMS website (http://www.adams.nrc.gov/wba) by searching for the following document accession number(s): [ML15015A569]. If this is a 'Non-Public submission the submission's attachment(s) will be retained in NRC's document management system (ADAMS) and will not be published to the public website.

Should you have questions about this submission please contact our Help Desk by phone at 866-672-7640 or by e-mail at mshd.resource@nrc.gov. When doing so, please refer to the Submission ID# shown above.

Note: The Help Desk is staffed daily from 9:00AM to 7:00PM Eastern Time Monday through Friday (except for Federal holidays)
U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Salem Generating Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-70 and DPR-75  
NRC Docket Nos. 50-272 and 50-311

Subject: PSEG Nuclear LLC’s Fourth Six-Month Status Report for the Salem Generating Station in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051)

References:


5. PSEG Letter LR-N14-0186, "PSEG Nuclear LLC’s Third Six-Month Status Report for the Salem Generating Station in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051)," dated August 26, 2014

6. PSEG Letter LR-N14-0237, "Salem Generating Station Unit 1 Compliance with March 12, 2012 NRC Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051) and Responses to Requests for Additional Information for Salem Units 1 and 2," dated January 15, 2015

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Order EA-12-051 (Reference 1) to PSEG Nuclear LLC (PSEG). Reference 1 was immediately effective and required submission of an Overall Integrated Plan (OIP) pursuant to Condition IV.C.1.a of the Order. Reference 2 provided the Salem Generating Station (SGS) Units 1 and 2 spent fuel pool level instrumentation OIP. Condition IV.C.2 of NRC Order EA-12-051 requires six-month status reports to delineate progress made in implementing the requirements of the Order. PSEG previously provided six-month updates for SGS via References 3, 4, and 5. Attachment 1 to this letter provides the fourth six-month status report of progress made in implementing the requirements of NRC Order EA-12-051 at SGS as of January 31, 2015. There are no changes in compliance method or issues requiring relief identified in Attachment 1. PSEG achieved compliance with NRC Order EA-12-051 for SGS Unit 1 prior to startup from the fall 2014 refueling outage, as documented in Reference 6.

There are no regulatory commitments contained in this letter.

If you have any questions or require additional information, please do not hesitate to contact Mr. Gary Wohler at 856-339-5020.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 2-18-15
(Date)

Sincerely,

John F. Perry
Vice President - Salem
Attachment 1 – Salem Generating Station Fourth Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

cc: Mr. William Dean, Director of Office of Nuclear Reactor Regulation
    Mr. Daniel Dorman, Administrator, Region I, NRC
    Ms. Carleen Sanders-Parker, Project Manager, NRC
    NRC Senior Resident Inspector, Salem
    Mr. Patrick Mulligan, Manager IV, NJBNE
    Salem Commitment Tracking Coordinator
    PSEG Corporate Commitment Coordinator
Attachment 1

Salem Generating Station Fourth Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation
1 Introduction

PSEG developed an Overall Integrated Plan (OIP) (Reference 1) for Salem Generating Station (SGS) Units 1 and 2, documenting the plan to meet the requirements to install reliable spent fuel pool instrumentation (SFPI) in response to NRC Order EA-12-051 (Reference 2). In References 3, 4, and 5, PSEG provided the previous six-month status reports associated with implementation of the requirements of NRC Order EA-12-051. This report is the fourth six-month status report, which provides implementation status as of January 31, 2015. This status report follows the guidance in Appendix A to Nuclear Energy Institute (NEI) Report 12-02, Revision 1 (Reference 6), which states that the six-month status reports should include any changes to the compliance method, schedule, and the need for relief and the basis for relief, if applicable. Sections 2 and 3 of this status report include milestone accomplishments and milestone schedule status, respectively. There are no changes to the compliance method or requests for relief associated with this report.

2 Milestone Accomplishments

As of January 31, 2015, the following milestones have been completed since the development of the OIP (Reference 1).

- Submit Overall Integrated Plan
- Issue SFPI Equipment Purchase Order
- Design Change Package - PSEG completed the detailed SFPI design for SGS Units 1 and 2, and completed design change implementation activities for SGS Unit 1 during the fall 2014 refueling outage.
- Procedures - issued for SGS Unit 1
- Training - completed for SGS Unit 1
- Submit Final Completion Report – completed for SGS Unit 1 (Reference 7)

3 Milestone Schedule Status

The following table provides an update of the milestone schedule provided in Section 3 of the OIP (Reference 1), as well as additional milestones (e.g., six-month status reports, procedures, training and a completion report) that have been included for completeness. The table provides the activity status of each item, and the expected completion date noting any changes. The dates are planning dates subject to change as implementation details are finalized. Activities apply to both SGS Units 1 and 2 unless indicated otherwise.
<table>
<thead>
<tr>
<th>Milestone</th>
<th>Target Completion Date</th>
<th>Activity Status</th>
<th>Revised Target Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual Design</td>
<td>Dec 2012</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Submit Overall Integrated Plan</td>
<td>Feb 2013</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Six-Month Status Updates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aug 2013</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feb 2014</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aug 2014</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Issue SFPI Equipment Purchase Order</td>
<td>2Q2013</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Design Change Package</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Detailed Design – Unit 1</td>
<td>1Q2014</td>
<td>Complete</td>
<td>4Q2014</td>
</tr>
<tr>
<td>Complete Detailed Design – Unit 2</td>
<td>1Q2015</td>
<td>Complete</td>
<td>4Q2014</td>
</tr>
<tr>
<td>Begin Installation – Unit 1</td>
<td>2Q2014</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Begin Installation – Unit 2</td>
<td>2Q2015</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Installation Complete, SFPI Channels Fully Functional – Unit 1</td>
<td>4Q2014</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Installation Complete, SFPI Channels Fully Functional – Unit 2</td>
<td>4Q2015</td>
<td>Not Started</td>
<td></td>
</tr>
<tr>
<td>Implementation Outage – Unit 1</td>
<td>4Q2014</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Implementation Outage – Unit 2</td>
<td>4Q2015</td>
<td>Not Started</td>
<td></td>
</tr>
<tr>
<td>Procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue Procedures – Unit 1</td>
<td>Nov 2014</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Issue Procedures – Unit 2</td>
<td>Nov 2015</td>
<td>Started</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Training – Unit 1</td>
<td>Nov 2014</td>
<td>Complete</td>
<td></td>
</tr>
<tr>
<td>Complete Training – Unit 2</td>
<td>Nov 2015</td>
<td>Started</td>
<td></td>
</tr>
<tr>
<td>Submit Final Completion Report – Unit 1</td>
<td>Feb 2016</td>
<td>Complete</td>
<td>Jan 2015</td>
</tr>
<tr>
<td>Submit Final Completion Report – Unit 2</td>
<td>Feb 2016</td>
<td>Not Started</td>
<td>Jan 2016</td>
</tr>
</tbody>
</table>
4 Changes to Compliance Method
There are no changes to the compliance method as documented in the OIP (Reference 1).

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation
PSEG has achieved compliance with NRC Order EA-12-051 for SGS Unit 1 as documented in Reference 7, and expects to fully comply with the order implementation date for SGS Unit 2. No relief or relaxation is requested at this time.

6 Open Items from Overall Integrated Plan and Draft Safety Evaluation
Open items from the NRC’s Interim Staff Evaluation (Reference 8) are addressed in Attachment 2 to Reference 7, and will be updated in the SGS Unit 2 final completion report if necessary.

7 Potential Draft Safety Evaluation Impacts
There are no potential draft safety evaluation impacts at this time.

8 References


7. PSEG Letter LR-N14-0237, “Salem Generating Station Unit 1 Compliance with March 12, 2012 NRC Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051) and Responses to Requests for Additional Information for Salem Units 1 and 2,” dated January 15, 2015

LR-N15-0112

May 22, 2015

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Salem Generating Station – Unit 1 and Unit 2
Renewed Facility Operating License Nos. DPR-70 and DPR 75
NRC Docket Nos. 50-272 and 50-311

Hope Creek Generating Station
Renewed Facility Operating License No. NPF-57
NRC Docket No. 50-354

Subject: Submittal of Salem Generating Station Updated Final Safety Analysis Report, Revision 28, Salem Units 1 & 2 Technical Specification Bases changes, 10 CFR 54.37(b) review results for Salem Units 1 & 2 and PSEG Nuclear LLC Quality Assurance Topical Report, NO-AA-10, Revision 84

PSEG Nuclear LLC (PSEG) hereby submits:

- Revision No. 28 to the Salem Generating Station Units 1 and 2 Updated Final Safety Analysis Report (UFSAR) in accordance with the requirements 10 CFR 50.71(e)(4) and 10 CFR 50.4(b)(6)

- Revision No. 84 to the PSEG Nuclear LLC Quality Assurance Topical Report (QATR), NO-AA-10, which documents a change to the Salem/Hope Creek (SHC) Quality Assurance Program (QAP) in accordance with the requirements of 10 CFR 50.54(a)(3)
• Complete updated copies of the Salem Unit 1 and Unit 2 Technical Specification Bases, which include changes through May 22, 2015, in accordance with the requirements of Salem Generating Station, Units 1 and 2 Technical Specifications 6.17.d (Unit 1) and 6.16.d (Unit 2)

• The results of a review performed as required by 10 CFR 54.37(b) to identify any newly-identified Structure, System or Component (SSC) that would be subjected to an aging management review or evaluation of time-limited aging analyses (TLAAs) in accordance with 10 CFR 54.21

Revision No. 28 to the Salem UFSAR contains identified text, table and figure changes required to reflect the plant configuration as of November 23, 2014, six months prior to this submittal. In addition, there are general editorial changes. In accordance with 10 CFR 50.71(e)(2)(ii), a summary of changes made under the provisions of 10 CFR 50.59 but not previously submitted to the Commission is provided in Attachment 1. The previous revision to the Salem UFSAR was issued on November 25, 2013.

Page removal and insertion instructions are provided in Attachment 2 and the revised text, table and figure pages are provided in Attachment 3.

PSEG has developed Revision 84 of the SHC Quality Assurance Topical Report, which governs the QAP. This version of the SHC QATR, NO-AA-10, replaces the previous version submitted to you in PSEG letter LR-N13-0273 dated November 25, 2013.

The change to the QATR is being made in accordance with the requirements of 10 CFR 50.54(a)(3). The change involved no reduction in commitments and therefore did not require prior NRC approval. 10 CFR 50.54(a)(3) requires that changes that do not reduce the commitments be submitted in accordance with 10 CFR 50.71(e). Revision 84 is the current version of the QATR that is in use at PSEG, and became effective on November 14, 2014.

A summary of the changes made to the QATR in Revision 84 is provided in Enclosure 1 of this letter. Enclosure 2 of this letter provides a copy of Revision 84 of the QATR for information purposes.

Enclosure 3 contains complete updated copies of the Salem Unit 1 and Unit 2 Technical Specification Bases with changes through May 22, 2015.
An evaluation was completed to determine whether any newly-identified SSCs existed in support of submitting Salem UFSAR Revision 28. This evaluation involved reviewing pertinent documentation for the period subsequent to the last Salem UFSAR revision. The evaluation concluded that there were no newly-identified SSCs and no changes to the Salem current licensing basis that would have caused any newly-identified SSCs for which aging management reviews or time-limited aging analyses would apply.

As required by 10 CFR 50.71(e)(2)(i), I certify that to the best of my knowledge, the information contained in the Enclosures and Attachments to this letter accurately reflect information and analyses submitted to the NRC, or prepared pursuant to NRC requirements as described above. There are no regulatory commitments contained in this letter.

If you have any questions or require additional information, please do not hesitate to contact Mr. Lee Marabella, at (856) 339-1208.

Sincerely,

[Signature]

Paul Duke
Manager, Licensing
PSEG Nuclear, LLC

Attachments:

1. Summary Report of UFSAR Changes
2. UFSAR page removal/insertion instructions
3. Salem Units 1 and 2 UFSAR Revision 28 Text, Tables & Figures

Enclosures:

1. Quality Assurance Topical Report, NO-AA-10, Revision 84 Summary Of Changes
2. Quality Assurance Topical Report, NO-AA-10, Revision 84
3. Salem Nuclear Generating Station Unit 1 & Unit 2 Technical Specification Bases as of May 22, 2015
CC  (Cover letter, enclosures 1 and 2 and Attachment 1 only)

Administrator - Region I
U. S. Nuclear Regulatory Commission (Attachments 2 & 3 distributed by Document Management)

Licensing Project Manager - Salem and Hope Creek
U. S. Nuclear Regulatory Commission

USNRC Senior Resident Inspector - Hope Creek

USNRC Senior Resident Inspector – Salem (Attachments 2 & 3 distributed by Document Management)

Manager, New Jersey Bureau of Nuclear Engineering

Salem Commitment Coordinator

Hope Creek Commitment Coordinator

Corporate Licensing Commitment Coordinator